

D-12232/

2,4-D

A/H

Enl

R & D REPORT

DOW CHEMICAL U.S.A.

RESTRICTED: for use within The Dow Chemical Company only.

LABORATORY REPORT CODE

OC/78-85

DATE ISSUED

October 27, 1978

DEPARTMENT

ORGANIC CHEMICALS RESEARCH

LAB. NO.

PROBLEM NO.

0 5 0 9 0 0 0 0 0 0

TITLE

A STUDY OF THE FORMATION AND REMOVAL OF IMPURITIES IN THE
PROCESS FOR 2,4-D

57

PAGES
IN FULL
REPORT

AUTHOR(S)

K. L. Krumel & R. F. Arnold

AUTHOR(S) SIGNATURE(S)

K. L. Krumel R. F. Arnold (by K.L.K.)

REVIEWER'S SIGNATURE

W. D. Davis

This
report
is:

☒ INTERIM☐ FINAL

and mainly:

☒ NEW☐ REVIEW

DESCRIPTIVE SUMMARY
WITH CONCLUSIONS:

(Include in this space references to data books, and to earlier related reports, patents and publications.)

Shortly after the startup of the 2,4-D process in 948 Building, a new and unexpected class of nonacidic impurities were isolated in which two of the major components were tetrachloroxanthone and octachlorospirobixanthene. These impurities were causing problems in the subsequent formulation of 2,4-D as amine salts.

A project was started to learn the source of these impurities and methods for controlling them. It was found that the impurities are formed mainly in the 2,4-D reaction step by several different routes

A number of techniques were evaluated for removing the impurities

None of the treatments were totally successful.

pjd

20202

DISTRIBUTION:

DEPARTMENT FILES
R & D ADMINISTRATION
CENTRAL REPORT INDEX - 5 COPIES
(566 Bldg. - Midland)

Distribution list
is continued on
attached page.

CRI NUMBER

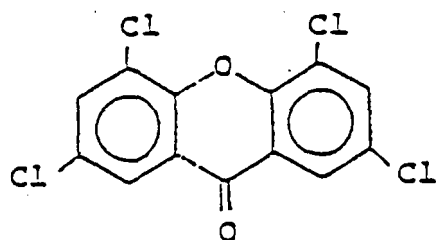
TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION -----	2
RESULTS AND DISCUSSION -----	9
(a) The Mechanism of TCX Formation -----	10
(b) The Distribution of TCX in the Process -----	26
(c) Reduction of TCX by Chemical Means -----	30
(d) Reduction of TCX by Physical Means -----	38
GENERAL CONCLUSIONS -----	50
SAFETY & ECOLOGY -----	50
EXPERIMENTAL -----	51
ACKNOWLEDGEMENTS -----	56
REFERENCES -----	57

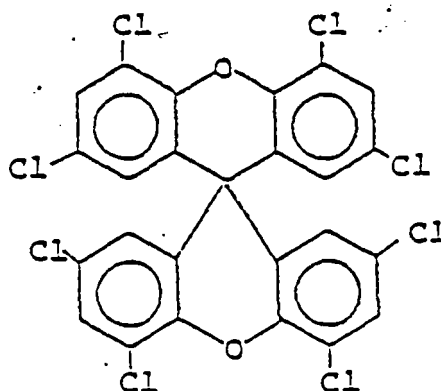
INTRODUCTION

A process for preparing high purity 2,4-D was started in May 1977 at 948 Building. The high purity molten acid is transferred by pipeline from 948 Building to 489 Building where it is formulated into esters and water soluble amine salts. Starting in late October 1977, precipitates were observed regularly in diluted amines formulations that were found to be made up of a number of impurities associated with the process but that were never detected during laboratory or pilot plant development work. In addition, these impurities were not found in the old 489 Building 2,4-D process. R. McLachlan¹ analyzed the precipitates and found 1,3,6,8-tetrachloroxanthone (I: TCX), 1,1'3,3'6,6'8,8'-octachloro-9,9'-spirobixanthene (II: OCSX), and marginally soluble salts of 2,4-D.

DOW 267736



(I)



(II)

A screening program in the plant showed TCX at levels of 200-500 ppm in the crude reaction mass, the recycle solution, and in the final product. Levels of 1000-2000 ppm were found in the solvent and as much as 10% in the still tars.

McLachlan¹ analyzed a sample of still tars and his results are summarized in Table 1.

20204

Table 1: An Analysis of One Tar Sample

<u>Structure</u>	<u>Approximate Percentage</u>	<u>Comment</u>
	60%	Main Component
	25%	From a heat exchanger leak (Dowtherm J)
DCP	0.5%	raw material
2,4-D	0.01%	Product
TCX (I)	1.5%	
OCSX (II)	1.1%	
Dichlorophenyl- dichlorovinyl ether	1.2%	Rxn product
Dichlorophenyl- trichlorovinyl ether	0.8%	

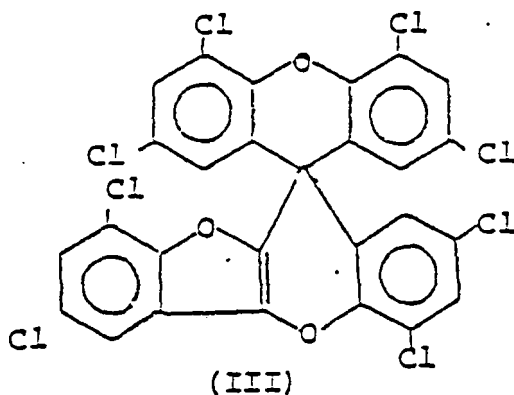
Plus:

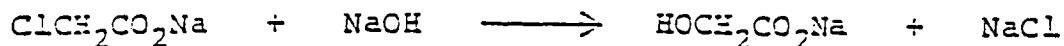
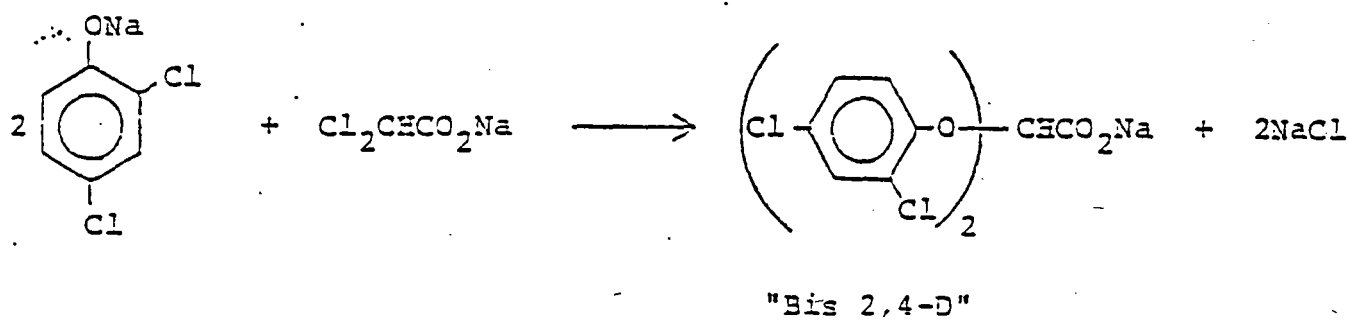
at least eleven other minor components structurally similar to the above. See Ref. 1 for details.

20205

A project was started to study the formation of TCX and OCSX in some detail to learn more about their formation and fate in the process because it is not obvious how they are made. Several months after starting this study, another significant impurity was found in the product and, to a lesser extent, in the tars. It was identified as (III: "8-5") 2,2',4,4',5',7,7',9-octachlorospiro-(benzofuro(3,2-b)-benzopyran-11,9'-xanthene).

DOW 267738



Important Side ReactionsGlycolic Acid

The reaction is performed in two stages by first reacting 2.2 moles of DCP with 1.2 moles of caustic (added as 50% NaOH) to form a solution of NaDCP in DCP.

High purity 2,4-dichlorophenol (2,4-DCP) made by the chlorination of phenol with sulfuryl chloride in the presence of FeCl_3 /Diphenyl sulfide catalyst is used with chloroacetic acid (MCAA) made by the oxidation of vinylidene chloride to make 2,4-D as shown above. The typical raw materials analyses for each is shown in Table 2.

Table 2: Typical Raw Material Analyses for the 2,4-D Process

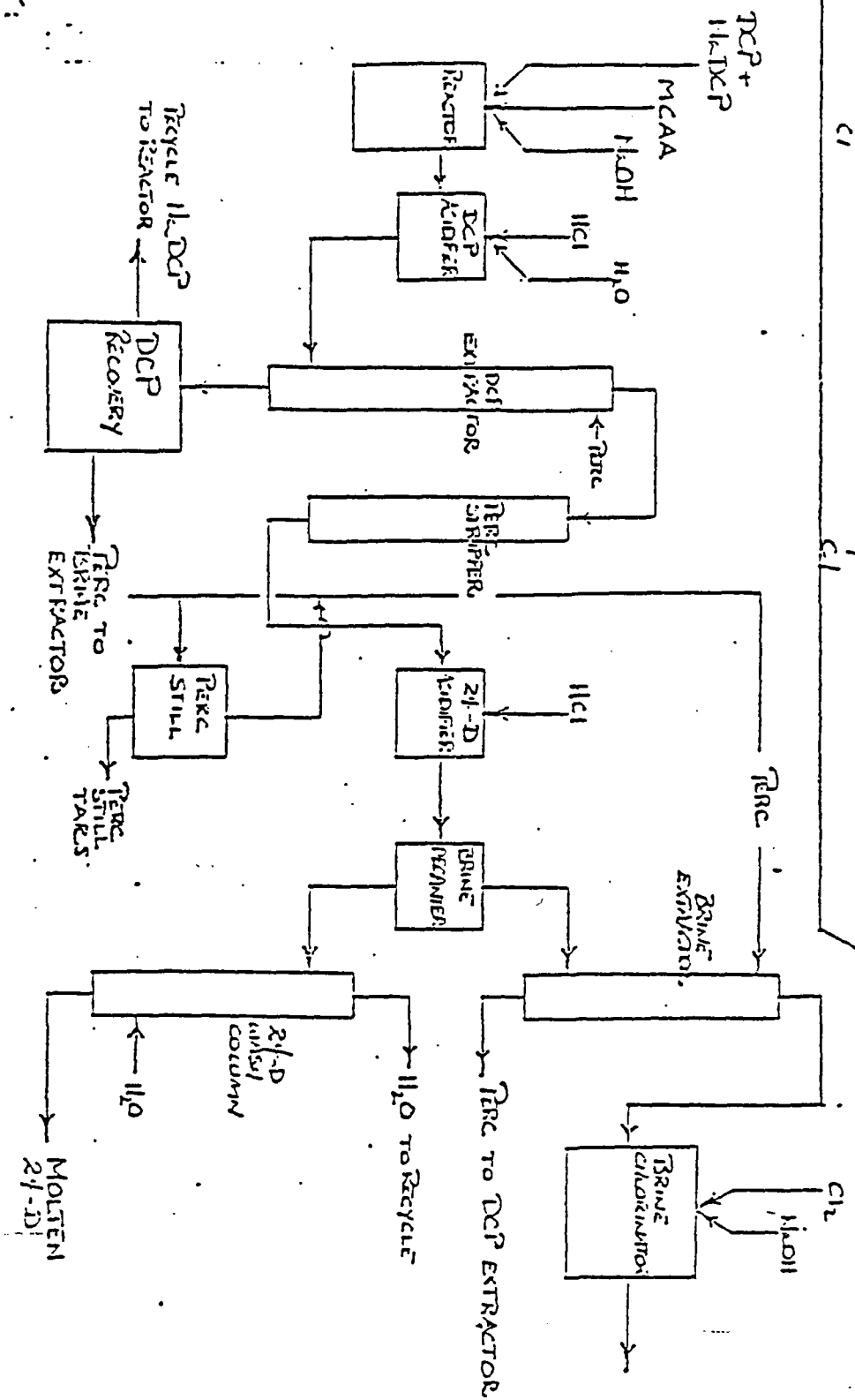
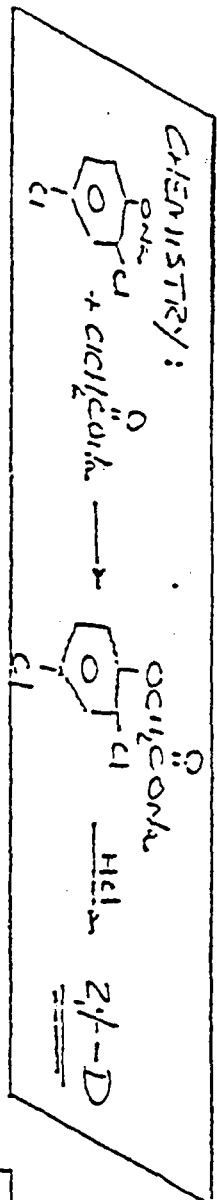
	<u>DCP</u>		<u>MCAA</u>
2,4-DCP	98.5%	MCAA	99.0%
2,6-DCP	~0.9%	Dichloroacetic acid	0.3%
Other Chloro-phenols	~0.5%	Chloromaleic acid	~0.05%
		H_2O	<1.0%

20207

DOW 267740

A rapid initial screening of the toxicity of purified TCX and tars gave the following results.

	<u>Oral LD₅₀</u> <u>(single dose)</u>	<u>Skin/Eye</u>
Tar (contains 3-5% TCX + OCSX)	>5g/Kg	slight transient initiation. Chloracne response after 10 applications of neat tars.
Purified TCX	>4g/Kg	not irritating. Chlor- acne response after 10 applications of 1% solution in CHCl ₃ .



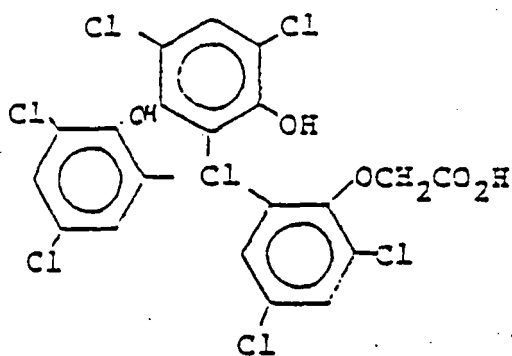
21--D Process

These results are encouraging from a plant hygiene standpoint, but more data is necessary regarding long term effects. When the impurities were first discovered in the plant the still was used very occasionally

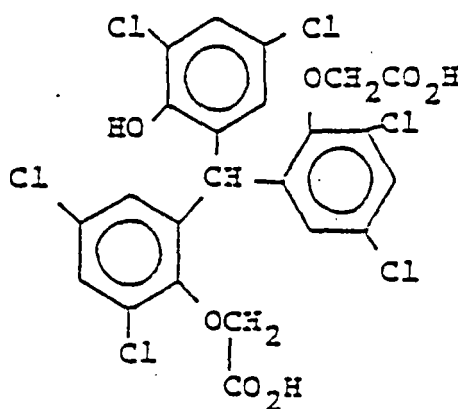
The still was originally added to the process as a way of purging contaminants out of the stream to maintain high quality recycle solvent. At this point, tar impurities made up 60-75% of the precipitates formed in diluted amines formulations.

About February 1978, the capacity of the still was increased and the average levels of TCX levels dropped to ~50 ppm in the crude reaction mass and product and to 200-300 ppm in the recycled. From the period of March-May 1978, the ability to produce quality 2,4-D continued to improve and the amount of tar impurities found in the dilution test precipitates dropped

. The balance were sparingly soluble metal salts of 2,4-D and some new impurities called Complex 1 and Complex 2, two of which are shown below (IV & V).



IV



V

In July 1978, the still capacity was increased and efforts gained at understanding the parameters affecting formulation quality by S. Siegel (OCR), S. Schell (Production 489), and J. King (Formulation - 9001 Bldg) and their co-workers have greatly improved

DOW 267742

20210

the consistency with which 948 Bldg. 2,4-D can be formulated. Based upon partition coefficients and data on the rate of formation of TCX to be discussed later in this report, K. E. First⁴ (Process Engineering) generated a computer program which predicted that by distilling of recycle the steady state level of TCX in the product would be ~10 ppm and in the recycled perc the TCX level would be ~40 ppm.

The purpose of this report is to present data on the formation and fate of the impurities in the 2,4-D process. In addition, the results of experiments aimed at reducing or eliminating the impurities by chemical and physical methods will be presented.

RESULTS AND DISCUSSION

This study was divided into the following sections and the results of each are discussed separately.

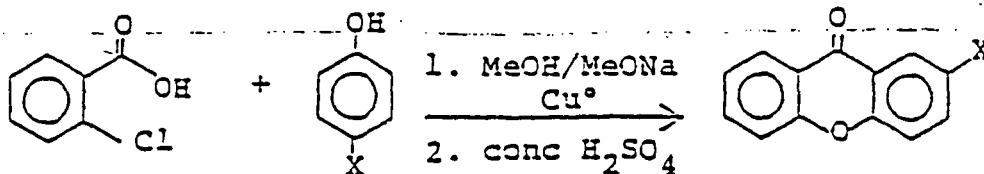
- (A) The mechanism of TCX formation.
- (B) The distribution of TCX in the process.
- (C) Reduction of TCX by chemical means.
- (D) Reduction of TCX by physical means.

Although there are many impurities formed in this process, it was decided to focus the research on TCX for several reasons: (1) The rate and mode of formation of TCX was the most predicable of the major multicyclic impurities; (2) it was a major impurity; (3) a pure sample was readily obtained (by D. Humbert, Anal. Lab); (4) the analysis is not complicated; and; (5) structurally, it is the simplest of the multicyclic impurities.

20211

(A) The Mechanism of TCX Formation

A brief search of the literature including Chemical Abstracts showed that the xanthone ring system is formed from a number of reactions.⁵ A common synthetic reaction is shown below in which the -X is included

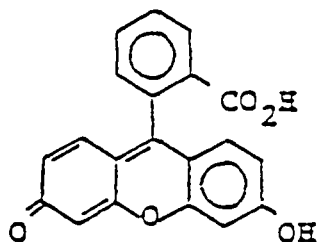
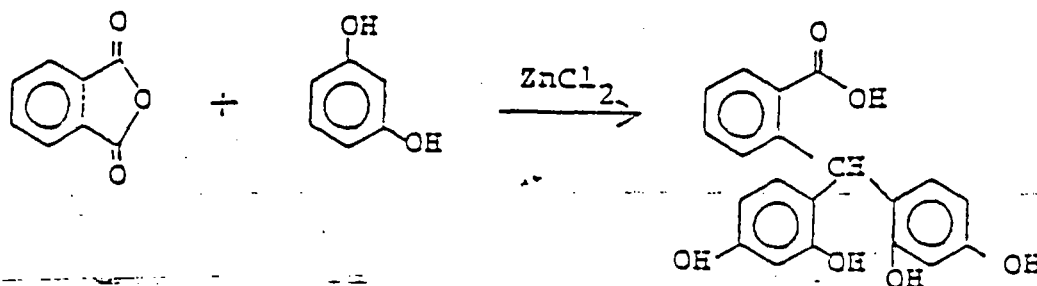


to show the orientation of reaction. Xanthone is formed along with other products from the pyrolysis of o-chlorobenzoic acid, salicylic acid, aspirin, o-phenoxybenzoic acid, and salts of the carboxylic acids. Most of these cyclizations take place in the presence of acidic catalysts such as P_2O_5 , AlCl_3 , Acetic anhydride, or sulfuric acid. Xanthone is prepared in reasonable yield⁶ by the pyrolysis of phenol salicylate with or without a catalyst.

The ease of formation of ring systems that are structurally similar to xanthenes is most clearly shown by the formation of fluorescein and fluorescein dyes. Fluorescein⁷ is made by reaction of phthalic anhydride and resorcinol as shown on the following page.

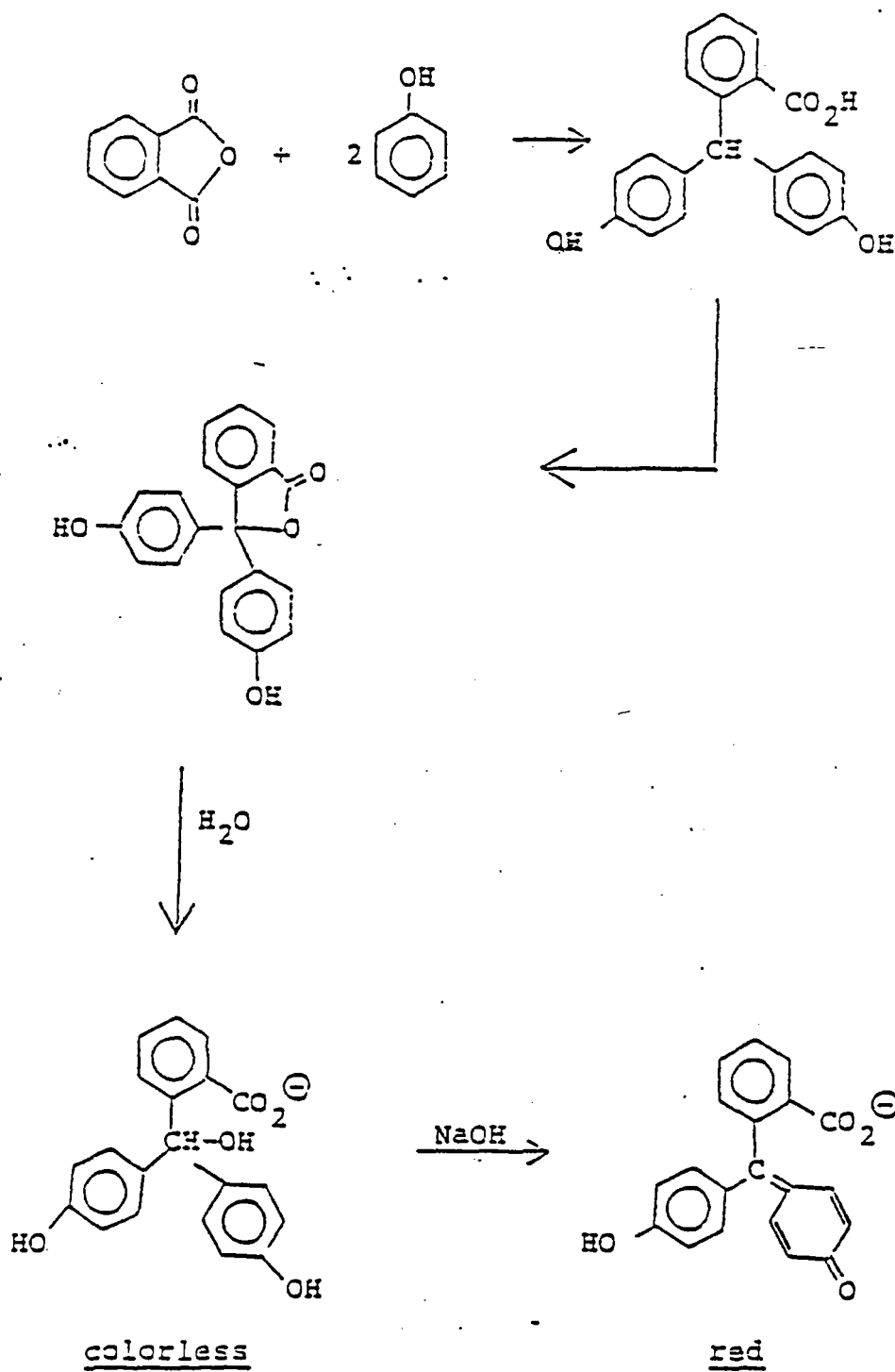
DOW 267744

DOW 267745



Phenolphthalein⁸ is also made by this process using phenol instead of resorcinol.

DOW 267746



These background data give some important clues as to reaction mechanisms as will be shown later in the report.

20014

In order to understand the pathway of TCX formation, a series of ampoule tests were performed to determine which chemicals and/or combinations give rise to TCX. Table 3 summarizes the results of this study. A series of ampoules (25 ml capacity) were charged with 3-6 gms of mixtures in molar ratios as shown in Table 3 and were heated in an oil bath for 72 hours at 160°C. The sources of the chemicals were as follows:

2,4-D: High Purity Rhone-Progil Acid

DCP : Doubly distilled 948 Bldg material

Perc :

NaOH :

Glyoxal :

Glyoxylic acid :

Tetrachloroethane :

(50:50 1,1,2,2- & 1,1,1,2-isomers)

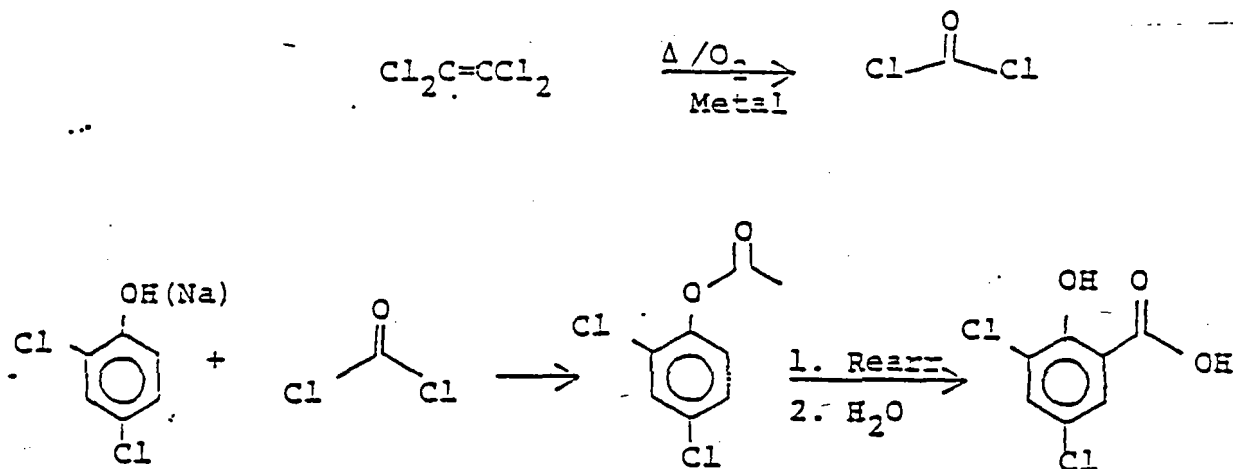
Reagent materials

20215

Table 3: The Formation of TCX from Synthetic Mixtures Heated at
160° for 72 hrs.

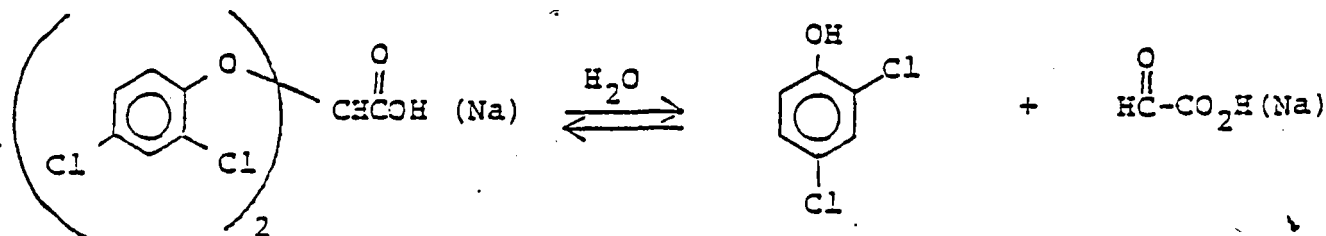
Several compounds other than those found in the process were tested. The tetrachloroethane mixture is a known contaminant in the 941 Bldg. chloroacetylchloride that is used to make MCLA. 2,5-Dichlorosalicylic acid is a proposed intermediate from the reactions suggested below:

DOW 267749



The decomposition of perc to yield phosgene is known⁹ but the second reaction is only speculated.

The glyoxylic acid is postulated to come from bis 2,4-D as shown below:



which is a well known acetal hydrolysis. The glyoxal was included to show the general nature of the reaction whose mechanism is suggested later in this report.

20217

Several tentative conclusions can be made from the data in Table 3.

- (a) TCX can be made by several routes
NaOH and/or NaDCP is necessary for the formation of TCX.
obis-2,4-D appears to be a key intermediate.
cPerc is a source of TCX.
- (b) Significant amounts of TCX are probably made only in the reactor crude storage tank in the plant since strong base is required. Run 14 (Table 3) simulates the Na 2,4-D storage tank (V-501: 948 Bldg) and Run 1 (Table 3) simulates the product storage tank (V-602: 948 Bldg) in which no TCX was observed.

In order to study the formation of TCX as a function of reaction parameters, a series of 2,4-D reactions were performed in the laboratory. These reactions were run to evaluate the effect on the amount and rate of TCX formation. The data are summarized in Table 4. In these experiments, 1.1 mol of DCP was treated with 0.6 mol of caustic and the mixture was heated to 130°C. The majority of the water that was formed was boiled off. To this mixture, 0.5 mol of NaOH and 0.5 mol of MCLA were con-added during 1 hr at 130° and the crude product was heated an additional 1 hr. Water was continuously distilled out during the con add step. At this point the desired number of ampoules were charged with 5-10 gms of crude reaction mixture and were heated in oil baths at 130°, 145°, and/or 160° for 24, 48, and 72 hours.

DOW
267750

Table 4: The Parameters Affecting the Formation of TCX
in the Semi-Hydrous Process for Preparing 2,4-D

Run/ Temperature	Reaction Time		Yield %	pH	Air %	Water %	TCX Formation				Comments	
	min	sec					AT Time					
							TCX	TCX	TCX	TCX		
✓ C-10-5-10 91200	20	30	3.1	1.2	Air	-	130 145 160	N.D. N.D. 14	72 22 125	23 48 234	32 110 223	
✓ C-10-5-10 91200	20	30	3.4	1.2	Air	1.1%	130 145 160	N.D. 74 6	13 22 76	23 73 132	42 127 222	
✓ C-10-5-10 91200	20	30	3.4	1.2	N ₂	1.1%	130 145 160	N.D. N.D. 72	72 22 56	17 57 111	19 164 163	
✓ C-10-5-10 91200	20	30	3.2	1.2	Air	-	130 145 160	N.D. N.D. N.D.	8 24 52	12 - 93	13 57 94	
✓ C-10-5-10 91200	20	30	3.2	1.2	Air	1.1%	130 145 160	- - -	14 24 49	22 57 96	53 96 144	
✓ C-10-5-10 91200	20	30	3.2	1.2	Air	-	160	N.D.	49	91	-	200 FROM THE OLD DRY PROCESS DIRECT CONDENSATION; LOWER PRESS
✓ C-10-5-10 91200	20	30	3.2	1.0	Air	-	160	N.D.	72	52	257	CHARGE 90 HAS HEATING
✓ C-10-5-10 91200	20	30	3.2	1.2	Air	-	160	N.D.	167	427	575	CHARGE 90 HAS HEATING
✓ C-10-5-10 91200	20	30	3.2	1.2	Air	-	160	-	12	41	56	
✓ C-10-5-10 91200	20	30	3.4	1.2	Air	-	130 160	5 81	7 219	12 444	29 444	200 FROM THE OLD DRY PROCESS DIRECT CONDENSATION; LOWER PRESS
✓ C-10-5-10 91200	20	30	3.4	1.2	Air	-	130 160	6 -	16 241	30 706	75 1032	
✓ C-10-5-10 91200	20	30	3.4	1.2	Air	1.1%	130 160	N.D. -	9 177	23 255	42 908	
✓ C-10-5-10 91200	20	30	3.4	1.2	Air	-	130 160	9 -	14 273	37 365	125 952	200 FROM THE OLD DRY PROCESS DIRECT CONDENSATION; LOWER PRESS
✓ C-10-5-10 91200	20	30	3.4	1.2	Air	-	130	5	61	223	394	

77219

The data in Table 4 show a number of interesting points. It must be emphasized that in view of the fact that these data are based on parts-per-million chemistry, the precision must be subject to some error. The data are reproducible to about 20%.

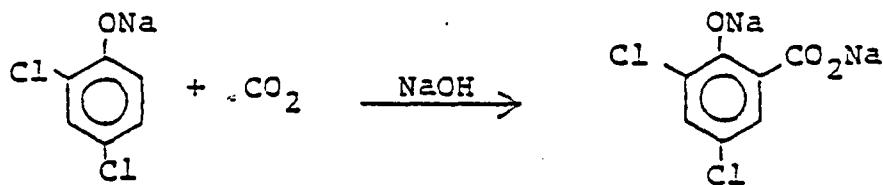
DOW 267752

more facile route to TCX from perc whose effect is masked at the higher temperatures by a primary route (compare Table 4, Runs 1 & 2 and Runs 3 & 4).

(C) Effect of Atmosphere in the Reactor

Nitrogen blanketing appears to lower the TCX level to $\sim 2/3$ that observed in air. It is not certain that this result is significant and since the magnitude of the drop was low, further work was not warranted. Since CO_2 is known to be present¹⁰ in the vapor space throughout the 2,4-D process, a run was made to determine its effect on TCX formation. Carbon dioxide comes into the process from the caustic and from perc decomposition.

The reaction was run as described earlier with 20 mols of NaHCO_3 added before the boil down step and then blanketing the reaction mass with CO_2 during the post reaction heating step. Since this is a high temperature, nearly anhydrous process, the following reaction was thought possible which could eventually lead to TCX (See Table 3, Runs 15 and 16).



Comparing Runs 1 and 10 (Table 4) show that NaHCO_3 and/or CO_2 do not measurably affect the formation of TCX.

20221

(D) Changing NaDCP/NaMCAA Ratio

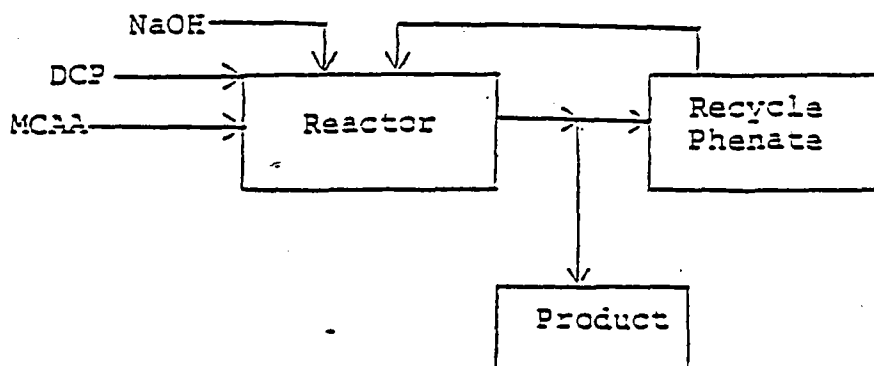
Comparing Runs 1 and 7 (Table 4) show that lowering the NaDCP/NaMCAA ratios significantly reduces the TCX levels as was also predicted from the data in Table 3. The effect was studied further and is discussed later in this report.

(E) Source of DCP

A run was made using the old lower purity DCP from the 349 Bldg process and assure that 948 Bldg, high purity, DCP was not a source of TCX. Run 6 shows that TCX formation is not associated with the source of DCP.

(F) Effect of Ferric Ion

Runs 11-14, Table 4, show that Fe^{+3} clearly increases the rate of TCX formation which suggest that alkylation step(s) are involved. D. Humbert and colleagues⁷ performed a material balance of Fe in the following scheme.



DOV 267751

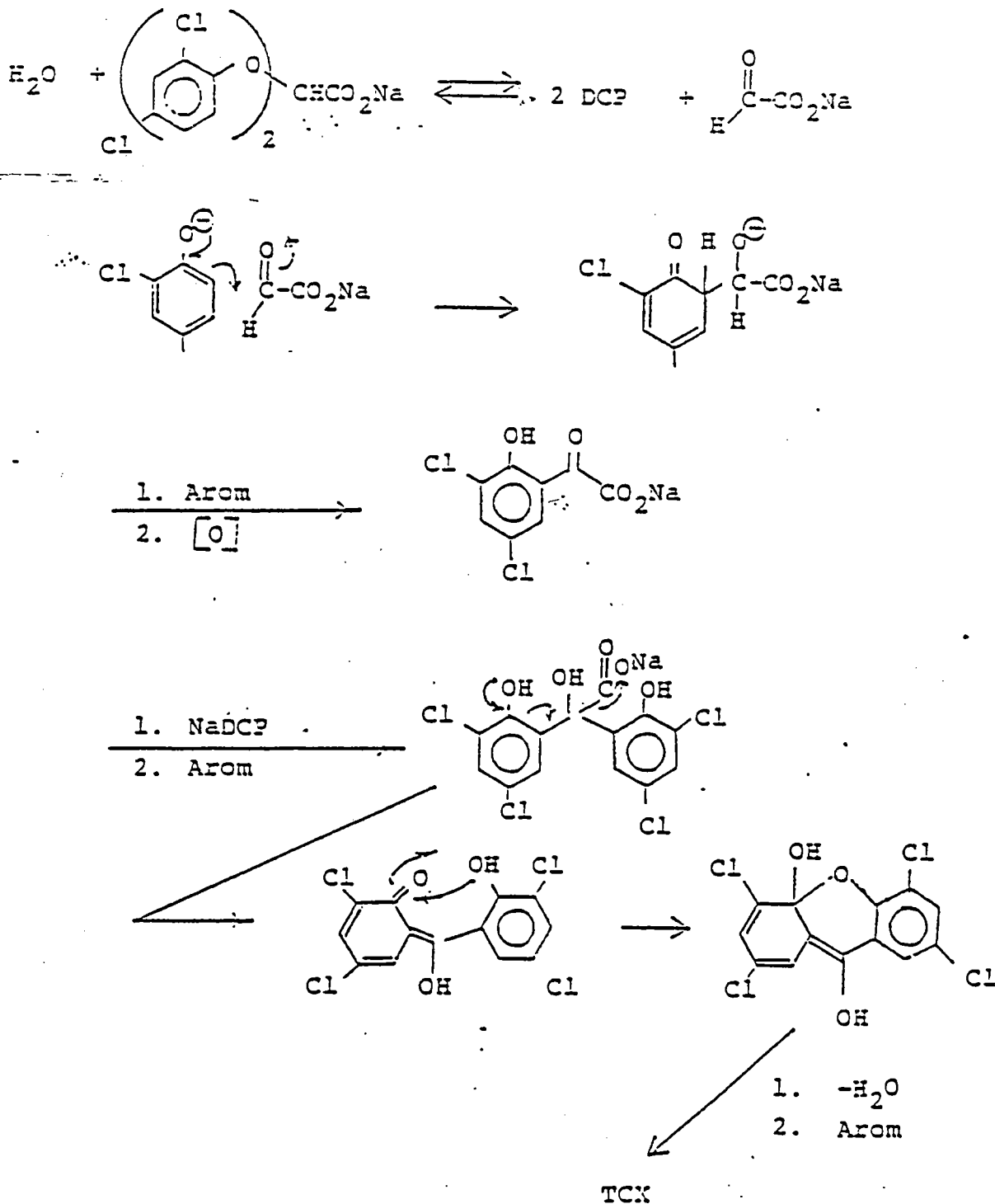
They found that most of the iron is entering the process in the caustic and that the reactor normally contains 20 ppm of Fe^{+3} . A recurring problem for the past several months was how to explain the fact that the plant observed TCX formation rates that were 5 times greater than the lab. The iron results explain at least part of this discrepancy and suggest that efforts aimed at removing iron from the process are desirable.

Based upon the data presented up to this point, the mechanism shown in Figure 1 for TCX formation is suggested. This mechanism is consistent with the observations of the effect of caustic, the fact that TCX can be made from NaDCP and glyoxal or glyoxylic acid and the levels of bis-2,4-D. If this mechanism is correct, it is easy to see how perc can influence TCX formation when one considers the possible hydrolysis products using either NaOH or NaDCP. Some of these possibilities are shown in Figure 2 and many are known precursors to TCX.

In addition to TCX, OCSX and "8-5" are known to be formed in measurable quantities during the reaction to 2,4-D. It was initially assumed that TCX is the probable precursor to OCSX and "8-5". However, a series of ampoule experiments in which TCX was mixed with various ratios of DCP, 2,4-D, NaOH, and perc showed none formed in detectable amounts. In addition, a reaction was run in the presence of 500 ppm of added TCX and gave normal levels of the impurities when the 500 ppm of added TCX is subtracted out. It is apparent that OCSX, "8-5", and TCX are probably made by independent routes and proposed mechanisms are shown in Figures 3 and 4.

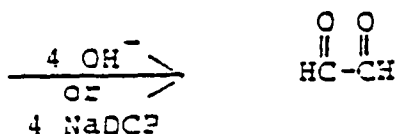
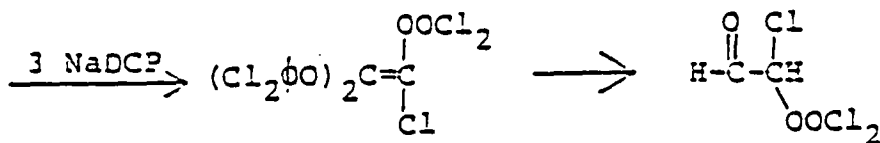
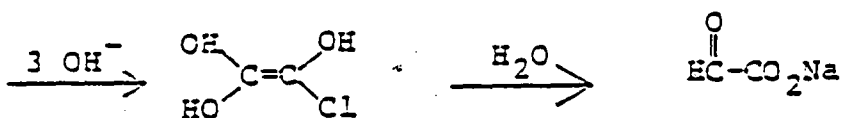
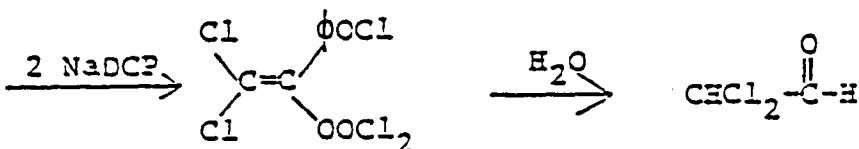
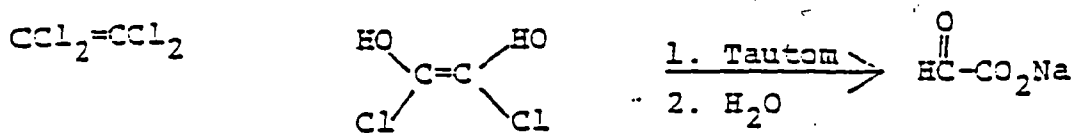
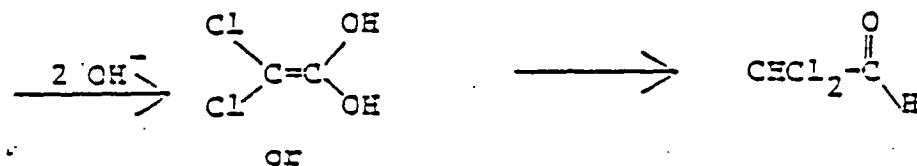
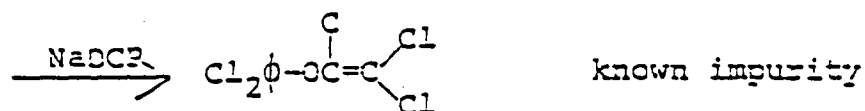
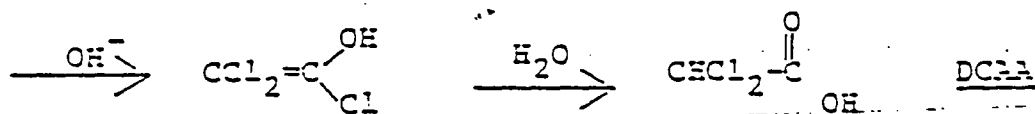
20223

Figure 1: Proposed Mechanism of TCX Formation



DOW 267756

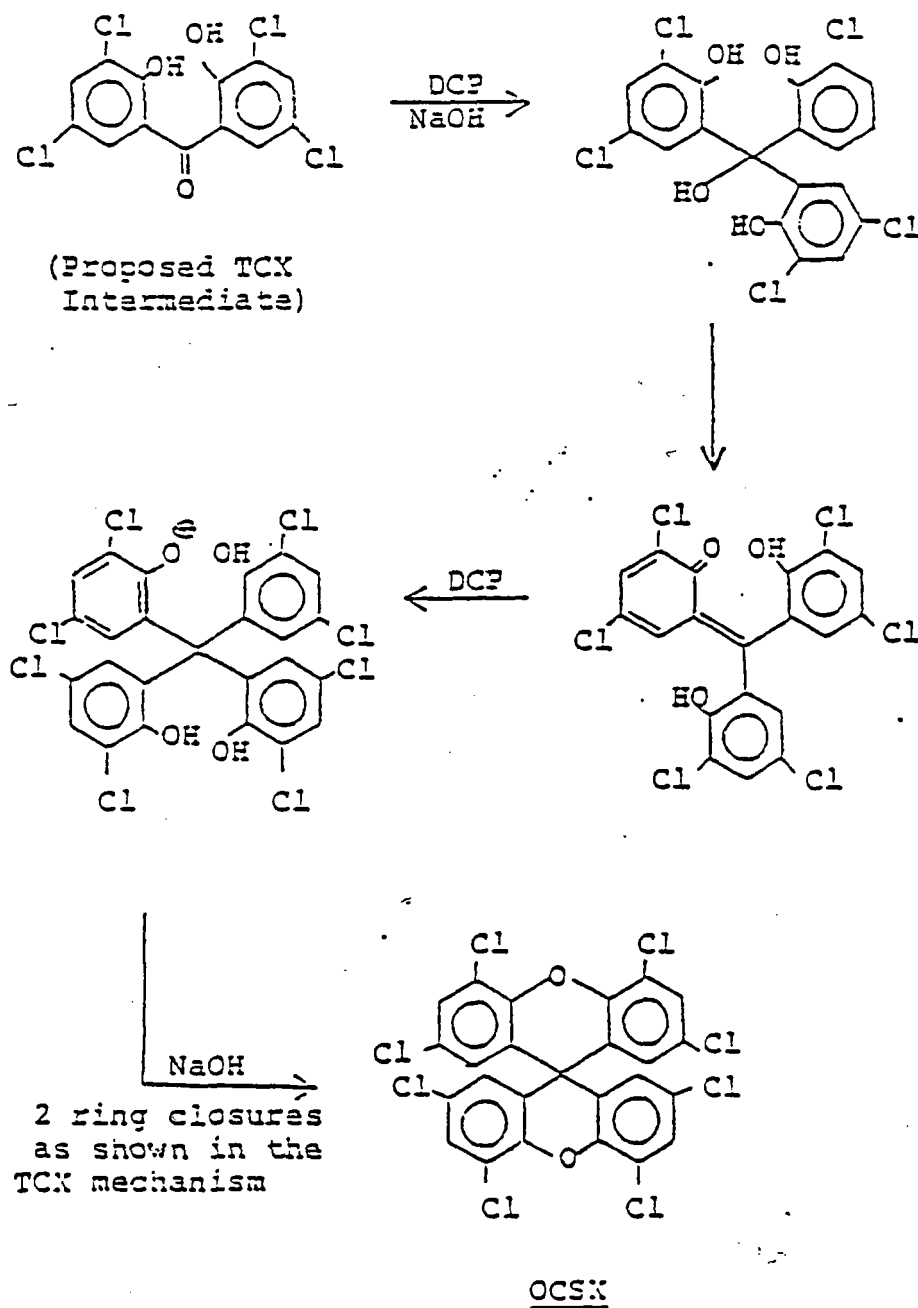
Figure 2: Some of the Possible Products of the Hydrolysis of Perchloroethylene with NaOH or NaDCP



20225

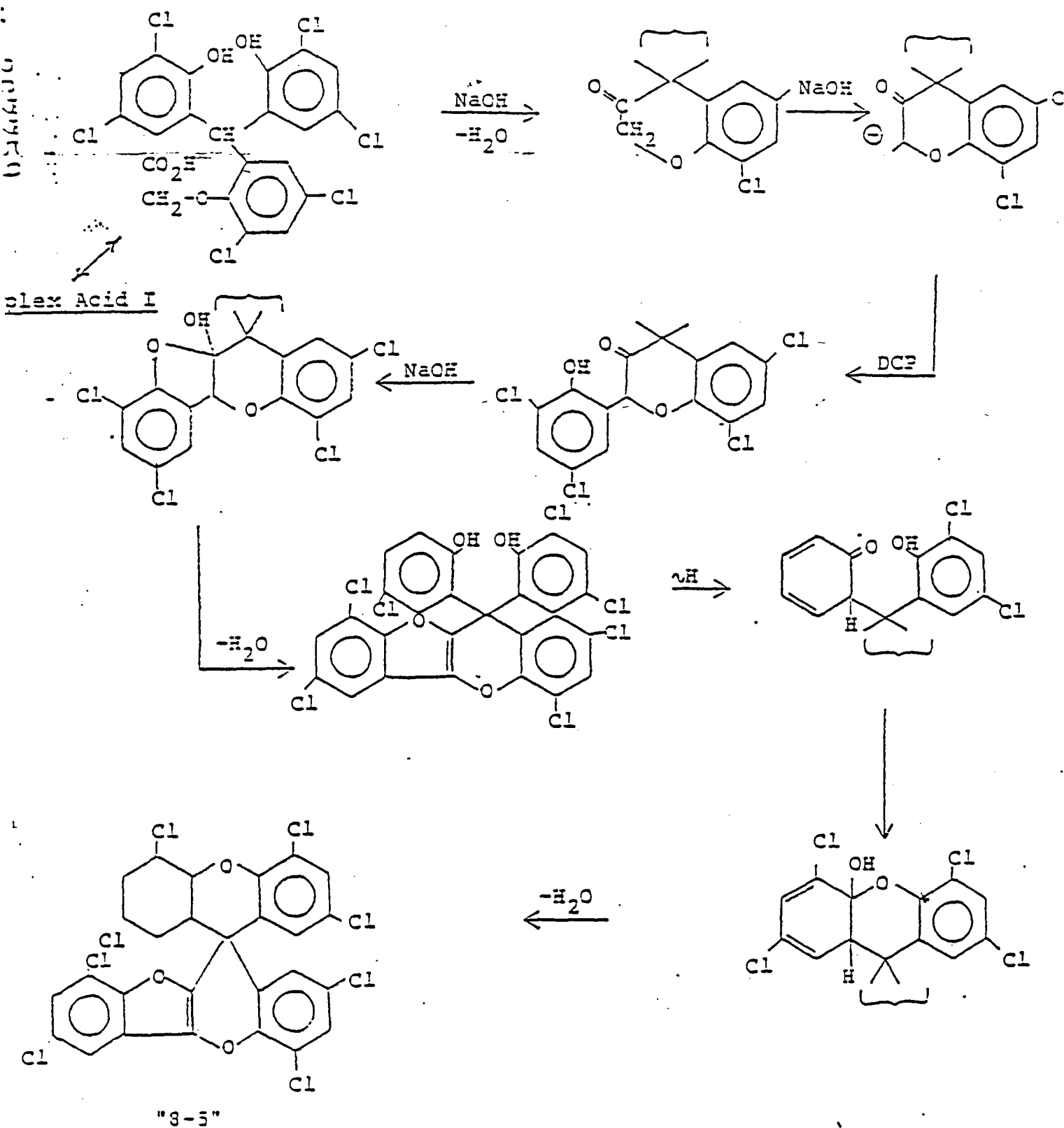
DOW 267758

Figure 3: Proposed Mechanism for the Formation of OCSX By a Route That is Independent of TCX



20226

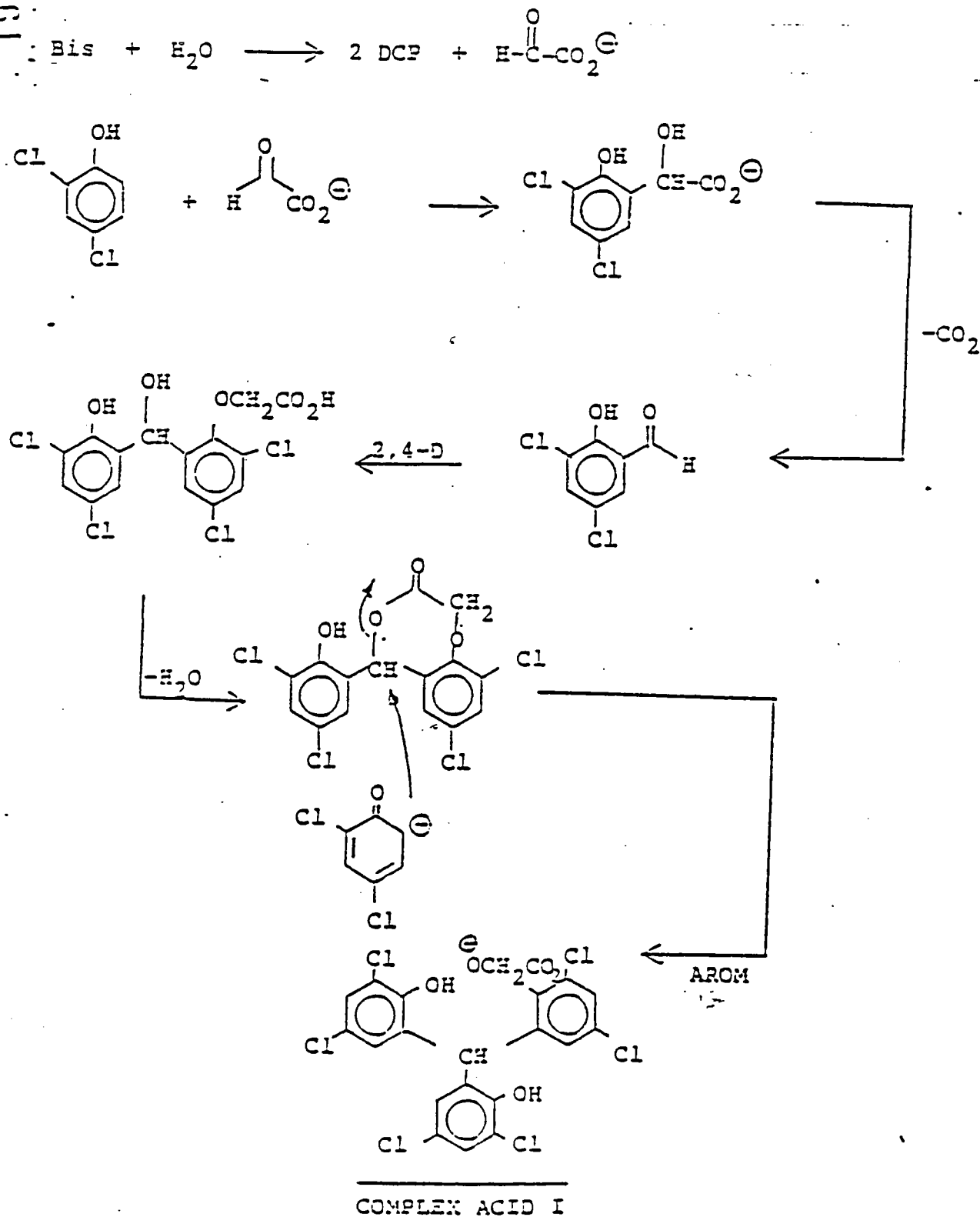
Figure 4: Proposed Mechanism for the Formation of "8-5" By a Route that is Independent of TCK



The formation of OCSX uses an intermediate in the TCX mechanism as its starting material. The apparent fact that TCX is not an intermediate suggests that the more activated dihydroxy ketone is necessary for alkylation. The mechanism for "3-5" formation involves a major component in the Complex I and II mixture as a starting material. Recent analytical results¹⁰ have shown ~100-200 ppm of this mixture in the process. A proposed mechanism for the formation of Complex Acid I is shown in Figure 5. It must be emphasized that the mechanisms shown in Figures 3, 4, and 5 are speculations and are only one of a number of possibilities. Much more work is necessary to prove their accuracy.

DOW 267760

Figure 5: Proposed Mechanism for the Formation of the Major Impurity in Complex I mixture (Compound IV)



25229

V-602: Final Product Storage Tank: Tests run at 120-175° on wet and dry 2,4-D¹¹ showed that there is an initial slow build up of about 20 ppm of TCX during the first 48 hrs at >160° that stabilizes out. This suggests a small amount of an unstable unknown species that decomposes in acidic media. Molten 2,4-D can be treated for at least 100 hrs under the above conditions without affecting product performance.

Since TCX is formed in the reactor and was found throughout 948 Bldg process, a laboratory study of the distribution was requested. In this experiment a reaction was carried out and the crude reaction mass was spiked with TCX. The purification process was then simulated and the fate of the TCX was determined. Figure 6 summarizes the results of the extraction study performed at 90°/atm.

DOV
267762

These data show an excellent TCX recovery in which, using clean perc, all the detectable TCX is removed from the Na 2,4-D solution. The fact that the plant observes some TCX in the product suggests that some entrained perc is carried overhead so that the impurities carried with it end in the product. The extraction of the perc/DCP mixture with caustic to recover the NaDCP also extracts about 5% of the TCX which is recycled to the reactor. This scheme was followed in a second experiment that was performed at 125°/ 35 psig which more closely follows the plant conditions. Under these conditions the aqueous solutions can be more concentrated in Na 2,4-D, NaCl, and DCP which could affect the distribution of TCX.

A high pressure, mechanically stirred glass reactor was constructed and was charged with partially neutralized material from V-301 (the DCP neutralizer). The molten material was extracted six times with perc at 125°C and the molten 2,4-D was isolated. The TCX and "8-5" levels were monitored throughout and the analytical results for the products are summarized in Table 5 for the two runs. The data show that TCX is effectively removed at the more drastic conditions.

Table 5: The Analysis of the Product from the High Temperature Extraction of Crude Na 2,4-D with Clean Perchloroethylene

Run	TCX (ppm)		"8-5" (ppm)		Metals (ppm)			
	init	final	init	final	Na	Fe	Ca	Mg
1	292	13	54	52	84	5	40	13
2	178	2	N.D.	25	91	3	50	16

It is interesting to note that "8-5" is not efficiently removed with perc extraction. Hence most of what is made goes out with the product. OCSX was not detected in these samples.

In summary, TCX is formed in the reactor and most of it remains in the recirculating perchloroethylene system. A certain amount of TCX spills into the product and the magnitude is directly related to the level in the perc. TCX is easily separated by distillation in the perc still so by increasing the rate of distillation one would achieve a lower steady state concentration of TCX in the perc.

Assuming a rate of TCX formation of 0.5-1.0 #/hr in the plant (based upon analyses of plant samples) K. E. First⁴ has taken distribution coefficient data and has modeled the process in terms of TCX content in various streams as a function of % of perc distilled in the perc still. To date, there is not enough in-plant data to verify this model.

(C) Reduction of TCX by Chemical Means

Two approaches for chemical reduction of TCX were studied. These were methods for inhibiting its formation during the reaction step and methods for reducing it from process streams. The following approaches were studied and each will be discussed in detail.

1. Changing NaDCP/NaMCAA ratio.
2. Post reaction neutralization.
3. Effect of DCAA.
4. Bleaching Na 2,4-D solutions.

(1) Changing NaDCP/NaMCAA ratio

Excess caustic or NaDCP was shown earlier to have a significant qualitative effect on the increased production of TCX. The 2,4-D reaction as developed by H. Brust¹² used a ratio of NaDCP/NaMCAA = 1.2. As described earlier in the discussion, at this ratio the product contains theoretically ~6.3 mole % excess alkalinity as NaDCP as shown on the following page.

DOV
267764

<u>Sto Mat'l</u>	<u>Product</u>
0.5 mol DCP	0.5 mol DCP
0.6 mol NaDCP →	0.1 ml NaDCP
0.5 ml NaMCAA	<u>0.5 mol Na 2,4-D</u>
	0.5 mol NaCl

Dhingra¹³ and Fear¹⁴ evaluated the effect of this ratio on the yield and kinetics of this reaction and concluded: (a) lower ratios (below 1.2 lead to lower yields based on MCAA and, (b) low H₂O in solution gives higher 2,4-D yields. The effect of changing the NaDCP/NaMCAA was restudied in order to determine if the lower yield from MCAA could be justified by reduced TCX formation due to less excess caustic.

The runs were carried out by using a constant amount of NaMCAA and varying the amounts of NaDCP which was done by adding differing amounts of caustic in the initial boil down step. Tables 6 and 7 and Figure 7 summarizes the results of this study. These data show that lowering the ratio from 1.2 to 1.1 results in a two fold reduction of TCX along with a 1% loss in MCAA yield. This is reasonable and was tested in the plant. After three weeks of operation, they did not note a measurable reduction for reasons that are not understood at this time. Any further reduction is not practical since the yield rapidly approaches that of the old plant thereby losing much of the advantage of the 948 Bldg process. It is interesting to note that at ratios below 1.0 there is still a measurable amount of NaDCP which explains why formation of TCX is still observed. All of the data to date indicate that formation of TCX cannot be limited to much less than 60 ppm (in the standard 72 hr/160°C ampoule test).

20223

TABLE 6

EFFECT OF NaDCP/NaMCAA RATIO ON TCX FORMATION & YIELD ON MCAA

RUN	REF	Moles			Mol Ratio NaDCP NaMCAA	ppm HOG	MCAA YIELD	CRUDE ANALYSIS			
		DCP	NaDCP	NaMCAA				Na 2,4-D	DCP	NaDCP	NaCl
1	OC 417-5-143	0.50	0.60	0.50	1.2	951	96.4%	45.4	31.2	8.9	10.1
2	OC 417-5-144	0.55	0.55	0.50	1.1	1514	94.2	45.5	38.0	6.0	7.1
3	OC 417-5-146	0.60	0.50	0.50	1.0	3808	86.8	41.3	40.3	2.2	7.1
4	OC 640-1-1	0.61	0.49	0.50	0.98	3606	86.2	43.0	41.7	2.5	7.1

DOW
267766

20234

TABLE 7

THE RATE OF TCX FORMATION AS A FUNCTION OF TIME, TEMPERATURE & $\frac{\text{NaDCP}}{\text{NaHCAA}}$ RATIO

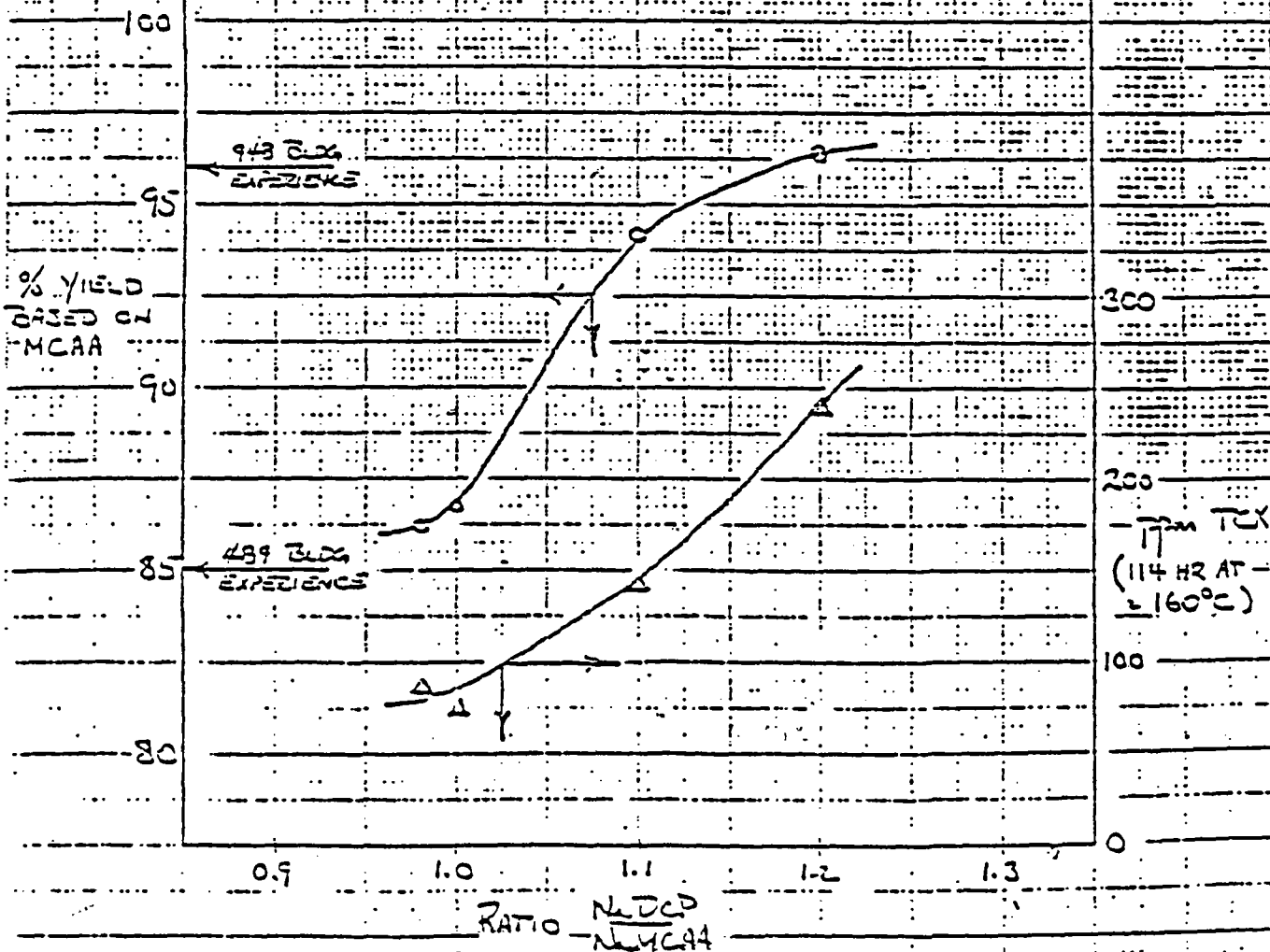
RUN	REF	TEMP	TCX/OCSX			
			18 HRS	42 HRS	66 HRS	114 HRS
1	417-5-143	130	---	---	19	53
		145	37	34	70	218
		160	29	86	118/107	240
			18	42	66	<u>114 hrs</u>
2	417-5-144	130	0	19	33	52
		145	27	39	64	93
		160	42	74	93	142
						<u>90 hrs</u>
3	417-5-146	130	<10	<10	15	30
		145	15	20	41	59
		160	29	47	55	67
						<u>90 hrs</u>
4	640-1	130	17	28	22	18
		145	23	31	34	52
		160	36	61	65	77

20236

LOW 207768

FIGURE 7 : THE YIELD OF 2,4-D
BASED UPON MCAA &
THE FORMATION OF TCX
AS A FUNCTION OF
THE $\frac{NaDCP}{NaMCAA}$ RATIO

K. KUMAR
8-16-78



(2) Post Reaction Neutralization

F. G. Aarstein¹⁵ suggested that if the reactor crude were immediately treated with enough acid to neutralize the NaDCP after the post reaction before transfer to the reactor storage tank (V-202), TCX formation might be greatly reduced. This concept was tested using 32% HCl, and dry and wet 2,4-D as the neutralizing acid. The first experiment used enough dry 2,4-D to completely neutralize the residual NaDCP. The neutralized crude showed 1.4% NaDCP and a rate of TCX formation as shown below that is consistent with the data shown in Tables 6 & 7.

	ppm TCX		
<u>Temp</u>	<u>24 hr</u>	<u>48 hr</u>	<u>72 hr</u>
160°	24	51	62

The use of wet, molten 2,4-D (25% H₂O or 32% aqueous HCl has some serious physical handling problems.

As was discussed in an earlier report¹⁶, water added to 2,4-D raises the freezing point of the mass creating a material similar to cottage cheese in consistency. In addition, the added salts (either Na 2,4-D or NaCl) also raised the freezing point of the reactor batch from a range of 115-120°C to 118-125°C.

In summary, whereas post reaction neutralization reduces TCX by a factor of four, it offers several disadvantages:

(a) it would add at least 30 min - 1 hr to the reaction cycle in a plant already reactor limited near capacity operation.

(b) Addition of acid could cause corrosion problems in the Incoloy 800 decanter .

(c) The possibility of precipitates forming in the reactor would put excessive stresses on the agitator. Their formation could not be avoided

20237

DOW

267770

in the laboratory even by very slowly adding the aqueous acid.

(d) Control of the acid addition would be difficult and, in addition, the plant would have to run a slightly smaller batch size in order to provide room for the acid. Further work on this concept is not warranted at this time.

(3) DCAA Content of MCAA

The effect of DCAA was discussed earlier.

(4) Bleaching Na 2,4-D Solutions

The major chemical difference between 948 Bldg and 489 Bldg techniques for processing crude 2,4-D is that 489 Bldg uses a bleach step in

which residual DCP is oxidized out of the Na 2,4-D solution with 8-12% NaOCl at pH 10.5/100°C. Several experiments were performed to determine if bleach would effect the impurity levels and/or improve the ability of the plant to consistently produce 2,4-D that passes the formulation dilution test. The results of these experiments are shown in Table 8.

The results of the first experiment appeared very encouraging since the dilution test solids, the TCK and the "8-5" were all significantly reduced. The second series of runs showed a consistent improvement in dilution test solids when near or out of spec, but not much effect on the impurities. A capital estimate performed by K. E. First⁴ showed the cost of implementing a bleach step in 2,4-D to be \$500,000 which immediately eliminated any further interest in this project in view of the marginal benefits. It is assumed, posthumously, that the main effect of the bleach was to reduce residual DCP which is a known contributor to poor dilution test results.

202228

Table 8: The Treatment of Na 2,4-D Solutions with Bleach

Na 2,4-D Solution Source	pH	Mol Ratio NaOCl Na 2,4-D	ml solids		Impurities (ppm)		
			DMR-4	F-40	TCX	OCSX	"8-5"
V-501 (4-7-78) 948 Bldg.	starting	material	---	0.18	58	N.D.	127
	10.5	0.1	---	0.02	25	N.D.	N.D.
V-501 (6-5-78) 948 Bldg	starting	material	0.01	TR	80	N.D.	31
	10.5	0.1	TR	TR	85	"	10
	10.5	0.2	TR	TR	85	"	26
	10.5	0.05	---	---	104	"	23
	10.5	0.1	---	---	94	"	16
	5	0.1	---	---	72	"	47

DOH 267771

7/23/79

(D) Removal of TCX by Physical Means

To date, a stage has been reached in 948 Bldg. where the 2,4-D plant can be run to consistently produce in-spec material and has demonstrated an ability to run at near capacity of 100-120 M#/day. With the perc still running at ~15 GPM, the 2,4-D product contains ~20 ppm of TCX and ~20 ppm of "8-5".

A number of attempts have been made to see if the levels of TCX can be reduced by physical means that include:

1. Carbon treatment of the recycling perc and the molten 2,4-D.
2. Removing perc from the reaction step.
3. Improved washing of the molten 2,4-D.
4. Recrystallization of Na 2,4-D and recrystallization of 2,4-D acid.

The details of each alternative are discussed below. In all cases, these experiments were short term, range finding efforts and not comprehensive. Further work is justified only if the levels of impurities presently found in the product prove unacceptable in the future from a toxicity, environmental, or performance standpoint.

(1) Removal of TCX with Activated Carbon

The removal of TCX with activated carbon from perchloroethylene from V-402 ("clean" perc storage tank) was evaluated by a standard isotherm method. A 100 ml portion of perc was treated with ground Pittsburgh SGL carbon at 70°C/72 hrs. The data, summarized in Table 9, were evaluated by a known technique¹³ that is summarized below. A plot was made of X/M vs. C on log-log paper as shown in Figure 5. By extrapolating C to incoming TCX concentration, the corresponding X/M value gives the amount of impurity absorbed per unit weight of carbon when that carbon is in equilibrium with the incoming concentration and represents the ultimate capacity of the carbon. The

DOW
267772

theoretical volume of liquid to be completely freed by TCX/gram of carbon is calculated from the following equation:

$$V_{Co} = \frac{\left(\frac{X}{M}\right)_{Co}}{Co} \cdot V$$

V_{Co} = theoretical volume to be treated

$\left(\frac{X}{M}\right)_{Co}$ = capacity/gm at incoming concentration

V = volume of liquid used in test

Co = incoming concentration

For this experiment:

$$V_{Co} = \frac{400}{241} \times 100 = 166 \text{ ml/g of Carbon}$$

or 19.9 gal of perc/¢ C

or 265 ¢ perc/¢ C

Carbon loading at 241 ppm of TCX in feed = 166 ml/g C x 1.6 g ml x .00024 =
64 mg/gC

20241

Table 9: The Absorption Isotherm for TCX Removal from Perchloroethylene with Pittsburgh SGL Activated Carbon

Sample	Impurity (ppm)			(M) WTC/100ml	(C) Resid ppm	(X) ppm TCX Removed	(X/M) ppm TCX removed gm Carbon
	TCX	OCSX	"8-9"	Perc	TCX	Removed	
STG. Mat'l	241	N.D.	19	0	241	0	---
1	159	"		0.25	159	82	328
2	108	"		0.50	108	133	266
3	57	"	17	1.00	57	184	184
4	40	"		1.50	40	201	134
5	29	"	17	2.00	29	212	106

Figure 8: THE ISOTHERMAL CURVE
FOR THE ASSOCIATION
OF TCX ON P.T.S.D.S.
SGL CATION AT 70°C

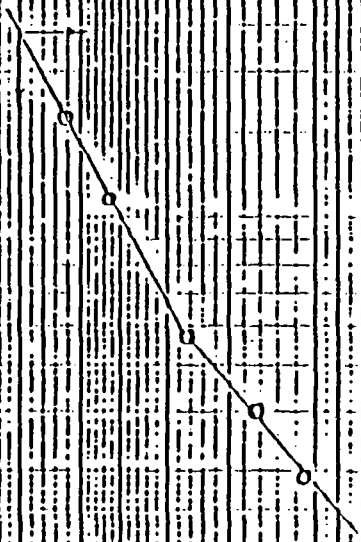
20243

100

(2)

100

10



DOW 267776

This is a low loading level and at the present rates of TCX production in the plant, about 15-20 # of carbon per hour would be required to remove the impurity. The data shown in Table 9 indicate that carbon does not remove "8-5" from perc. The shape of the isotherm curve indicates that more than one species is being absorbed onto the carbon. No effort was made to determine the identity of that compound although it was probably perc.

A run was made to remove impurities from wet molten 2,4-D. Since molten 2,-D is so difficult to handle at atmospheric pressure, pressurized system was built using a capillary feeder for controlling the continuous flow of molten 2,4-D at 100°/25 psig onto a vertical 2' x 0.5" column that was maintained liquid full. The flow rate was 10 ml/min down the column for a mass flux of ~ 1.0 gpm/ft.² The results are summarized in Table 10.

Table 10: The Treatment of Molten 2,4-D with Activated Carbon

Sample	Temp (°C)	Pressure psig	Approx feed rate ml/hr	Approx. Prod. cut volume (ml)	Product Analysis (ppm)			F-40* solids (ml)
					TCX	OCSX	"8-5"	
1	112				42	N.D.	32	.005
	110±2	33±2	300	100	--	--	--	
	110	33	600	375	14	N.D.	29	.04
	110	33	600	375	28	N.D.	38	.005
	110	33	600	376	32	N.D.	42	
	110	33	600	375	30	N.D.	36	

emulsion contains 2% Versene & 0% PG 4000

The data are fairly crude in that the column was shorter than is desirable optimum column work (2' vs the recommended 5-6'¹⁸) and the flow through column was a little faster than the more desirable 0.5 gpm/ft.² recommended.¹³

20244

POW
The data show that TCX loading is rather low. Breakthrough occurred after 900 ml molten D ($\sim 935g$ pure 2,4-D) was treated. From the analyses, the 59.8 gm of Pittsburgh SGL 8 x 30 granular carbon charged to the column absorbed 281 mg of TCX for a loading of ~ 0.5 mg/g of carbon which is quite low. Again, "8-5" was not absorbed by the carbon. Based upon these preliminary experiments, carbon absorption of these impurities is not an attractive purification technique.

(2) Remove Perchloroethylene From the Reactor

Since perc is known to give rise to TCX several methods were examined to eliminate its recycle to the reactor. At present, since perc is soluble to 1.2% in the recycle NaDCP solution, there are about 350# returning to the reactor in each batch. Since a continuous perc-phenate phase separation is performed in V-401 just before recycle to the reactor, a brief study was undertaken to evaluate the phase separation to determine the time required for complete layer separation and the solubility of perc in NaDCP solution.

A solution of 62% NaDCP and 2% NaOH in water was slurried with an excess of perc and vigorously stirred for 30 min at 75°. The stirring was stopped and the phenate layer was analyzed for % perc as a function of time. The results are summarized in Table 11. These data show that the solubility of perc in NaDCP is $1.3 \pm 0.1\%$ at 75°C and that layer separation is complete within 15 minutes. The residence time in V-401 is ~ 40 minutes so that with proper operation, no layer separation problems should result. The question was also asked if the perc was entrained in the NaDCP solution as an emulsion or was it in solution? A sample was centrifuged at 60° (minimum temperature) for 30 min at ~ 4000 rpm and 1.2% perc was found in the phenate. It is concluded that the present equipment gives optimum layer separation and the 1.2% of perc is soluble.

20245

Table 11: The Solubility and Separation Rate of Perchloroethylene and 62% NaDCP in Water at 75°C

<u>TIME*</u>	<u>% Perc in Phenate Layer</u>
5 min	1.9
15 "	1.3
30 "	1.4
1 hr	1.5
2 "	1.4
4 "	1.4
6 "	1.2
24 "	1.3

*Time zero is when the vigorous stirring of the two layers is stopped.

DOW
267778

20246

Several attempts were made to strip perc from the reaction mass and from the NaDCP solution. The plant tried to strip perc from the reaction mass during the normal boil down step. Whereas normal operation involves returning the distilled organic layer to the reactor, in this experiment the recovered organic layer was discarded. Whereas normal boil down returns 350# of DCP to the reactor, in this experiment even after 4000# of DCP was distilled off, there was still detectable perc in the distillate. As a result, this approach was judged impractical. Two attempts were made to distill the 1.3% of perc from the 60% NaDCP-2% NaOH solution.

The first involved a batch distillation from a standard solution from V-403. A total of 65.9 gms were distilled out and 73.8% of the perc was removed. The reaction was then carried out as usual and samples were heated for 24, 48, and 72 hrs and the results are summarized below. These data suggest that distillation of 75% of the perc does not reduce TCX formation (See Table 4, Runs 4&5).

	Temp	24 hrs	48 hr	72 hrs
ppm TCX	160°	21	75	145

The second approach taken for stripping out perc was using a falling film still. The results of two experiments are shown in Table 12. The results show that, as before, 70-80% of the perc is easily removed but that the last 20% is likely to be quite difficult. No more work is planned in this area until it can be better proven that removing perc offers any real advantage in reducing rates of TCX formation.

(3) Improved Washing of 2,4-D Acid

Several experiments were run to see if improved washing would affect impurity levels in the 2,4-D product. A sample of 2,4-D product was taken from V-602 (948 Bldg) and was treated in the following ways:

- (a) A 250 gm sample of molten acid was washed 3 times with 200 ml of water per wash at 100°C.

in 24 hr

TABLE 12

Preliminary Data for Falling Film Distillation of Perc From NaDCP Solution
Still: 1" x 12" Tube

	<u>Run 1</u>	<u>Run 2</u>
Pressure		
Temp (col'm)	120°	ATM.
" (feed)	75°	75°
Feed Rate (ave.)	10 ml/min	10 ml/min
Overhead Temp	85° → 90°	90° → 95°
Feed analysis		
% Perc	1.0	1.1
% DCP	51.5	50.1
Wt. Charged (Feed)	725 gms	738 gms
Product: Wt	652 gms	645 gms
% Perc	0.3%	0.2%
% DCP	53.9%	61.6%
Overhead: Wt	46.7 gms	75.0 gms
% Perc	1.5%	3.3%

DOW 267780

- POW267781
- (b) Another sample was reacidified to pH 0.5 with conc HCl and rewashed 2 times with water at 100°C.
 - (c) A synthetic V-501 mixture was made up using Rhone Progil 2,4-D to determine if any impurities are made in the washing step. The synthetic mixture was acidified and washed and the 2,4-D was recovered for analysis. This experiment was repeated in the presence of 2750 ppm of added TCX.

The results of these experiments are shown in Table 13. Based upon these experiments, it is shown that the impurities are not made or reduced by improved washing. If anything, they are slightly increased in the product due to the greater solubility of 2,4-D in the hot water or brine.

(d) Recrystallization of Na 2,4-D and 2,4-D Acid

An attempt was made to determine if the impurities could be removed by recrystallization of Na 2,4-D from water and 2,4-D acid from organic solvents. Na 2,4-D was recrystallized by taking 500 gms of material from V-501 and adding enough water (350 ml) to form a homogeneous solution at 100°C. The solution was cooled and the precipitated Na 2,4-D was filtered and washed with 5% brine. The Na 2,4-D was redissolved in hot water and the 2,4-D was isolated and analyzed. The results are shown in Table 14.

In two separate experiments, 2,4-D from V-602 was recrystallized from perchloroethylene and ethylbenzene. A weight ratio of 3 parts solvent to 1 part 2,4-D was heated to boiling, the water contained in the molten 2,4-D was boiled out as an azeotrope (the organic distillate was returned) and the solution was cooled. The 2,4-D was recovered by filtration and the solvent removed by heating in a vacuum oven at 60°C. The results are summarized in Table 14.

70249

Table 13: The Effect of Improved Washing of Molten 2,4-D on Levels of Impurities

DOW 267782

Material	Impurities		
	TCX	OCSX	"8-5"
V-602 Starting Mat'l	56	N.D.	58
Wash three times	73	N.D.	60
Reacidify, wash two times	96	34	68
Synthetic V-501 Na 2,4-D: 21.5%			
NaCl 7.0%			
DCP 0.2%			
After Acidif. & Wash	N.D.	N.D.	N.D.
Repeat the synthetic V-501 spiked with 2750 ppm TCX			
After Acidif & wash	3150	N.D.	10

Note: Rhone Progil 2,4-D shows no detectable TCX, OCSX & "8-5"

Table 14: The Effect of Recrystallization of Na 2,4-D and 2,4-D Acid on Impurity Levels

Treatment	Impurity Level (ppm)			F-40** Dilution Test	Comment
	TCK	OCSX	"3-5"		
Recrystallize Na 2,4-D Before*	58	---	127	0.18	Product Highly colored
After	81	53	54	0.3+	
Recrystallize 2,4-D From Perc Before	52	N.D.	46	***	91% Recc very of 2,4-D
After	1	N.D.	N.D.		
Recrystallize 2,4-D From Ethylbenzene Before	52	N.D.	46	***	87% Recc very of 2,4-D
After	N.D.	N.D.	N.D.		

The impurities analysis was performed on a sample of 2,4-D acid isolated from Na 2,4-D without any extra treatment.

*20:1 dilution in 1000 ppm hard water, formulation contained 2% Versene and no P-4000.

**The recrystallized product behaved like the high purity Rhone Progil 2,4-D which is difficult to formulate as was mentioned earlier in this report.

DOW 267784

GENERAL CONCLUSIONS

CX and other non-acidic impurities are formed chiefly in the reaction step of the 2,4-D by several routes.

A number of attempts to chemically and physically remove these species have met with limited success.

SAFETY & ECOLOGY

2,4-Dichlorophenol, 50% NaOH, and chloroacetic acid are highly toxic and corrosive raw materials. When handling, the protective clothing included lab coat, rubber gloves and goggles, and when possible, all operations were performed in a fume hood. A number of operations were carried out at elevated pressure which required the use of a face shield and secondary shielding in the hood. All waste samples and solutions were sent to the burner for disposal.

20252

EXPERIMENTAL

The Preparation and Workup of 2,4-D

The following is a general description of the procedure used to prepare and isolate 2,4-D when simulating 948 Bldg. A 1 liter round bottom flask equipped with a bottom drain, two dropping funnels, a mechanical stirrer, a thermometer, and a distillation head was charged with 179g (1.1 moles) of 2,4-DCP and 48 g (0.6 moles) of 50% NaOH. The flask was heated with a heating mantle attached to an I²R Thermowatch controller.

The reactor contents were heated while stirring and a DCP-water azeotrope was distilled out. The distillation was continued until enough water was removed so that a temperature of 130°C could be achieved. Normally 9-10 ml of H₂O and 2-3 ml of DCP were removed. The DCP was returned to the pot. Then 47.3g (0.5 moles) of melted MCAA and 40.0g (0.5 moles) of 50% caustic were con-added from the two dropping funnels during 50-60 minutes at 130°C. The rates of addition were carefully controlled so that neither added reactant was significantly in excess of the other. Water and DCP continuously distilled out during the con-add and the DCP was returned to the reactor. After the addition was complete, the reaction was heated an additional 60 minutes. About 43-47 gms of H₂O was recovered in the con-add step. At the end of the post reaction samples of the viscous crude reaction melt were taken into ampoules, if desired.

The work up procedure for isolating the 2,4-D is as follows: (The amounts used assumes no samples were taken after reaction). The reaction mass was diluted with about 500 ml of water, heated to boiling to ensure complete dissolution and the pH was adjusted to 5.2±0.2 with about 12 ml of conc HCl. The solution was then extracted with six 150 ml portions of perc at a temperature of >90°C to remove the DCP. Occasionally 50-100 ml of additional H₂O was necessary to keep all of the solids dissolved. The extracted 2,4-D solution was then

70253

to boiling and any traces of perc were distilled off. The pH of the solution was then lowered to 0.5-0.7 with about 55 ml of conc HCl added rapidly and the molten 2,4-D layer was separated and drained into a beaker. The resulting brine was discarded. The 2,4-D was reslurried in 250 ml of hot distilled H_2O in the pot and washed in this manner two times. The final pH of the aqueous layer was 2.7-2.9. The 2,4-D was recovered and dried overnight at ambient temperatures.

The analyses of product and intermediate streams were performed by personnel in the 948 Bldg quality control laboratory. The analyses for TCX, OCSX, and "8-5" were performed as described earlier⁸.

The Carbon Clean up of Molten 2,4-D

A glass pressure apparatus was assembled in which molten 2,4-D was pumped onto a carbon column (downflow). The apparatus is shown schematically in Figure 10. The flow of 2,4-D was controlled by controlling the pressure drop across a capillary tube. To handle

DOW 267786

POW 267787

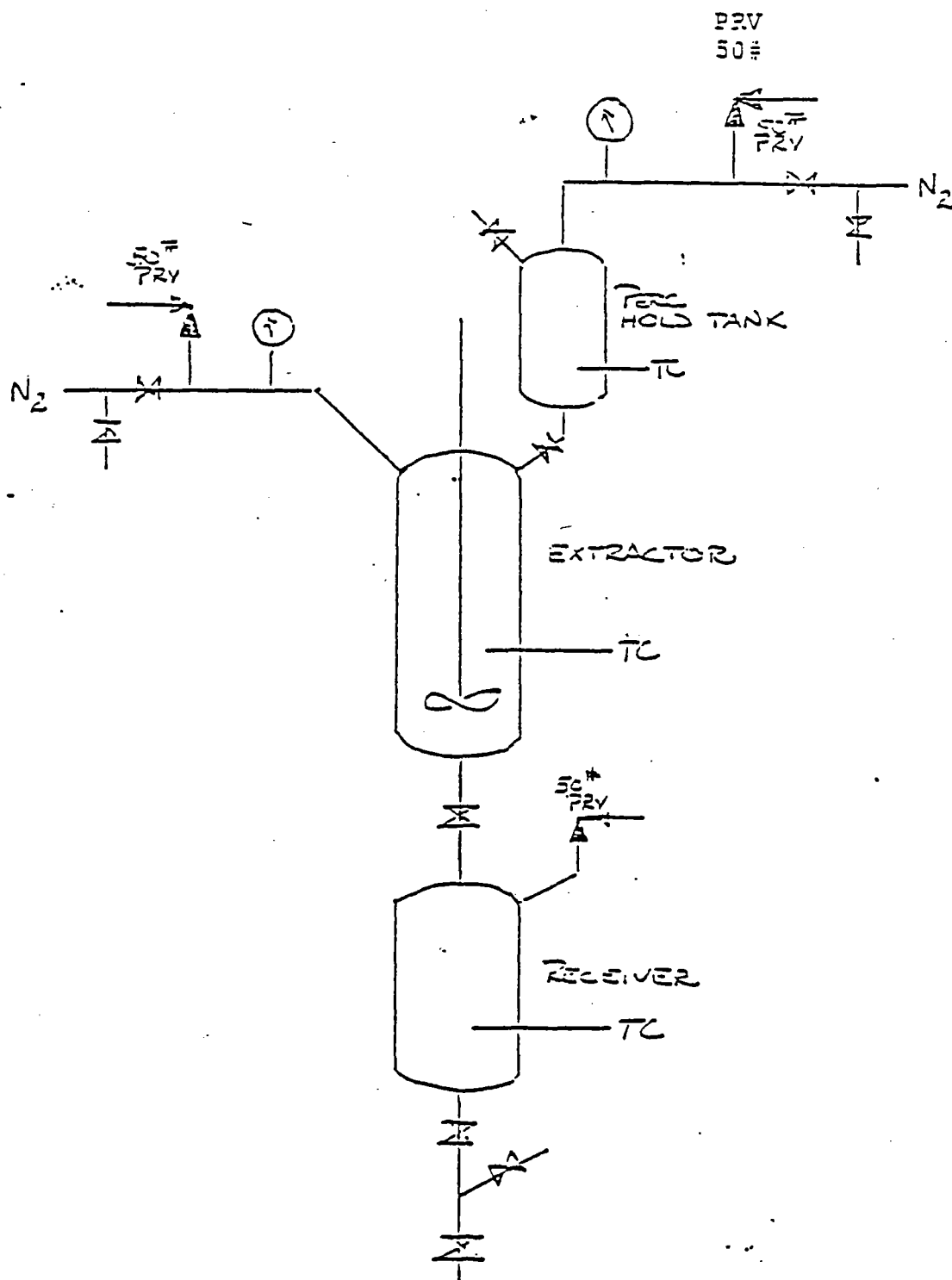
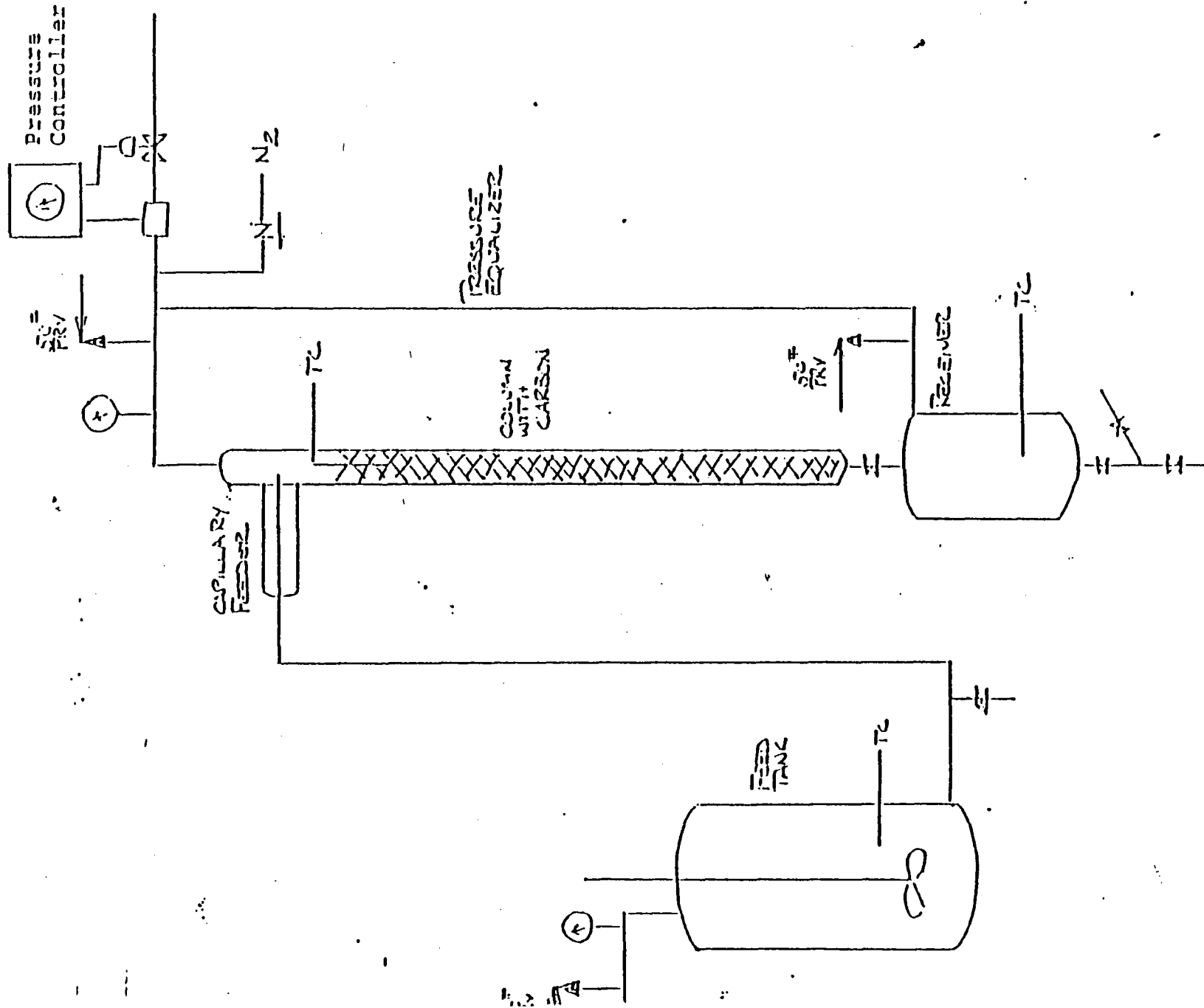


Figure 9: A Schematic Drawing of the apparatus used for Extracting DCP from Na 2,4-D with Perchloroethylene.

20255

DOW 267788

Figure 10: A Schematic Drawing of the apparatus used to treat Molten 2,4-D with activated carbon



20256

molten 2,4-D reliably and effectively, required at least 10 psig/
~100-105°C to avoid flashing and freezing problems.

The 2,4-D and a slight excess of water were placed in the feed tank and heated to 110°C. When the entire contents were melted the valve on the bottom of the column was closed, the column was filled with molten acid to 1" above the top of the carbon, and the system stood for 60 min. The pressure drop across the capillary was adjusted to 7 psi (~10 ml/min flow) and the valve on the bottom of the column was adjusted so as to maintain the liquid level above the carbon bed. The results are shown in Table 10.

now 267783

20257

DOW 267790

ACKNOWLEDGEMENTS

The authors wish to thank D. Humbert, R. MacLachlan, T. Evans, G. Jewett, P. Schloemann, and their colleagues for their analytical support. The assistance of K. First and his process modeling efforts are also acknowledged.

REFERENCES

1. R. McLachlan, D. Humbert, G. Kallos, AL 7800101, to be issued.
2. P. Keller, et. al., EHT K-2372-(18) February 9, 1978.
3. D. Humbert et. al., unpublished results.
4. Unpublished results to date.
5. Beilstein I, 17, 354.
6. Organic Synthesis Coll, Vol 1, Pg. 552.
7. Beilstein 19 (3) 222, Merck Index 9, 4040.
8. Morrison & Boyd Organic Chemistry, Allan and Bacon, Boston (1963), Pg. 684.
9. (a) S. MacLean, AL-75-20021. (b) V. Stevens, Communication, Inorganic Chem. TS&D.
10. D. Humbert, unpublished results.
11. K. L. Krumel, LR 78-74, 8-15-78.
12. H. F. Brust, OC 0730013-2, 2-26-73.
13. Y. R. Dhingra OCR Lab Book OC 327-5, p. 22-67, 1972.
14. D. L. Fern, PE 73-10, 4-16-73.
15. F. G. Aerstin, private discussion.
16. K. L. Krumel, OC 78-17 LR, 39-78.
17. S. Siegel, Results to be published.
18. Absorption Handbook: Issued by Activated Carbon Div., Calgon Corp., Pittsburg, PA.

LABORATORY NOTEBOOK REFERENCES:

- R. F. Arnold OC 417, Pg. 109-150, OC 640 Pg. 1-73.
K. L. Krumel OC 559, Pg. 95-131.

DEC 1 1990

E.R. Zumwalt, Jr.
Admiral, U.S. Navy (Ret.)
1500 Wilson Boulevard
Arlington, Virginia 22209

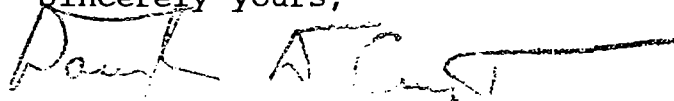
Dear Admiral Zumwalt:

The Agency has recently received a full and unexpurgated copy of the Krumel Report, the Dow study which documents the formation of xanthenes during a 2,4-D manufacturing process and the company's efforts to prevent the formation of those contaminants. In a June 8 letter, you provided this Office with an expurgated version of that report and asked the Agency to consider its implications for the regulation of 2,4-D compounds. At that time, I had informed you of the Agency's plans to locate and evaluate the full report.

The full report contains information that DowElanco (the successor of Dow Chemical Company) claims is Confidential Business Information because it relates information on manufacturing technology. The Agency is following a formally established procedure to verify that claim. The claim by DowElanco prevents the public release by EPA of the full report pending a determination of the validity of the claim. DowElanco has also provided a copy of the report from which all the material claimed to be confidential has been deleted. This expurgated report has been placed on the Public Docket, and I am enclosing a copy for your use. The new expurgated version differs somewhat from the version you transmitted in your letter of June 8; there are fewer deletions.

The Office of Pesticide Programs is researching toxicologic data on the compounds reported in the Dow document. I will keep you advised of the outcome of that review, and of the Agency's judgement on DowElanco's claim of confidentiality. ✓

Sincerely yours,



Douglas D. Campt, Director
Office of Pesticide Programs

Enclosure

H7508C:SRB:J.Bloom:WF3-1N4:308-8019:11/14/90

20260

790381

CRI NUMBER

R & D REPORT

CONFIL
BUSINESS INFORMATION

D-12233 /2,4-D

A

DOW CHEMICAL U.S.A.

RESTRICTED: for use within The Dow Chemical Company only.

LABORATORY REPORT CODE

OC/78-85

DATE ISSUED

October 27, 1978

DEPARTMENT

ORGANIC CHEMICALS RESEARCH

LAB. NO.

PROBLEM NO.

050900000

TITLE

A STUDY OF THE FORMATION AND REMOVAL OF IMPURITIES IN THE SEMI-
HYDROUS PROCESS FOR 2,4-D

PAGE
IN FILE
REPC

AUTHOR(S)

K. L. Krumel & R. F. Arnold

AUTHOR(S) SIGNATURE(S)

K. L. Krumel

R. F. Arnold (by K. L. K.)

REVIEWER'S SIGNATURE

Peter W. Owen

This
report
is:

☒ INTERIM☐ FINAL

and mainly:

☒ NEW☐ REVIEW

DESCRIPTIVE SUMMARY
WITH CONCLUSIONS:

(Include in this space references to data books, and to earlier related reports, patents and publications.)

Shortly after the startup of the new 2,4-D process in 948 Building, a new and unexpected class of nonacidic impurities were isolated in which two of the major components were tetrachloroxanthone and octachlorospirobixanthene. These impurities were causing problems in the subsequent formulation of 2,4-D as amine salts.

A project was started to learn the source of these impurities and methods for controlling them. It was found that the impurities are formed mainly in the 2,4-D reaction step by several different routes and that the rate of formation is increased by increased caustic ratios, perchloroethylene, heat and iron.

A number of techniques were evaluated for removing the impurities including carbon treatment, recrystallization, bleaching, varying reaction conditions, and improved washing. None of the treatments were totally successful.

In the plant, the impurities tend to concentrate in the recirculation perchloroethylene system. It has been found that by increasing the capacity of the perchloroethylene distillation column from 0.7 to 15 gpm, the steady state concentration of impurities is reduced to where they do not adversely affect general product quality or the ability of the plant to operate at optimum rates.

RECEIVED

OCT 10 1978

OCT 05 1990

pjd

DEPARTMENT FILES
R & D ADMINISTRATION

Releasable per January 21, 1991, letter
from DOW EIANCO. 20261

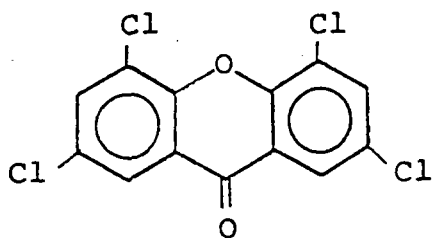
Distribution list

TABLE OF CONTENTS

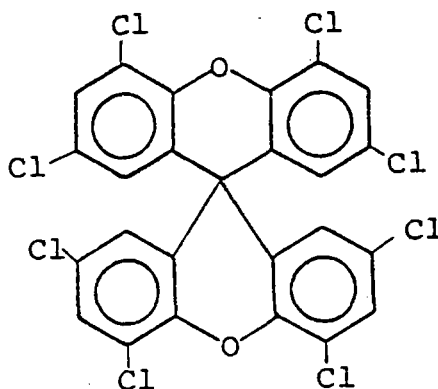
	<u>Page</u>
INTRODUCTION -----	2
RESULTS AND DISCUSSION -----	9
(a) The Mechanism of TCX Formation -----	10
(b) The Distribution of TCX in the Process -----	26
(c) Reduction of TCX by Chemical Means -----	30
(d) Reduction of TCX by Physical Means -----	38
GENERAL CONCLUSIONS -----	50
SAFETY & ECOLOGY -----	50
EXPERIMENTAL -----	51
ACKNOWLEDGEMENTS -----	56
REFERENCES -----	57

INTRODUCTION

A new process for preparing high purity 2,4-D was started in May 1977 at 948 Building. The high purity molten acid is transferred by pipeline from 948 Building to 489 Building where it is formulated into esters and water soluble amine salts. Starting in late October 1977, precipitates were observed regularly in diluted amines formulations that were found to be made up of a number of impurities associated with the process but that were never detected during laboratory or pilot plant development work. In addition, these impurities were not found in the old 489 Building aqueous 2,4-D process. R. McLachlan¹ analyzed the precipitates and found 1,3,6,8-tetrachloroxanthone (I: TCX), 1,1'3,3'6,6'8,8'-octachloro-9,9'-spirobixanthene (II: OCSX), and marginally soluble salts of 2,4-D.



(I)



(II)

A screening program in the plant showed TCX at levels of 200-500 ppm in the crude reaction mass, the recycle sodium dichlorophenate (NaDCP) solution, and in the final product. Levels of 1000-2000 ppm were found in the perchloroethylene (Perc) solvent and as much as 10% in the perc still tars.

McLachlan¹ analyzed a sample of perc still tars and his results are summarized in Table 1.

20263

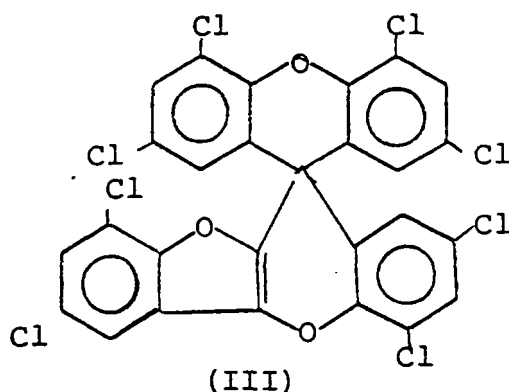
Table 1: An Analysis of One Perc Tar Sample

<u>Structure</u>	<u>Approximate Percentage</u>	<u>Comment</u>
Perc	60%	Main Component
Diethylbenzene	25%	From a heat exchanger leak (Dowtherm J)
DCP	0.5%	raw material
2,4-D	0.01%	Product
TCX (I)	1.5%	
OCSX (II)	1.1%	
Dichlorophenyl- dichlorovinyl ether	1.2%	Rxn product of NaDCP & perc & its impurities
Dichlorophenyl- trichlorovinyl ether	0.8%	

Plus:

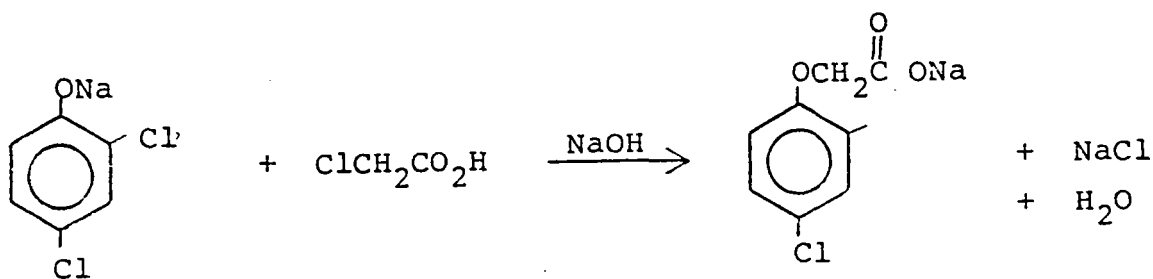
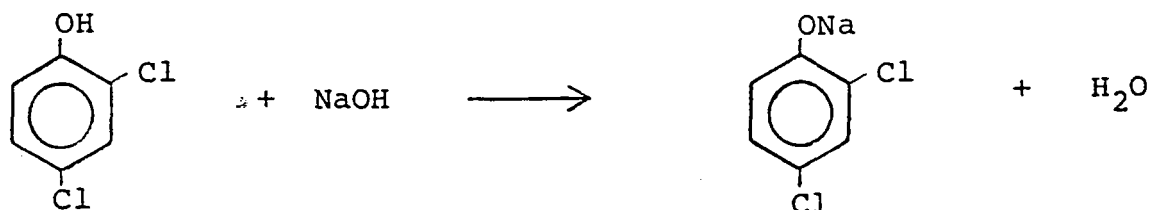
at least eleven other minor components structurally similar to the above. See Ref. 1 for details.

A project was started to study the formation of TCX and OCSX in some detail to learn more about their formation and fate in the process because it is not obvious how they are made. Several months after starting this study, another significant impurity was found in the product and, to a lesser extent, in the perc tars. It was identified as (III: "8-5") 2,2',4,4',5',7,7',9-octachlorospiro-(benzofuro(3,2-b)-benzopyran-11,9'-xanthene).

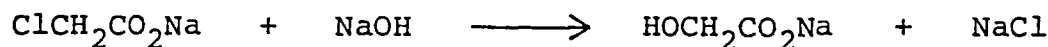
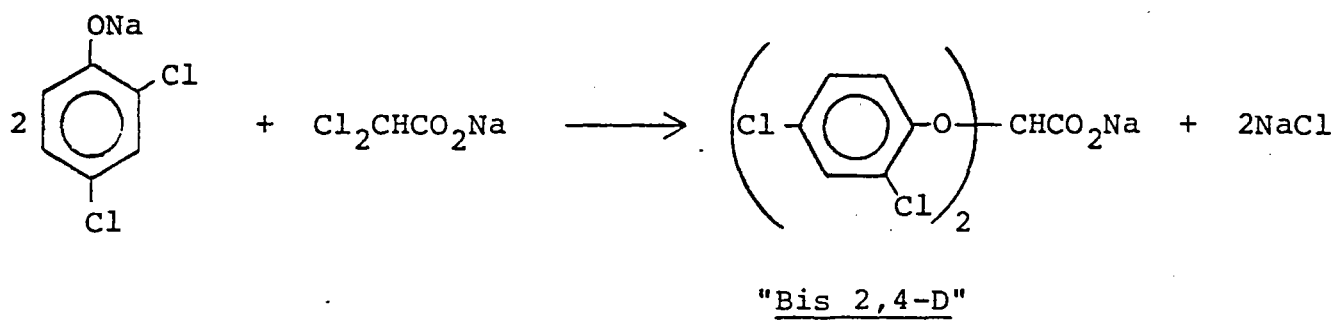


A description of the 2,4-D process in 948 Building is as follows:

Main Reactions



Na 2,4-D

Important Side ReactionsGlycolic Acid

The reaction is performed in two stages by first reacting 2.2 moles of DCP with 1.2 moles of caustic (added as 50% NaOH) to form a solution of NaDCP in DCP.

High purity 2,4-dichlorophenol (2,4-DCP) made by the chlorination of phenol with sulfuryl chloride in the presence of FeCl_3 /Diphenyl sulfide catalyst is used with chloroacetic acid (MCAA) made by the oxidation of vinylidene chloride to make 2,4-D as shown above. The typical raw materials analyses for each is shown in Table 2.

Table 2: Typical Raw Material Analyses for the 2,4-D Process

	<u>DCP</u>		<u>MCAA</u>
2,4-DCP	98.5%	MCAA	99.0%
2,6-DCP	~0.8%	Dichloroacetic acid	0.3%
Other Chloro-phenols	~0.5%	Chloromaleic acid	~0.05%
		H_2O	<1.0%

The solution is then boiled down to remove most of the water. Then, 1.0 moles of NaOH (added as 50% NaOH) and 1.0 moles of MCAA are added to the solution at 130° and the water formed is continuously boiled off. The crude product, whose approximate analysis is shown below, is transferred to a storage tank that feeds the continuous purification equipment.

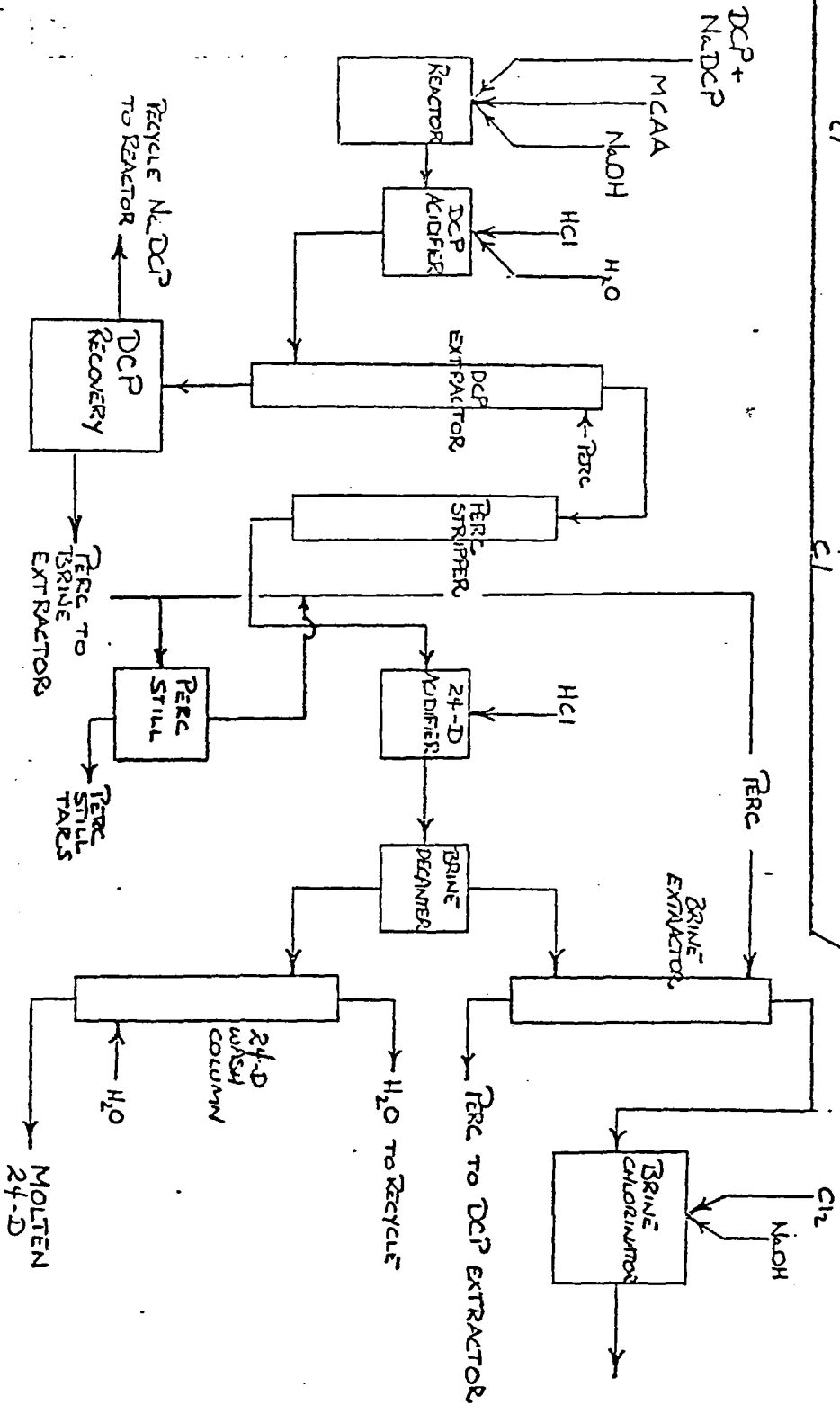
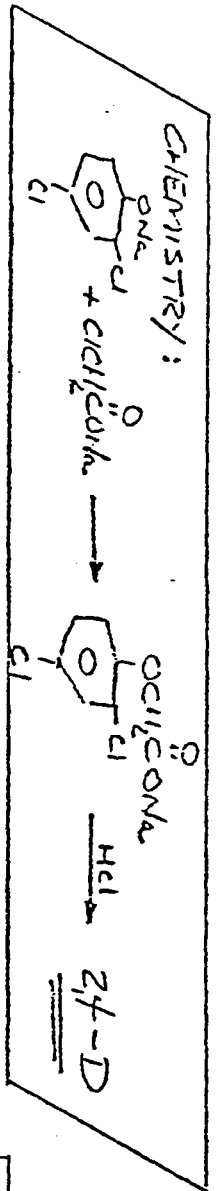
Approximate 2,4-D Crude Product Analysis

Na 2,4-D	45%
Na DCP	10%
DCP	30%
NaCl	12%
H ₂ O	3%

The 2,4-D is purified by partial acidification to selectively neutralize the DCP, extraction with Perc to remove the DCP, and then final acidification to liberate molten 2,4-D which is decanted from the brine and washed with water. A schematic flow sheet of the process is shown below.

A rapid initial screening of the toxicity of purified TCX and perc tars gave the following results.

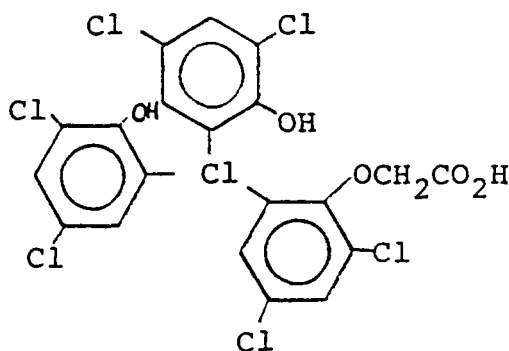
	<u>Oral LD₅₀</u> <u>(single dose)</u>	<u>Skin/Eye</u>
Perc Tar (contains 3-5% TCX + OCSX)	>5g/Kg	slight transient initiation. Chloracne response after 10 applications of neat tars.
Purified TCX	>4g/Kg	not irritating. Chlor- acne response after 10 applications of 1% solution in CHCl ₃ .



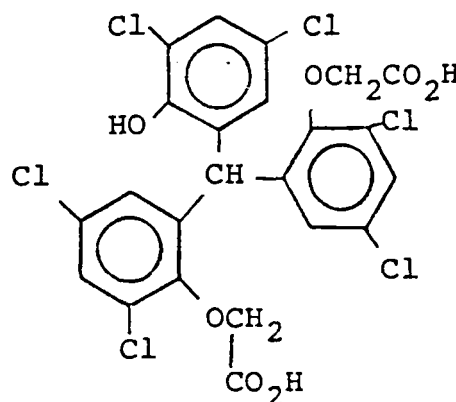
24-D PROCESS

These results are encouraging from a plant hygiene standpoint, but more data is necessary regarding long term effects. When the impurities were first discovered in the plant, the perchloroethylene still was used very occasionally and at a rate of <1 gpm vs a total perc flow of 40 gpm. The still was originally added to the process as a way of purging contaminants out of the stream to maintain high quality recycle solvent. At this point, perc tar impurities made up 60-75% of the precipitates formed in diluted amines formulations.

About February 1978, the capacity of the perc still was increased to 3 gpm and the average levels of TCX levels dropped to ~50 ppm in the crude reaction mass and product and to 200-500 ppm in the recycled perc. From the period of March-May 1978, the ability to produce quality 2,4-D continued to improve and the amount of perc tar impurities found in the dilution test precipitates dropped to 10% of the total³. The balance were sparingly soluble metal salts of 2,4-D and some new impurities called Complex 1 and Complex 2, two of which are shown below (IV & V).



IV



V

In July 1978, the perc still capacity was increased to 15 gpm and efforts gained at understanding the parameters affecting formulation quality by S. Siegel (OCR), S. Schell (Production 489), and J. King 2026 (Formulation - 9001 Bldg) and their co-workers have greatly improved

the consistency with which 948 Bldg. 2,4-D can be formulated. Based upon partition coefficients and data on the rate of formation of TCX to be discussed later in this report, K. E. First⁴ (Process Engineering) generated a computer program which predicted that by distilling 15 gpm of recycle perc, the steady state level of TCX in the product would be ~10 ppm and in the recycled perc the TCX level would be ~40 ppm.

The purpose of this report is to present data on the formation and fate of the impurities in the 2,4-D process. In addition, the results of experiments aimed at reducing or eliminating the impurities by chemical and physical methods will be presented.

RESULTS AND DISCUSSION

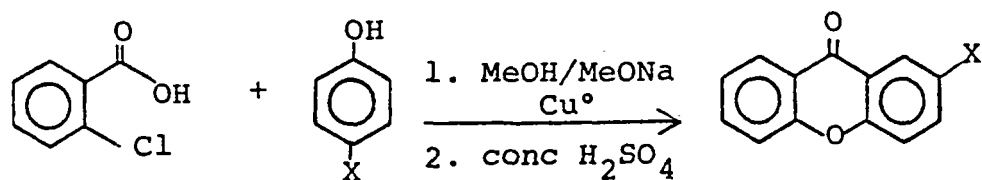
This study was divided into the following sections and the results of each are discussed separately.

- (A) The mechanism of TCX formation.
- (B) The distribution of TCX in the process.
- (C) Reduction of TCX by chemical means.
- (D) Reduction of TCX by physical means.

Although there are many impurities formed in this process, it was decided to focus the research on TCX for several reasons: (1) The rate and mode of formation of TCX was the most predicable of the major multicyclic impurities; (2) it was a major impurity; (3) a pure sample was readily obtained (by D. Humbert, Anal. Lab); (4) the analysis is not complicated; and; (5) structurally, it is the simplest of the multicyclic impurities.

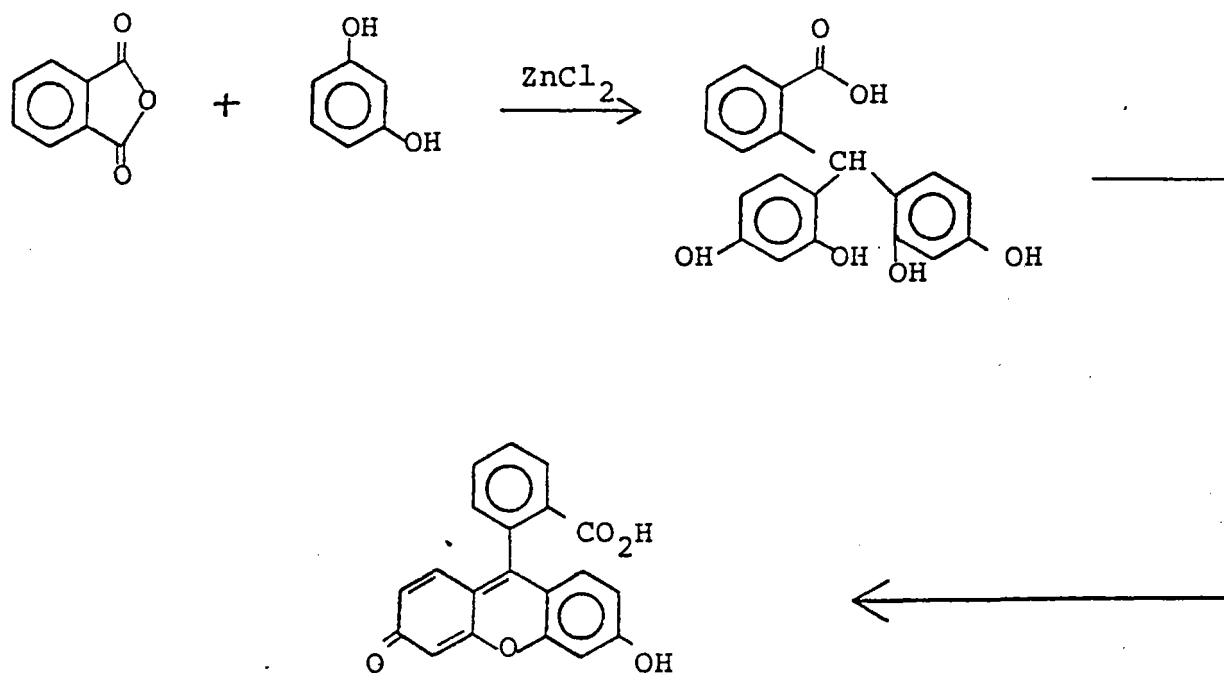
(A) The Mechanism of TCX Formation

A brief search of the literature including Chemical Abstracts showed that the xanthone ring system is formed from a number of reactions.⁵ A common synthetic reaction is shown below in which the -X is included

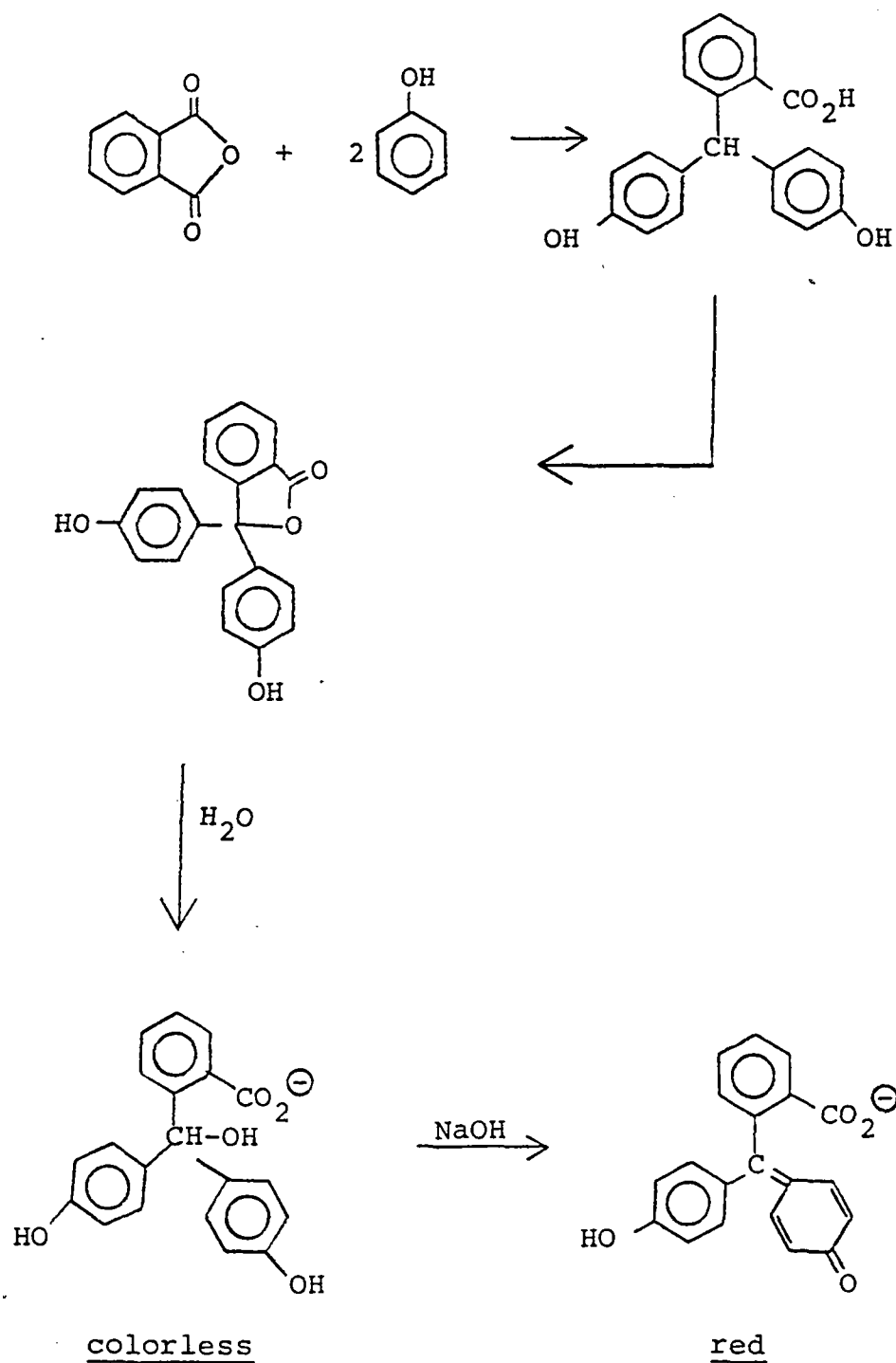


to show the orientation of reaction. Xanthone is formed along with other products from the pyrolysis of o-chlorobenzoic acid, salicylic acid, aspirin, o-phenoxybenzoic acid, and salts of the carboxylic acids. Most of these cyclizations take place in the presence of acidic catalysts such as P_2O_5 , AlCl_3 , Acetic anhydride, or sulfuric acid. Xanthone is prepared in reasonable yield⁶ by the pyrolysis of phenol salicylate with or without a catalyst.

The ease of formation of ring systems that are structurally similar to xanthenes is most clearly shown by the formation of fluorescein and fluorescein dyes. Fluorescein⁷ is made by reaction of phthalic anhydride and resorcinol as shown on the following page.



Phenolphthalein⁸ is also made by this process using phenol instead of resorcinol.



These background data give some important clues as to reaction mechanisms as will be shown later in the report.

In order to understand the pathway of TCX formation, a series of ampoule tests were performed to determine which chemicals and/or combinations give rise to TCX. Table 3 summarizes the results of this study. A series of ampoules (25 ml capacity) were charged with 3-6 gms of mixtures in molar ratios as shown in Table 3 and were heated in an oil bath for 72 hours at 160°C. The sources of the chemicals were as follows:

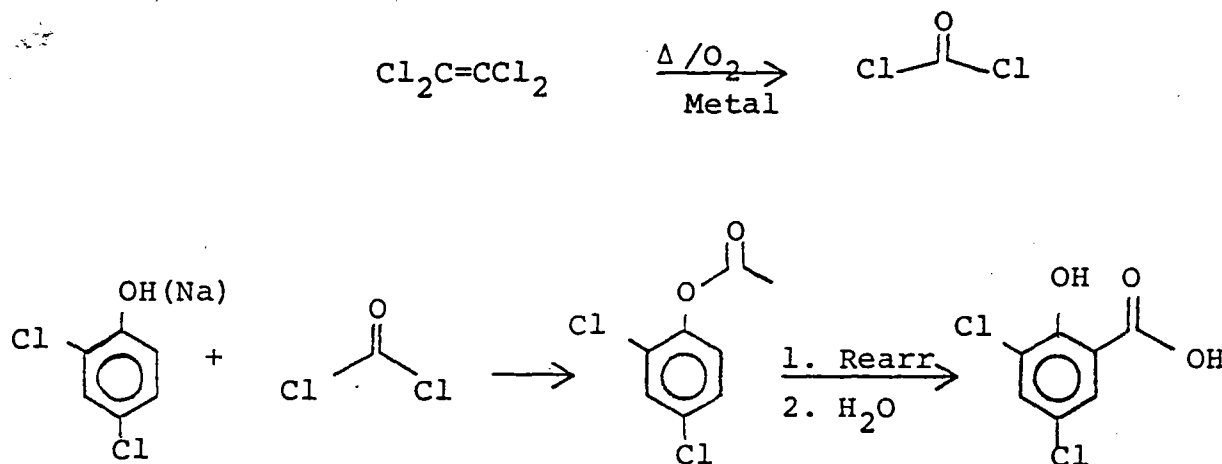
2,4-D:	High Purity Rhone-Progil Acid	
DCP	: Doubly distilled 948 Bldg material	
Perc	:	} Reagent materials
NaOH	:	
Glyoxal	:	
Glyoxylic acid	:	
Tetrachloroethane	:	
(50:50 1,1,2,2- & 1,1,1,2-isomers)		

Run #	Molar Ratio						rpm TCX
	2,4-D	DCP	NaOH	Perc	Bis 2,4-D	Other	
1	1.0						N.D
2	1.0	1.0					N.D
3	1.0		1.0				N.D
4	1.0		2.0				N.D
5		1.0	1.0				N.D
6					1.0		N.D
7	1.0	1.2	1.16				8
8	1.0	1.4	1.16				28
9	1.0	1.2	1.16	0.06			24
10		1.0	0.26	0.25			24
11	1.0	1.2	1.16			TCE mixture*: 0.11	21
12			1.15		1.0		12
13		4.7	1.5		1.0		189
14	1.0		1.0			NaCl:1.5, H ₂ O: 26.0	-ND
15		1.0	0.16			3,5-dichlorosalicylic acid: 0.16	10
16		1.0				" "	N.D
17		1.0	0.26			Glyoxal: 0.26	10
18		1.0	0.26			Glyoxylic Acid: 0.55	21

*TCE Mixture: 50:50 Mixture of 1,1,1,2- & 1,1,2,2-Tetrachloroethane

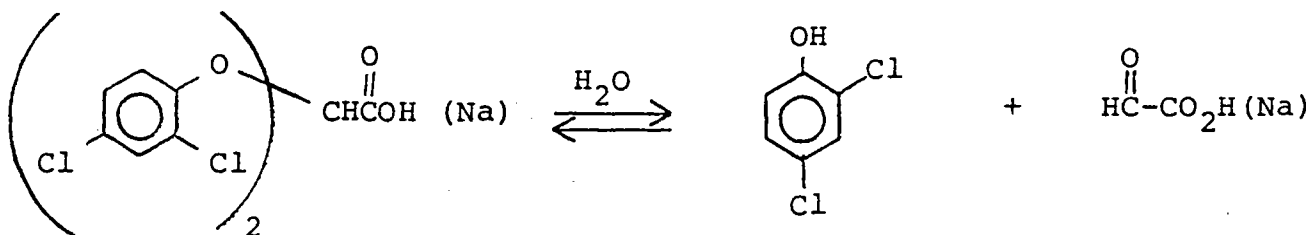
Table 3: The Formation of TCX from Synthetic Mixtures Heated at 160° for 72 hrs.

Several compounds other than those found in the process were tested. The tetrachloroethane mixture is a known contaminant in the 941 Bldg. chloroacetylchloride that is used to make MCAA. 2,5-Dichlorosalicylic acid is a proposed intermediate from the reactions suggested below:



The decomposition of perc to yield phosgene is known⁹ but the second reaction is only speculated.

The glyoxylic acid is postulated to come from bis 2,4-D as shown below:



which is a well known acetal hydrolysis. The glyoxal was included to show the general nature of the reaction whose mechanism is suggested later in this report.

Several tentative conclusions can be made from the data in Table 3.

- (a) TCX can be made by several routes
 - NaOH and/or NaDCP is necessary for the formation of TCX.
 - bis-2,4-D appears to be a key intermediate.
 - Perc is a source of TCX.
- (b) Significant amounts of TCX are probably made only in the reactor crude storage tank in the plant since strong base is required. Run 14 (Table 3) simulates the Na 2,4-D storage tank (V-501: 948 Bldg) and Run 1 (Table 3) simulates the product storage tank (V-602: 948 Bldg) in which no TCX was observed.

In order to study the formation of TCX as a function of reaction parameters, a series of 2,4-D reactions were performed in the laboratory. These reactions were run to evaluate the effect of different raw materials, perc, air/N₂, and iron on the amount and rate of TCX formation. The data are summarized in Table 4. In these experiments, 1.1 mol of DCP was treated with 0.6 mol of caustic and the mixture was heated to 130°C. The majority of the water that was formed was boiled off. To this mixture, 0.5 mol of NaOH and 0.5 mol of MCAA were con-added during 1 hr at 130° and the crude product was heated an additional 1 hr. Water was continuously distilled out during the con add step. At this point the desired number of ampoules were charged with 5-10 gms of crude reaction mixture and were heated in oil baths at 130°, 145°, and/or 160° for 24, 48, and 72 hours.

Table 4: The Parameters Affecting the Formation of TCX
in the Semi-Hydrous Process for Preparing 2,4-D

Run/ Reference	Dow Process Source		% DCA in MCA	NDCP N:MCA Ratio	AIR OR N ₂ Gas	% USED PER R ₂ O ₃	DOW AGES R ₂ O ₃	HEAT-AGE TESTS IN AMPOULES					COMMENTS
	DCP	MCA						TIME OF TCX					
								TEMP. (°C)	AT TIME				
									10 MIN	20 MIN	45 MIN	72 HRS	
✓ CC 475-130	Dow 948 Bldg	Dow	0.4	1.2	AIR	-	-	130 145 160	N.D. N.D. 14	TR 22 125	23 48 234	32 110 280	
✓ CC 475-118	Dow 948 Bldg	DOW	0.4	1.2	AIR	1.1%	-	130 145 160	ND TR 6	13 32 85	29 83 132	49 127 230	
✓ CC 475-120	Dow 979 Bldg	DOW	0.4	1.2	N ₂	1.1%	-	130 145 160	ND ND TR	TR 20 55	17 57 111	18 104 160	
✓ CC 475-125	Dow 948 Bldg	Hoesent	0.2	1.2	AIR	-	-	130 145 160	ND ND ND	8 24 52	12 - 93	13 39 94	
✓ CC 475-128	Dow 948 Bldg	Hoesent	0.2	1.2	AIR	1.1%	-	130 145 160	- - -	14 24 49	22 57 96	53 96 144	
✓ CC 475-129	Dow 349 Bldg	Hoesent	0.2	1.2	AIR	-	-	160	N.D.	49	91	-	DCP FROM THE OLD DOW PROCESS DIRECT CHLORINATION; LOWER AGE
✓ CC 475-135	Dow 948 Bldg	Hoesent	0.2	1.0	AIR	-	-	160	N.D.	TR	52	125*	* AFTER 96 HRS HEATING
✓ CC 475-131	Dow 948 Bldg	DOW 22-2200 SCAR	1.07%	1.2	AIR	-	-	160	ND	167	487	575	SPIKED MCA WITH DCA
✓ CC 470-16	Dow 948 Bldg	High Purity	N.D.	1.2	AIR	-	-	160	-	12	41	56	
✓ CC 470-68	Dow 948 Bldg	Dow	0.4	1.2	AIR & CO ₂	-	-	130 160	5 -	7 81	12 219	29 + 444 +	* AFTER 120 HRS HEATING INITIAL REACTOR WAS SPIKED WITH 20 MOL% NaHCO ₃ ; FLOODED WITH CO ₂ DURING POST REACTION
✓ CC 470-64	Dow 948 Bldg	Dow	0.4	1.2	AIR	-	500	130 160	6 -	16 241	30 766	75 1002	
✓ CC 470-66	Dow 948 Bldg	Dow	0.4	1.2	AIR	1.1%	500	130 160	ND -	9 177	28 555	42 908	
✓ CC 470-67	Dow 948 Bldg	Dow	0.4	1.2	AIR	-	200	130 160	9 -	14 273	37 365	126 + 932 +	* AFTER 120 HRS HEATING
✓ CC 470-73	Dow 948 Bldg	Dow	0.4	1.2	AIR	-	25	160	5	61	273	394	

The data in Table 4 show a number of interesting points. It must be emphasized that in view of the fact that these data are based on parts-per-million chemistry, the precision must be subject to some error. The data are reproducible to about 20%.

(A) Effect of Dichloroacetic Acid in MCAA

Runs 1,4,8, and 9 show that DCAA affects TCX formation presumably through the formation and decomposition of bis-2,4-D. Run 9 was especially interesting because not only was TCX made but bis 2,4-D was observed as shown below:

	Hrs at 160°C		
	<u>24</u>	<u>48</u>	<u>72</u>
ppm TCX	12	41	56
% Bis	0.4	0.3	0.2

These data indicate there is another route to bis-2,4-D besides reaction of NaDCP with dichloroacetic acid since the monochloroacetic acid used in this experiment showed no detectable DCAA (< 100 ppm) by liquid chromatography.

(B) Effect of Perchloroethylene

Whereas Perc showed a significant increase in TCX levels in the ampoule experiments, its effect in the reactions is uncertain. In most of the runs, the reactions contaminated with perc showed more TCX at 130°C and similar amounts at 160°C.

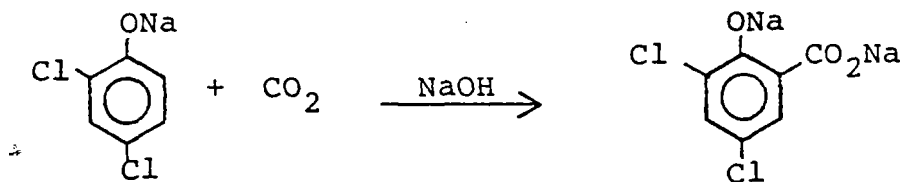
K. E. First, Process Engineering,⁴ ran a computer analysis of the data which gave the best fit when calculated as two consecutive first order reactions with an $E_a = \sim 30$ Kcal/mol. In the presence of perc the E_a dropped to ~ 15 Kcal/mol. These data suggest that there is another

more facile route to TCX from perc whose effect is masked at the higher temperatures by a primary route (compare Table 4, Runs 1 & 2 and Runs 3 & 4).

(C) Effect of Atmosphere in the Reactor

Nitrogen blanketing appears to lower the TCX level to $\sim 2/3$ that observed in air. It is not certain that this result is significant and since the magnitude of the drop was low, further work was not warranted. Since CO_2 is known to be present¹⁰ in the vapor space throughout the 2,4-D process, a run was made to determine its effect on TCX formation. Carbon dioxide comes into the process from the caustic and from perc decomposition.

The reaction was run as described earlier with 20 mol% of NaHCO_3 added before the boil down step and then blanketing the reaction mass with CO_2 during the post reaction heating step. Since this is a high temperature, nearly anhydrous process, the following reaction was thought possible which could eventually lead to TCX (See Table 3, Runs 15 and 16).



Comparing Runs 1 and 10 (Table 4) show that NaHCO_3 and/or CO_2 do not measurably affect the formation of TCX.

(D) Changing NaDCP/NaMCAA Ratio

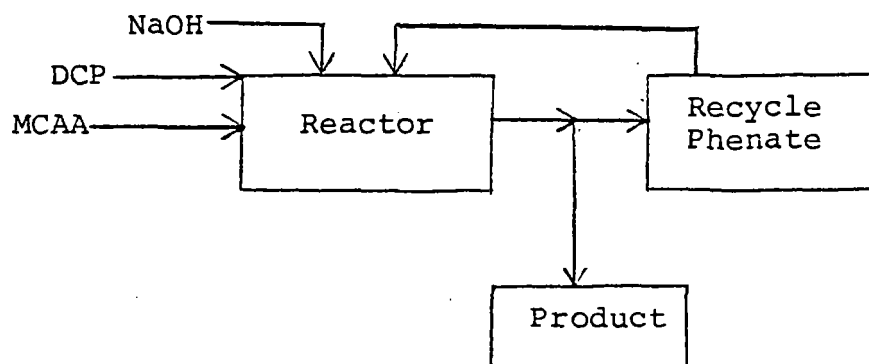
Comparing Runs 1 and 7 (Table 4) show that lowering the NaDCP/NaMCAA ratios significantly reduces the TCX levels as was also predicted from the data in Table 3. The effect was studied further and is discussed later in this report.

(E) Source of DCP

A run was made using the old lower purity DCP from the 349 Bldg process and assure that 948 Bldg, high purity, DCP was not a source of TCX. Run 6 shows that TCX formation is not associated with the source of DCP.

(F) Effect of Ferric Ion

Runs 11-14, Table 4, show that Fe^{+3} clearly increases the rate of TCX formation which suggest that alkylation step(s) are involved. D. Humbert and colleagues⁷ performed a material balance of Fe in the following scheme.



They found that most of the iron is entering the process in the caustic and that the reactor normally contains 20 ppm of Fe^{+3} . A recurring problem for the past several months was how to explain the fact that the plant observed TCX formation rates that were 5 times greater than the lab. The iron results explain at least part of this discrepancy and suggest that efforts aimed at removing iron from the process are desirable.

Based upon the data presented up to this point, the mechanism shown in Figure 1 for TCX formation is suggested. This mechanism is consistent with the observations of the effect of caustic, the fact that TCX can be made from NaDCP and glyoxal or glyoxylic acid and the levels of bis-2,4-D. If this mechanism is correct, it is easy to see how perc can influence TCX formation when one considers the possible hydrolysis products using either NaOH or NaDCP. Some of these possibilities are shown in Figure 2 and many are known precursors to TCX.

In addition to TCX, OCSX and "8-5" are known to be formed in measurable quantities during the reaction to 2,4-D. It was initially assumed that TCX is the probable precursor to OCSX and "8-5". However, a series of ampoule experiments in which TCX was mixed with various ratios of DCP, 2,4-D, NaOH, and perc showed none formed in detectable amounts. In addition, a reaction was run in the presence of 500 ppm of added TCX and gave normal levels of the impurities when the 500 ppm of added TCX is subtracted out. It is apparent that OCSX, "8-5", and TCX are probably made by independent routes and proposed mechanisms are shown in Figures 3 and 4.

Figure 1: Proposed Mechanism of TCX Formation

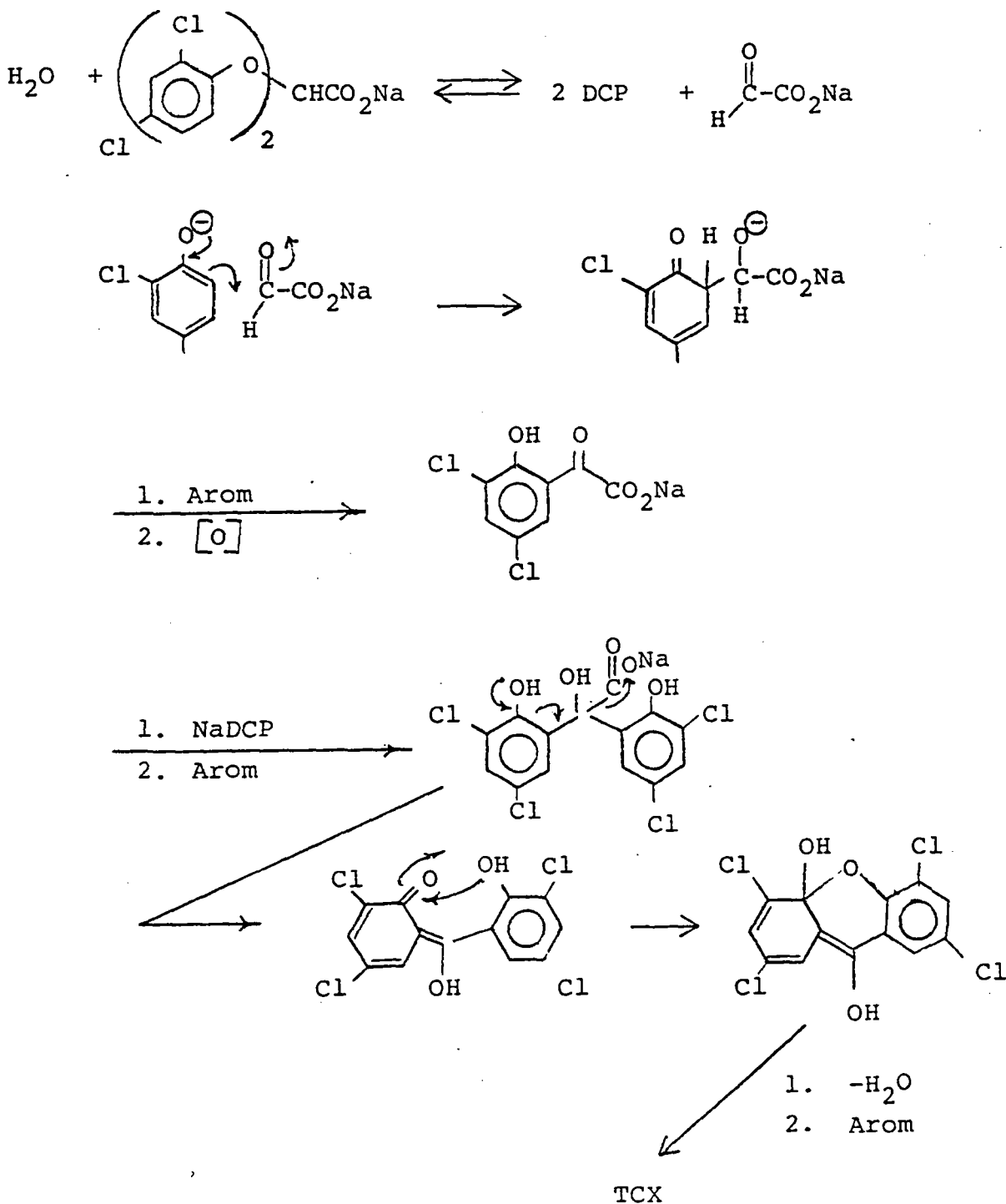


Figure 2: Some of the Possible Products of the Hydrolysis of Perchloroethylene with NaOH or NaDCP

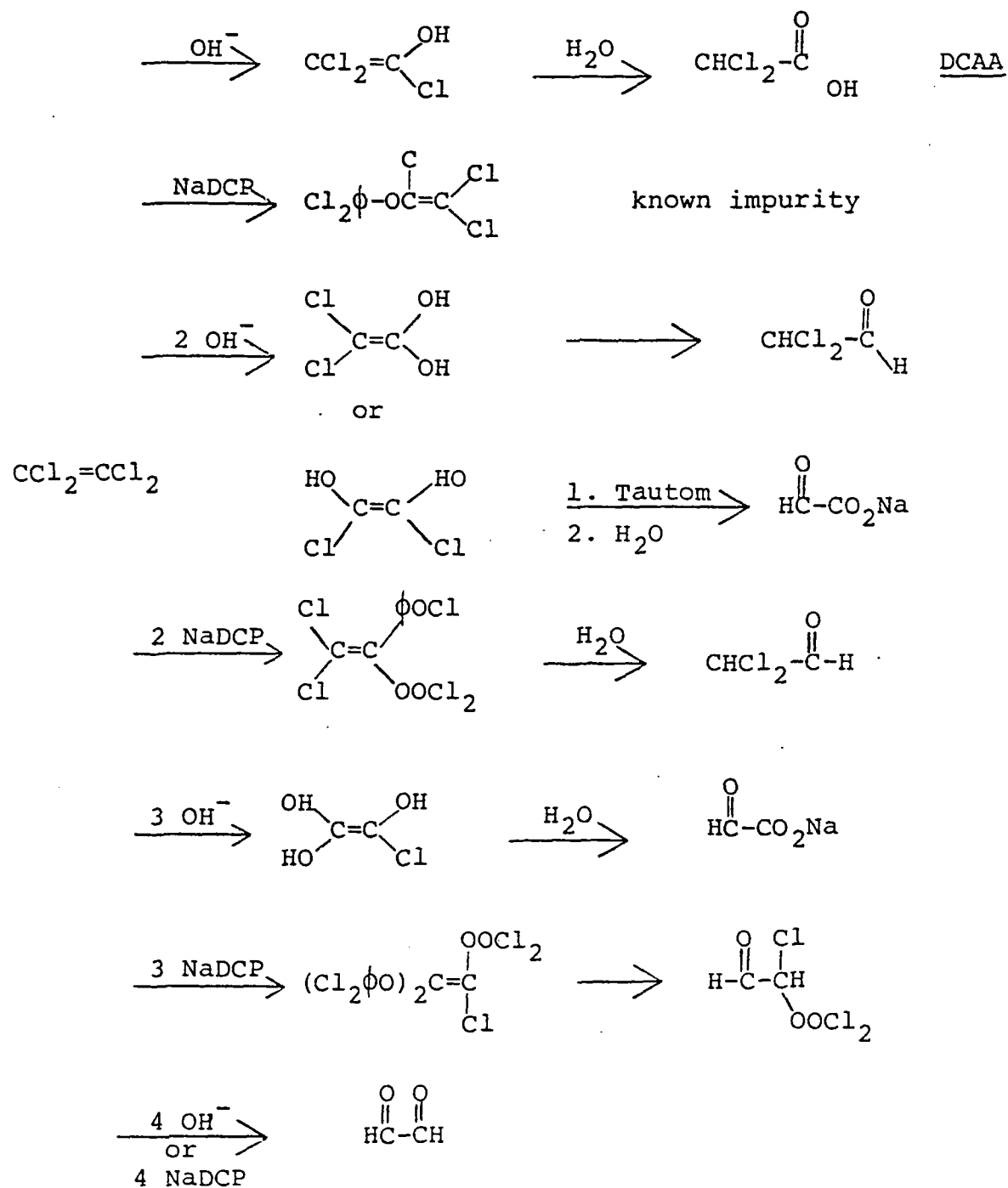


Figure 3: Proposed Mechanism for the Formation of OCSX By a Route That is Independent of TCX

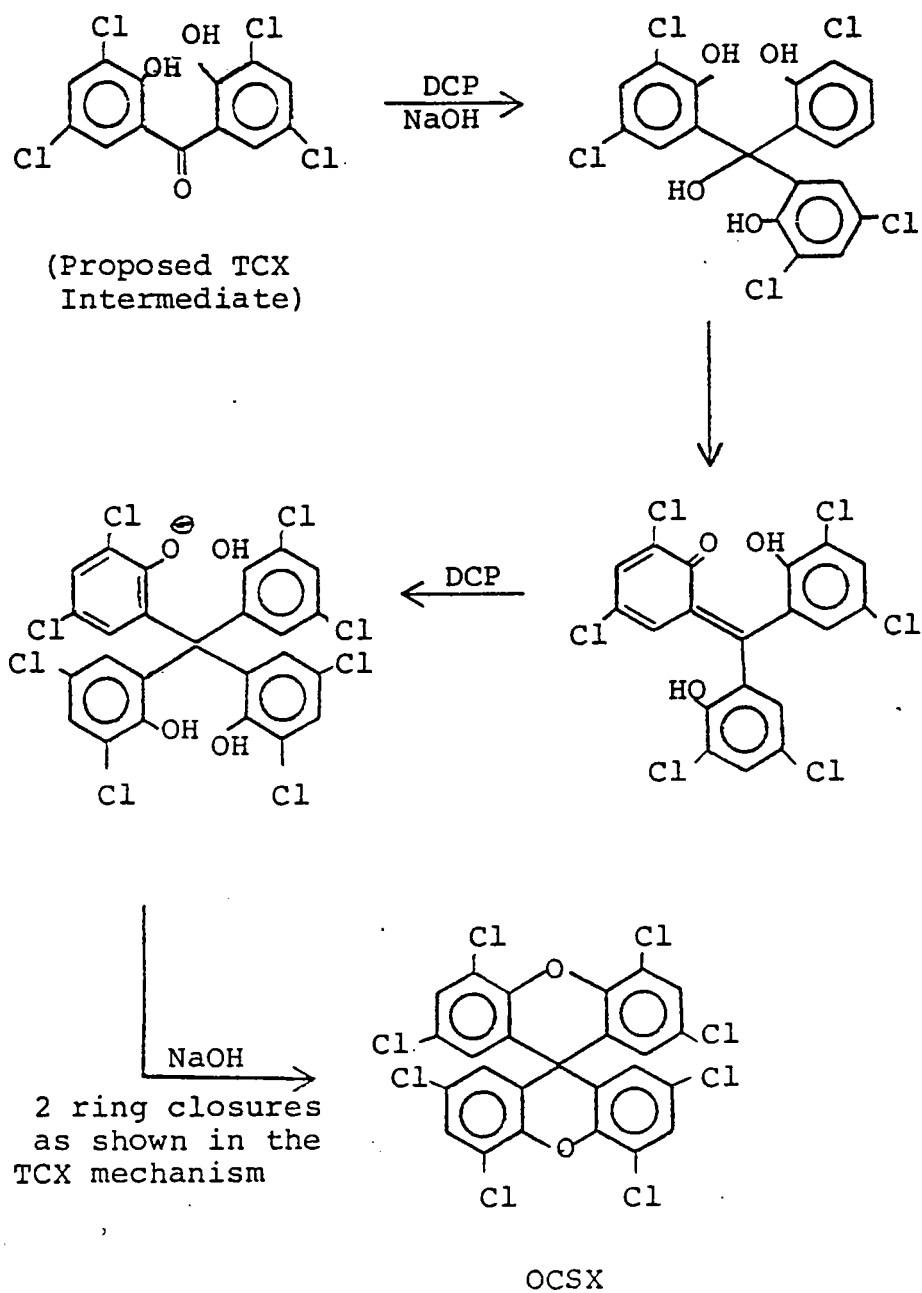
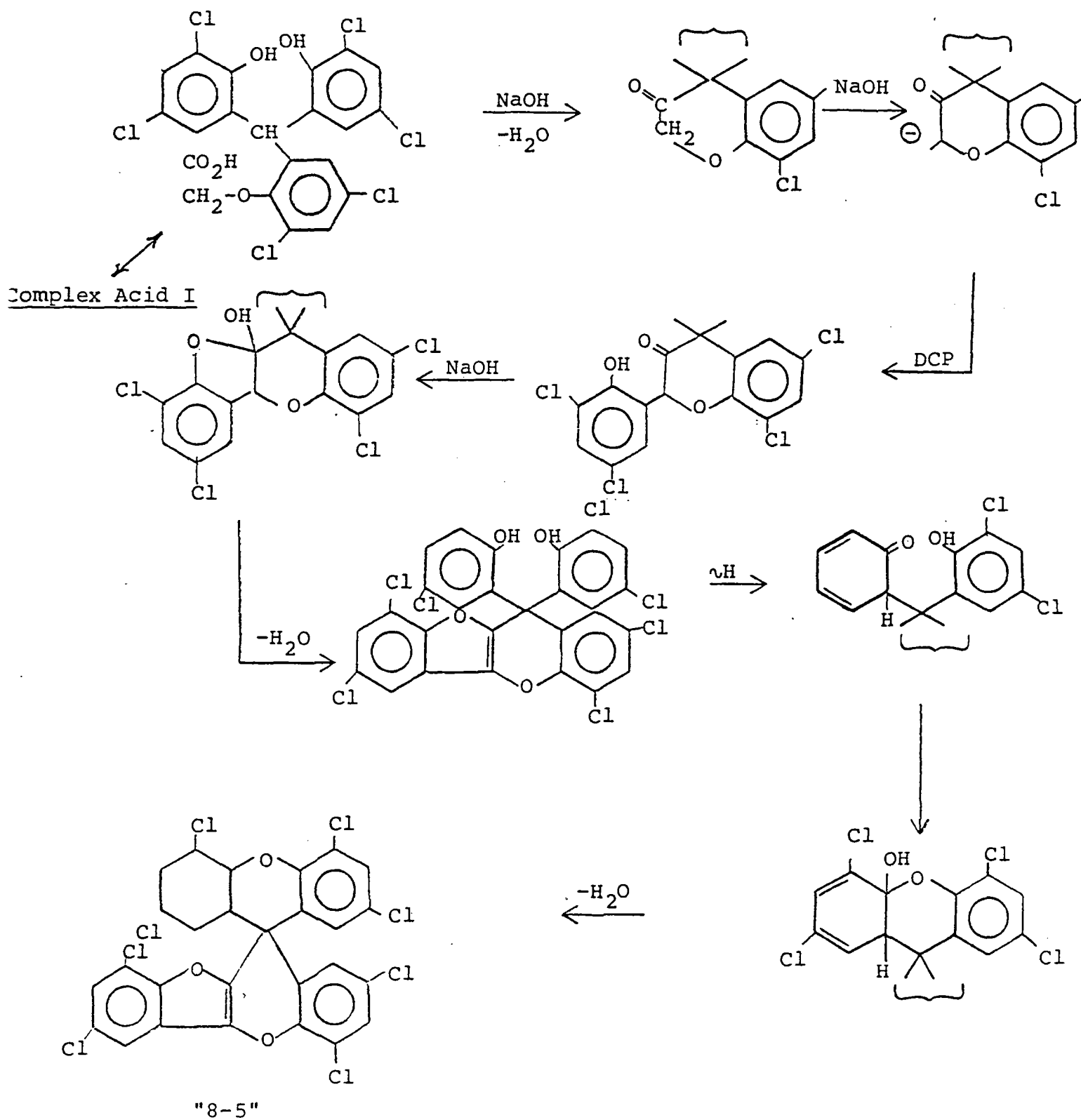


Figure 4: Proposed Mechanism for the Formation of "8-5" By a Route that is Independent of TCX



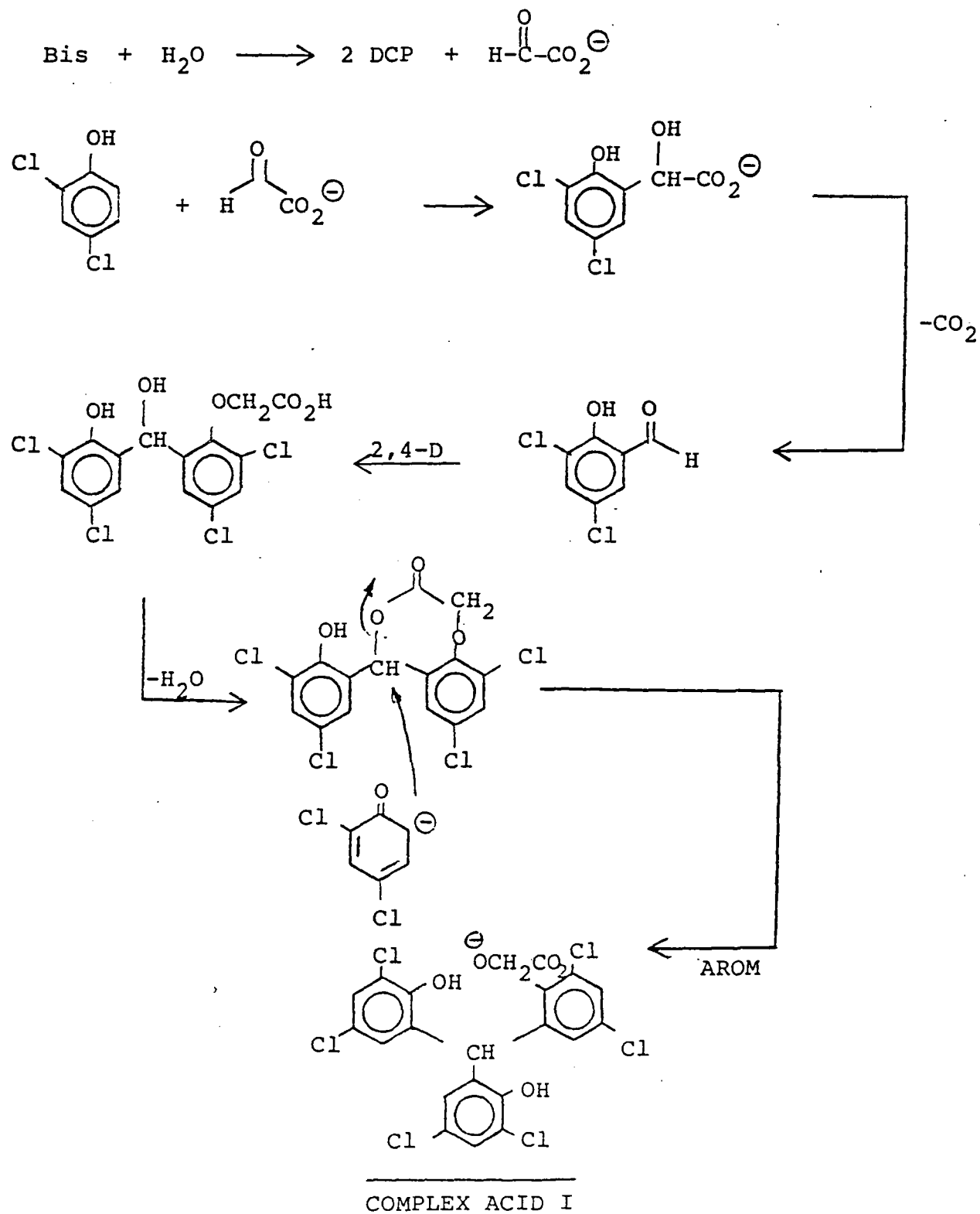
The formation of OCSX uses an intermediate in the TCX mechanism as its starting material. The apparent fact that TCX is not an intermediate suggests that the more activated dihydroxy ketone is necessary for alkylation. The mechanism for "8-5" formation involves a major component in the Complex I and II mixture as a starting material. Recent analytical results¹⁰ have shown ~100-200 ppm of this mixture in the process. A proposed mechanism for the formation of Complex Acid I is shown in Figure 5. It must be emphasized that the mechanisms shown in Figures 3, 4, and 5 are speculations and are only one of a number of possibilities. Much more work is necessary to prove their accuracy.

(B) The Distribution of TCX in the Process

As mentioned earlier, TCX appears to be formed only in the reactor section of the process. Each of the process hold tanks were tested using either synthetic mixtures and/or actual plant material under normal operating conditions and the results are shown below:

- V-201 and V-202: Reactor & crude reactor hold tank. Tables 3&4 summarize these results.
- V-403: Phenate Recycle Storage Tank. 60% NaDCP was heated for up to 7 days in presence and absence of air in presence and absence of steel at 90°C and showed no detectable TCX.
- V-501: Na 2,4-D Storage Tank
Mixtures of Na 2,4-D, NaCl & H₂O were heated at 145-160° for 3 days in presence and absence of traces of perc and DCP: no detectable TCX was formed.
- 20287

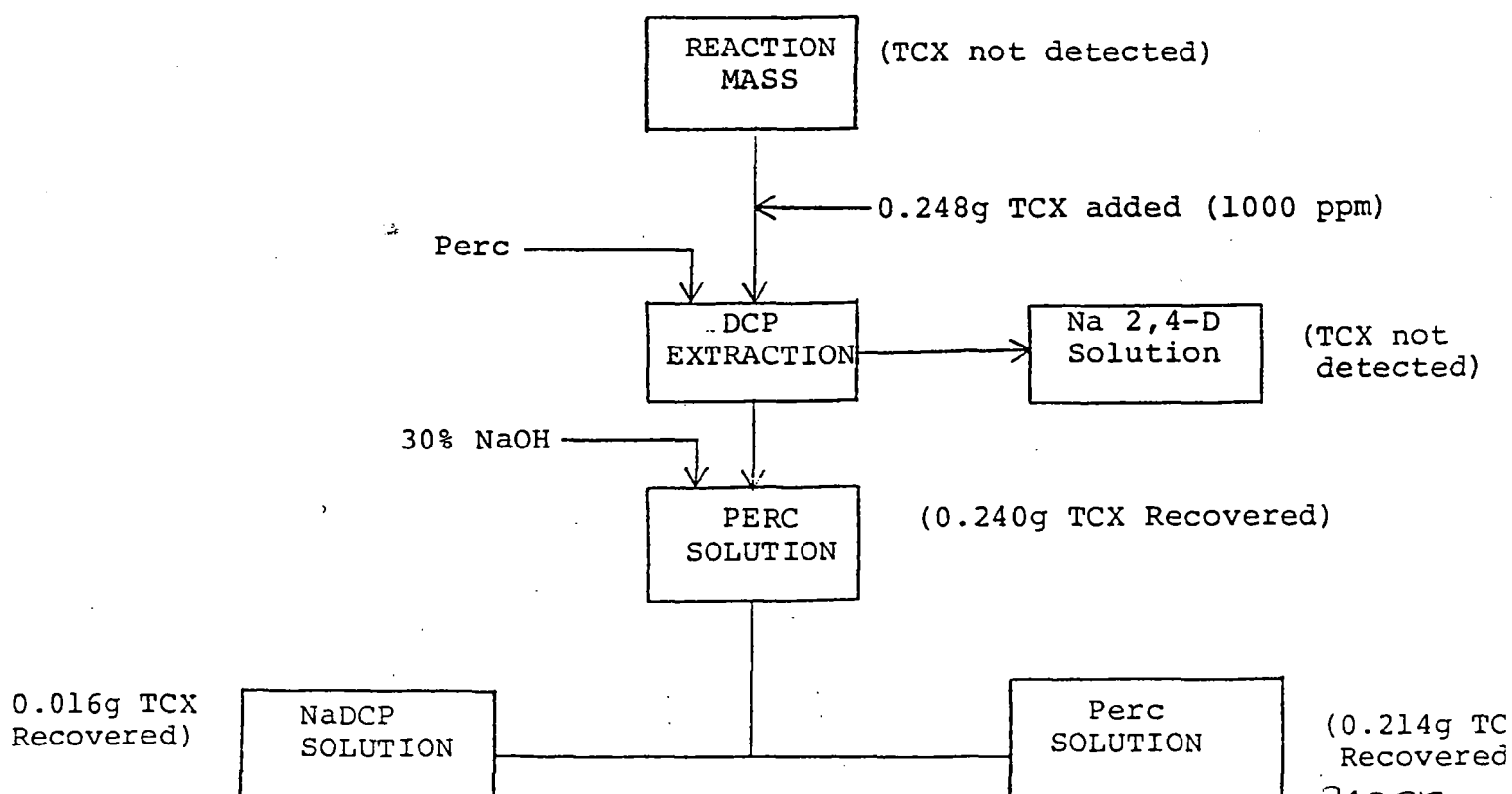
Figure 5: Proposed Mechanism for the Formation of the Major Impurity in Complex I mixture (Compound IV)



V-602: Final Product Storage Tank: Tests run at 120-175° on wet and dry 2,4-D¹¹ showed that there is an initial slow build up of about 20 ppm of TCX during the first 48 hrs at >160° that stabilizes out. This suggests a small amount of an unstable unknown species that decomposes in acidic media. Molten 2,4-D can be treated for at least 100 hrs under the above conditions without affecting product performance.

Since TCX is formed in the reactor and was found throughout 948 Bldg process, a laboratory study of the distribution was requested. In this experiment a reaction was carried out and the crude reaction mass was spiked with TCX. The purification process was then simulated and the fate of the TCX was determined. Figure 6 summarizes the results of the extraction study performed at 90°/atm.

Figure 6: The Distribution of TCX in a Laboratory Simulation of the 948 Bldg 2,4-D Process



These data show an excellent TCX recovery in which, using clean perc, all the detectable TCX is removed from the Na 2,4-D solution. The fact that the plant observes some TCX in the product suggests that some entrained perc is carried overhead so that the impurities carried with it end in the product. The extraction of the perc/DCP mixture with caustic to recover the NaDCP also extracts about 5% of the TCX which is recycled to the reactor. This scheme was followed in a second experiment that was performed at 125°/ 35 psig which more closely follows the plant conditions. Under these conditions the aqueous solutions can be more concentrated in Na 2,4-D, NaCl, and DCP which could affect the distribution of TCX.

A high pressure, mechanically stirred glass reactor was constructed and was charged with partially neutralized material from V-301 (the DCP neutralizer). The molten material was extracted six times with perc at 125°C and the molten 2,4-D was isolated. The TCX and "8-5" levels were monitored throughout and the analytical results for the products are summarized in Table 5 for the two runs. The data show that TCX is effectively removed at the more drastic conditions.

Table 5: The Analysis of the Product from the High Temperature Extraction of Crude Na 2,4-D with Clean Perchloroethylene

Run	TCX (ppm)		"8-5" (ppm)		Metals (ppm)			
	init	final	init	final	Na	Fe	Ca	Mg
1	292	13	54	52	84	5	40	13
2	178	2	N.D.	25	91	3	50	16

It is interesting to note that "8-5" is not efficiently removed with perc extraction. Hence most of what is made goes out with the product. OCSX was not detected in these samples.

In summary, TCX is formed in the reactor and most of it remains in the recirculating perchloroethylene system. A certain amount of TCX spills into the product and the magnitude is directly related to the level in the perc. TCX is easily separated by distillation in the perc still so by increasing the rate of distillation one would achieve a lower steady state concentration of TCX in the perc.

Assuming a rate of TCX formation of 0.5-1.0 #/hr in the plant (based upon analyses of plant samples) K. E. First⁴ has taken distribution coefficient data and has modeled the process in terms of TCX content in various streams as a function of % of perc distilled in the perc still. To date, there is not enough in-plant data to verify this model.

(C) Reduction of TCX by Chemical Means

Two approaches for chemical reduction of TCX were studied. These were methods for inhibiting its formation during the reaction step and methods for reducing it from process streams. The following approaches were studied and each will be discussed in detail.

1. Changing NaDCP/NaMCAA ratio.
2. Post reaction neutralization.
3. Effect of DCAA.
4. Bleaching Na 2,4-D solutions.

(1) Changing NaDCP/NaMCAA ratio

Excess caustic or NaDCP was shown earlier to have a significant qualitative effect on the increased production of TCX. The 2,4-D reaction as developed by H. Brust¹² used a ratio of NaDCP/NaMCAA = 1.2. As described earlier in the discussion, at this ratio the product contains theoretically ~6.3 mole % excess alkalinity as NaDCP as shown on the following page.

20281

<u>Stg</u> <u>Mat'l</u>		<u>Product</u>
0.5 mol DCP		0.5 mol DCP
0.6 mol NaDCP	→	0.1 ml NaDCP
0.5 ml NaMCAA		<u>0.5 mol Na 2,4-D</u>
		0.5 mol NaCl

Dhingra¹³ and Fear¹⁴ evaluated the effect of this ratio on the yield and kinetics of this reaction and concluded: (a) lower ratios (below 1.2 lead to lower yields based on MCAA and, (b) low H₂O in solution gives higher 2,4-D yields. The effect of changing the NaDCP/NaMCAA was restudied in order to determine if the lower yield from MCAA could be justified by reduced TCX formation due to less excess caustic.

The runs were carried out by using a constant amount of NaMCAA and varying the amounts of NaDCP which was done by adding differing amounts of caustic in the initial boil down step. Tables 6 and 7 and Figure 7 summarizes the results of this study. These data show that lowering the ratio from 1.2 to 1.1 results in a two fold reduction of TCX along with a 1% loss in MCAA yield. This is reasonable and was tested in the plant. After three weeks of operation, they did not note a measurable reduction for reasons that are not understood at this time. Any further reduction is not practical since the yield rapidly approaches that of the old plant thereby losing much of the advantage of the 948 Bldg process. It is interesting to note that at ratios below 1.0 there is still a measurable amount of NaDCP which explains why formation of TCX is still observed. All of the data to date indicate that formation of TCX cannot be limited to much less than 60 ppm (in the standard 72 hr/160°C ampoule test).

TABLE 6

EFFECT OF NaDCP/NaMCAA RATIO ON TCX FORMATION & YIELD ON MCAA

RUN	REF	Moles			Mol Ratio NaDCP NaMCAA	ppm HOG	MCAA YIELD	CRUDE ANALYSIS			
		DCP	NaDCP	NaMCAA				Na 2,4-D	DCP	NaDCP	NaCl
1	OC 417-5-143	0.50	0.60	0.50	1.2	951	96.4%	45.4	31.2	8.9	10.0
2	OC 417-5-144	0.55	0.55	0.50	1.1	1514	94.2	45.5	38.0	6.0	7.4
3	OC 417-5-146	0.60	0.50	0.50	1.0	3808	86.8	41.3	40.3	2.2	7.4
4	OC 640-1-1	0.61	0.49	0.50	0.98	3606	86.2	43.0	41.7	2.5	7.9

2750008

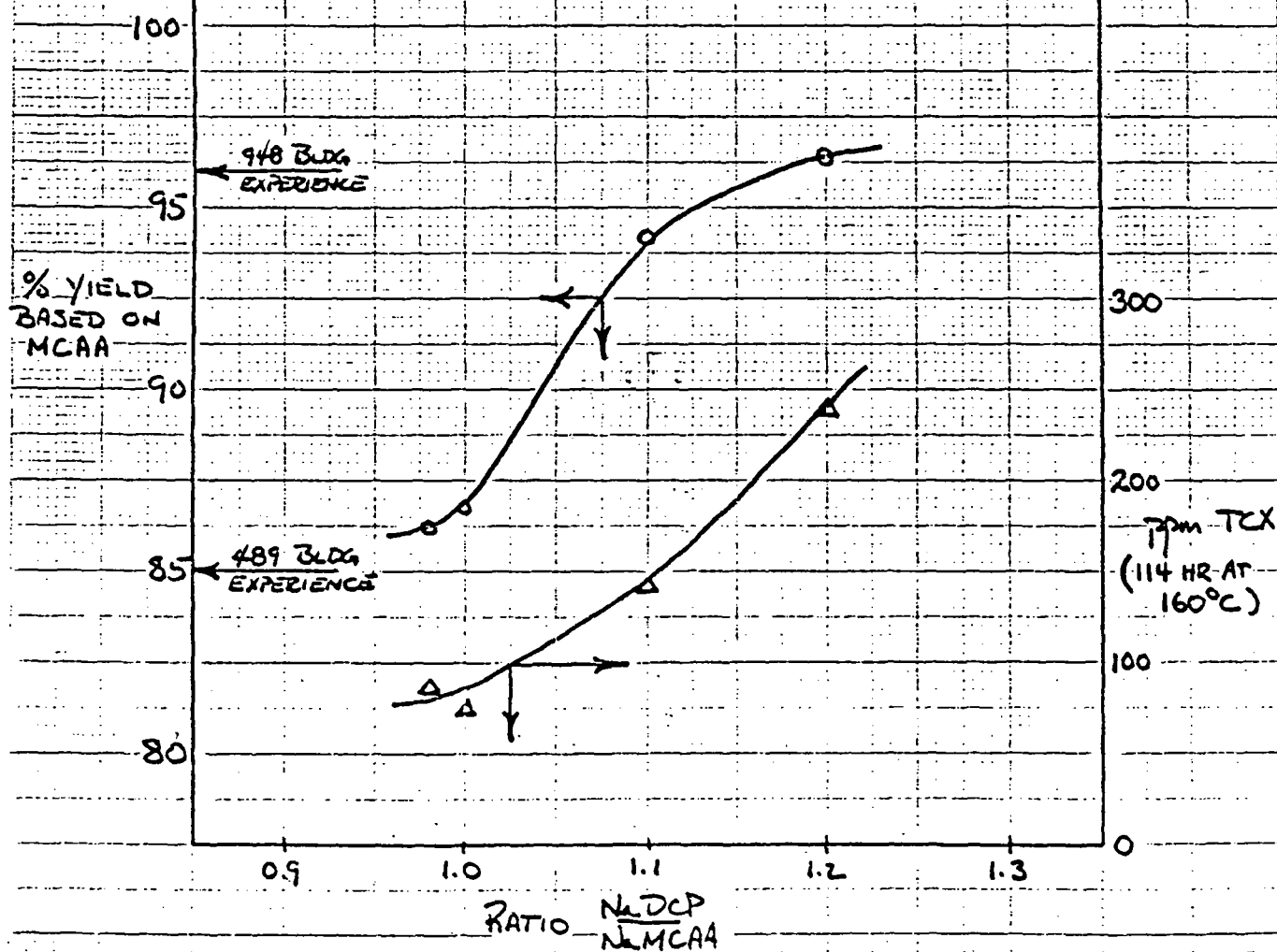
THE RATE OF TCX FORMATION AS A FUNCTION OF TIME, TEMPERATURE & $\frac{\text{NaDCP}}{\text{NaMCAA}}$ RATIO

RUN	REF	TEMP	TCX/OCSX			
			18 HRS	42 HRS	66 HRS	114 HRS
1	417-5-143	130	---	---	19	53
		145	37	34	70	218
		160	29	86	118/107	240
			18	42	66	<u>114 Hrs</u>
2	417-5-144	130	0	19	33	52
		145	27	39	64	93
		160	42	74	93	142
						<u>90 Hrs</u>
3	417-5-146	130	<10	<10	15	30
		145	15	20	41	59
		160	29	47	55	67
						<u>90 Hrs</u>
4	640-1	130	17	28	22	18
		145	23	31	34	52
		160	36	61	65	77

7502

FIGURE 7: THE YIELD OF 2,4-D
BASED UPON MCAA &
THE FORMATION OF TCX
AS A FUNCTION OF
THE $\frac{\text{NaDCP}}{\text{NaMCAA}}$ RATIO

K KEUMEL
8-16-78



(2) Post Reaction Neutralization

F. G. Aerstin¹⁵ suggested that if the reactor crude were immediately treated with enough acid to neutralize the NaDCP after the post reaction before transfer to the reactor storage tank (V-202), TCX formation might be greatly reduced. This concept was tested using 32% HCl, and dry and wet 2,4-D as the neutralizing acid. The first experiment used enough dry 2,4-D to completely neutralize the residual NaDCP. The neutralized crude showed 1.4% NaDCP and a rate of TCX formation as shown below that is consistent with the data shown in Tables 6 & 7.

	ppm TCX		
<u>Temp</u>	<u>24 hr</u>	<u>48 hr</u>	<u>72 hr</u>
160°	24	51	62

The use of wet, molten 2,4-D (25% H₂O or 32% aqueous HCl has some serious physical handling problems.

As was discussed in an earlier report¹⁶, water added to 2,4-D raises the freezing point of the mass creating a material similar to cottage cheese in consistency. In addition, the added salts (either Na 2,4-D or NaCl) also raised the freezing point of the reactor batch from a range of 115-120°C to 118-125°C.

In summary, whereas post reaction neutralization reduces TCX by a factor of four, it offers several disadvantages:

(a) it would add at least 30 min - 1 hr to the reaction cycle in a plant already reactor limited near capacity operation.

(b) Addition of acid could cause corrosion problems in the Incoloy 800 decanter .

(c) The possibility of precipitates forming in the reactor would put excessive stresses on the agitator. Their formation could not be avoided

in the laboratory even by very slowing adding the aqueous acid.

(d) Control of the acid addition would be difficult and, in addition, the plant would have to run a slightly smaller batch size in order to provide room for the acid. Further work on this concept is not warranted at this time.

(3) DCAA Content of MCAA

The effect of DCAA was discussed earlier.

(4) Bleaching Na 2,4-D Solutions

The major chemical difference between 948 Bldg and 489 Bldg techniques for processing crude 2,4-D is that 489 Bldg uses a bleach step in which residual DCP is oxidized out of the Na 2,4-D solution with 8-12% NaOCl at pH 10.5/100°C. Several experiments were performed to determine if bleach would effect the impurity levels and/or improve the ability of the plant to consistently produce 2,4-D that passes the formulation dilution test. The results of these experiments are shown in Table 8.

The results of the first experiment appeared very encouraging since the dilution test solids, the TCX and the "8-5" were all significantly reduced. The second series of runs showed a consistent improvement in dilution test solids when near or out of spec, but not much effect on the impurities. A capital estimate performed by K. E. First⁴ showed the cost of implementing a bleach step in 2,4-D to be \$500 M which immediately eliminated any further interest in this project in view of the marginal benefits. It is assumed, posthumously, that the main effect of the bleach was to reduce residual DCP which is a known contributor to poor dilution test results.

Table 8: The Treatment of Na 2,4-D Solutions with Bleach

Na 2,4-D Solution Source	pH	Mol Ratio NaOCl Na 2,4-D	ml solids		Impurities (ppm)		
			DMA-4	F-40	TCX	OCSX	"8
V-501 (4-7-78) 948 Bldg.	starting	material	---	0.18	58	N.D.	12
	10.5	0.1	---	0.02	25	N.D.	N.
V-501 (6-5-78) 948 Bldg	starting	material	0.01	TR	80	N.D.	3
	10.5	0.1	TR	TR	85	"	1
	10.5	0.2	TR	TR	85	"	2
	10.5	0.05	---	---	104	"	2
	10.5	0.1	---	---	94	"	1
	5	0.1	---	---	72	"	4

(D) Removal of TCX by Physical Means

To date, a stage has been reached in 948 Bldg. where the 2,4-D plant can be run to consistently produce in-spec material and has demonstrated an ability to run at near capacity of 100-120 M#/day. With the perc still running at ~15 GPM, the 2,4-D product contains ~20 ppm of TCX and ~20 ppm of "8-5".

A number of attempts have been made to see if the levels of TCX can be reduced by physical means that include:

1. Carbon treatment of the recycling perc and the molten 2,4-D.
2. Removing perc from the reaction step.
3. Improved washing of the molten 2,4-D.
4. Recrystallization of Na 2,4-D and recrystallization of 2,4-D acid.

The details of each alternative are discussed below. In all cases, these experiments were short term, range finding efforts and not comprehensive. Further work is justified only if the levels of impurities presently found in the product prove unacceptable in the future from a toxicity, environmental, or performance standpoint.

(1) Removal of TCX with Activated Carbon

The removal of TCX with activated carbon from perchloroethylene from V-402 ("clean" perc storage tank) was evaluated by a standard isotherm method. A 100 ml portion of perc was treated with ground Pittsburgh SGL carbon at 70°C/72 hrs. The data, summarized in Table 9, were evaluated by a known technique¹⁸ that is summarized below. A plot was made of X/M vs. C on log-log paper as shown in Figure 5. By extrapolating C to incoming TCX concentration, the corresponding X/M value gives the amount of impurity absorbed per unit weight of carbon when that carbon is in equilibrium with the incoming concentration and represents the ultimate capacity of the carbon. The

theoretical volume of liquid to be completely freed by TCX/gram of carbon is calculated from the following equation:

$$V_{Co} = \frac{\left(\frac{X}{M}\right)_{Co}}{Co} \cdot V$$

V_{Co} = theoretical volume to be treated

$\left(\frac{X}{M}\right)_{Co}$ = capacity/gm at incoming concentration

V = volume of liquid used in test

Co = incoming concentration

For this experiment:

$$V_{Co} = \frac{400}{241} \times 100 = 166 \text{ ml/g of Carbon}$$

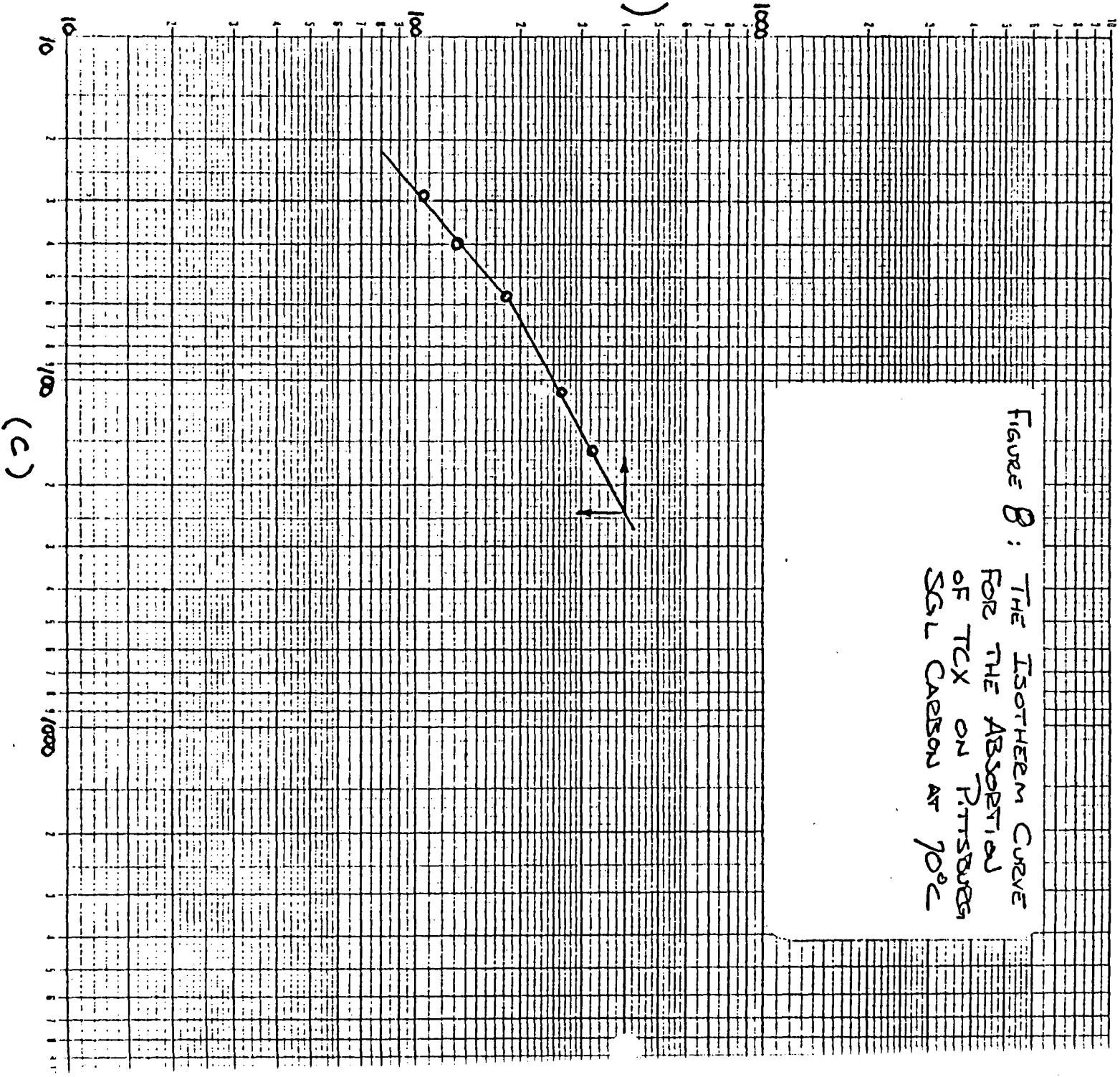
or 19.9 gal of perc/# C
or 265 # perc/# C

Carbon loading at 241 ppm of TCX in feed = 166 ml/g C x 1.6 g ml x .00024-
64 mg/gC

Table 9: The Absorption Isotherm for TCX Removal from Perchloroethylene with Pittsburgh SGL Activated Carbon

Sample	Impurity (ppm)			(M) WTC/100ml Perc	(C) Resid ppm TCX	(X) ppm TCX Removed	(X/M) ppm TCX removed gm Carbon
	TCX	OCSX	"8-9"				
STG. Mat'l	241	N.D.	19	0	241	0	---
1	159	"		0.25	159	82	328
2	108	"		0.50	108	133	266
3	57	"	17	1.00	57	184	184
4	40	"		1.50	40	201	134
5	29	"	17	2.00	29	212	106

FIGURE B: THE ISOTHERM CURVE
FOR THE ADSORPTION
OF TCX ON PITTSBURGH
SGI CARBON AT 70°C



103002

This is a low loading level and at the present rates of TCX production in the plant, about 15-20 # of carbon per hour would be required to remove the impurity. The data shown in Table 9 indicate that carbon does not remove "8-5" from perc. The shape of the isotherm curve indicates that more than one species is being absorbed onto the carbon. No effort was made to determine the identity of that compound although it was probably perc.

A run was made to remove impurities from wet molten 2,4-D. Since molten 2,-D is so difficult to handle at atmospheric pressure, pressurized system was built using a capillary feeder for controlling the continuous flow of molten 2,4-D at 100°/25 psig onto a vertical 2' x 0.5" column that was maintained liquid full. The flow rate was 10 ml/min down the column for a mass flux of ~ 1.0 gpm/ft.² The results are summarized in Table 10.

Table 10: The Treatment of Molten 2,4-D with Activated Carbon

Sample #	Temp (°C)	Pressure psig	Approx feed rate ml/hr	Approx. Prod. cut volume (ml)	Product Analysis (ppm)			F-40 ⁺ solid (ml)
					TCX	OCSX	"8-5"	
Feed	112				42	N.D.	32	.005
1	110±2	33±2	300	100	--	--	--	
2	110	33	600	375	14	N.D.	29	.04
3	110	33	600	375	28	N.D.	38	.005
4	110	33	600	376	32	N.D.	42	
5	110	33	600	375	30	N.D.	36	

*Formulation contains 2% Versene & 0% PG 4000

These data are fairly crude in that the column was shorter than is desirable for optimum column work (2' vs the recommended 5-6',¹⁸) and the flow through the column was a little faster than the more desirable 0.5 gpm/ft² recommended

The data show that TCX loading is rather low. Breakthrough occurred after 900 ml molten D (~ 935 g pure 2,4-D) was treated. From the analyses, the 59.8 gm of Pittsburg SGL 8 x 30 granular carbon charged to the column absorbed 281 mg of TCX for a loading of ~ 0.5 mg/g of carbon which is quite low. Again, "8-5" was not absorbed by the carbon. Based upon these preliminary experiments, carbon absorption of these impurities is not an attractive purification technique.

(2) Remove Perchloroethylene From the Reactor

Since perc is known to give rise to TCX, several methods were examined to eliminate its recycle to the reactor. At present, since perc is soluble to 1.2% in the recycle NaDCP solution, there are about 350# returning to the reactor in each batch. Since a continuous perc-phenate phase separation is performed in V-401 just before recycle to the reactor, a brief study was undertaken to evaluate the phase separation to determine the time required for complete layer separation and the solubility of perc in NaDCP solution.

A solution of 62% NaDCP and 2% NaOH in water was slurried with an excess of perc and vigorously stirred for 30 min at 75°. The stirring was stopped and the phenate layer was analyzed for % perc as a function of time. The results are summarized in Table 11. These data show that the solubility of perc in NaDCP is $1.3 \pm 0.1\%$ at 75°C and that layer separation is complete within 15 minutes. The residence time in V-401 is ~ 40 minutes so that with proper operation, no layer separation problems should result. The question was also asked if the perc was entrained in the NaDCP solution as an emulsion or was it in solution? A sample was centrifuged at 60° (minimum temperature) for 30 min at ~ 4000 rpm and 1.2% perc was found in the phenate. It is concluded that the present equipment gives optimum layer separation and the 1.2% of perc is soluble.

70204

Table 11: The Solubility and Separation Rate of Perchloroethylene and 62% NaDCP in Water at 75°C

<u>TIME*</u>	<u>% Perc in Phenate Layer</u>
5 min	1.9
15 "	1.3
30 "	1.4
1 hr	1.5
2 "	1.4
4 "	1.4
6 "	1.2
24 "	1.3

*Time zero is when the vigorous stirring of the two layers is stopped.

Several attempts were made to strip perc from the reaction mass and from the NaDCP solution. The plant tried to strip perc from the reaction mass during the normal boil down step. Whereas normal operation involves returning the distilled organic layer to the reactor, in this experiment the recovered organic layer was discarded. Whereas normal boil down returns 350# of DCP to the reactor, in this experiment even after 4000# of DCP was distilled off, there was still detectable perc in the distillate. As a result, this approach was judged impractical. Two attempts were made to distill the 1.3% of perc from the 60% NaDCP-2% NaOH solution.

The first involved a batch distillation from a standard solution from V-403. A total of 65.9 gms were distilled out and 73.8% of the perc was removed. The reaction was then carried out as usual and samples were heated for 24, 48, and 72 hrs and the results are summarized below. These data suggest that distillation of 75% of the perc does not reduce TCX formation (See Table 4, Runs 4&5).

ppm TCX	Temp 160°	24 hrs 21	48 hr 75	72 hrs 145
---------	--------------	--------------	-------------	---------------

The second approach taken for stripping out perc was using a falling film still. The results of two experiments are shown in Table 12. The results show that, as before, 70-80% of the perc is easily removed but that the last 20% is likely to be quite difficult. No more work is planned in this area until it can be better proven that removing perc offers any real advantage in reducing rates of TCX formation.

(3) Improved Washing of 2,4-D Acid

Several experiments were run to see if improved washing would affect impurity levels in the 2,4-D product. A sample of 2,4-D product was taken from V-602 (948 Bldg) and was treated in the following ways:

- (a) A 250 gm sample of molten acid was washed 3 times with 200 ml of water per wash at 100°C.

TABLE 12

Preliminary Data for Falling Film Distillation of Perc From NaDCP Solution

Still: 1" x 12" Tube

	<u>Run 1</u>	<u>Run 2</u>
Pressure		
Temp (col'm)	120°	ATM.
" (feed)	75°	75°
Feed Rate (ave.)	10 ml/min	10 ml/min
Overhead Temp	85° → 90°	90° → 95°
Feed analysis		
% Perc	1.0	1.1
% DCP	51.5	50.1
Wt. Charged (Feed)	725 gms	738 gms
Product: Wt	652 gms	645 gms
% Perc	0.3%	0.2%
% DCP	53.9%	61.6%
Overhead: Wt	46.7 gms	75.0 gms
% Perc	1.5%	3.3%

- (b) Another sample was reacidified to pH 0.5 with conc HCl and rewashed 2 times with water at 100°C.
- (c) A synthetic V-501 mixture was made up using Rhone Progil 2,4-D to determine if any impurities are made in the washing step. The synthetic mixture was acidified and washed and the 2,4-D was recovered for analysis. This experiment was repeated in the presence of 2750 ppm of added TCX.

The results of these experiments are shown in Table 13. Based upon these experiments, it is shown that the impurities are not made or reduced by improved washing. If anything, they are slightly increased in the product due to the greater solubility of 2,4-D in the hot water or brine.

(d) Recrystallization of Na 2,4-D and 2,4-D Acid

An attempt was made to determine if the impurities could be removed by recrystallization of Na 2,4-D from water and 2,4-D acid from organic solvents. Na 2,4-D was recrystallized by taking 500 gms of material from V-501 and adding enough water (350 ml) to form a homogeneous solution at 100°C. The solution was cooled and the precipitated Na 2,4-D was filtered and washed with 5% brine. The Na 2,4-D was redissolved in hot water and the 2,4-D was isolated and analyzed. The results are shown in Table 14.

In two separate experiments, 2,4-D from V-602 was recrystallized from perchloroethylene and ethylbenzene. A weight ratio of 3 parts solvent to 1 part 2,4-D was heated to boiling, the water contained in the molten 2,4-D was boiled out as an azeotrope (the organic distillate was returned) and the solution was cooled. The 2,4-D was recovered by filtration and the solvent removed by heating in a vacuum oven at ~60°C. The results are summarized in Table 14.

Table 13: The Effect of Improved Washing of Molten 2,4-D on Levels of Impurities

Material	Impurities		
	TCX	OCSX	"8-5"
V-602 Starting Mat'l	56	N.D.	58
Wash three times	73	N.D.	60
Reacidify, wash two times	96	34	68
Synthetic V-501 Na 2,4-D: 21.5%			
NaCl 7.0%			
DCP 0.2%			
After Acidif. & Wash	N.D.	N.D.	N.D.
Repeat the synthetic V-501 spiked with 2750 ppm TCX			
After Acidif & wash	3150	N.D.	10

Note: Rhone Progil 2,4-D shows no detectable TCX, OCSX & "8-5"

Table 14: The Effect of Recrystallization of Na 2,4-D and 2,4-D Acid on Impurity Levels

Treatment	Impurity Level (ppm)			F-40** Dilution Test	Comments
	TCX	OCSX	"8-5"		
Recrystallize Na 2,4-D Before*	58	---	127	0.18	Product Highly lored
After	81	53	54	0.3+	
Recrystallize 2,4-D From Perc Before	52	N.D.	46	***	91% Rec very of 2,4-D
After	1	N.D.	N.D.		
Recrystallize 2,4-D From Ethylbenzene Before	52	N.D.	46	***	87% Re very of 2,4-D
After	N.D.	N.D.	N.D.		

*The impurities analysis was performed on a sample of 2,4-D acid isolated from Na 2,4-D without any extra treatment.

**20:1 dilution in 1000 ppm hard water, formulation contained 2% Versene and no P-4000.

***The recrystallized product behaved like the high purity Rhone Progil 2,4-D which is difficult to formulate as was mentioned earlier in this report.

Based upon these results, recrystallization of Na 2,4-D is not a good option since the TCX tends to concentrate in the product and the product was highly colored. It was also observed that the iron level in the product increased from 22 ppm to 91 ppm which could explain the off-color.

Recrystallization from an organic solvent clearly improves the product quality although it would be difficult and expensive to implement in the plant. No further work is planned in this area unless it is determined that extremely low levels of impurities are necessary from a toxicity or an environmental standpoint.

GENERAL CONCLUSIONS

TCX and other non-acidic impurities are formed chiefly in the reaction step of the 2,4-D by several routes. Additional caustic, perchloroethylene, elevated temperatures and iron all promote their formation. A number of attempts to chemically and physically remove these species have met with limited success. It was found that the impurities are concentrated in the recirculating perchloroethylene system and that by increasing the capacity of the clean up distillation column from 0.75 to 15 gpm, the levels of impurities in the process do not cause serious operating or quality problems.

SAFETY & ECOLOGY

2,4-Dichlorophenol, 50% NaOH, and chloroacetic acid are highly toxic and corrosive raw materials. When handling, the protective clothing included lab coat, rubber gloves and goggles, and when possible, all operations were performed in a fume hood. A number of operations were carried out at elevated pressure which required the use of a face shield and secondary shielding in the hood. All waste samples and solutions were sent to the burner for disposal.

EXPERIMENTAL

The Preparation and Workup of 2,4-D

The following is a general description of the procedure used to prepare and isolate 2,4-D when simulating 948 Bldg. A 1 liter round bottom flask equipped with a bottom drain, two dropping funnels, a mechanical stirrer, a thermometer, and a distillation head was charged with 179g (1.1 moles) of 2,4-DCP and 48 g (0.6 moles) of 50% NaOH. The flask was heated with a heating mantel attached to an I²R Thermowatch controller.

The reactor contents were heated while stirring and a DCP-water azeotrope was distilled out. The distillation was continued until enough water was removed so that a temperature of 130°C could be achieved. Normally 9-10 ml of H₂O and 2-3 ml of DCP were removed. The DCP was returned to the pot. Then 47.3g (0.5 moles) of melted MCAA and 40.0g (0.5 moles) of 50% caustic were con-added from the two dropping funnels during 50-60 minutes at 130°C. The rates of addition were carefully controlled so that neither added reactant was significantly in excess of the other. Water and DCP continuously distilled out during the con-add and the DCP was returned to the reactor. After the addition was complete, the reaction was heated an additional 60 minutes. About 43-47 gms of H₂O was recovered in the con-add step. At the end of the post reaction samples of the viscous crude reaction melt were taken into ampoules, if desired.

The work up procedure for isolating the 2,4-D is as follows: (The amounts used assumes no samples were taken after reaction). The reaction mass was diluted with about 500 ml of water, heated to boiling to ensure complete dissolution and the pH was adjusted to 5.2±0.2 with about 12 ml of conc HCl. The solution was then extracted with six 150 ml portions of perc at a temperature of >90°C to remove the DCP. Occasionally 50-100 ml of additional H₂O was necessary to keep all of the solids dissolved. The extracted Na 2,4-D solution was heated

to boiling and any traces of perc were distilled off. The pH of the solution was then lowered to 0.5-0.7 with about 55 ml of conc HCl added rapidly and the molten 2,4-D layer was separated and drained into a beaker. The resulting brine was discarded. The 2,4-D was reslurried in 250 ml of hot distilled H₂O in the pot and washed in this manner two times. The final pH of the aqueous layer was 2.7-2.9. The 2,4-D was recovered and dried overnight at ambient temperatures.

The analyses of product and intermediate streams were performed by personnel in the 948 Bldg quality control laboratory. The analyses for TCX, OCSX, and "8-5" were performed as described earlier⁸.

The Extraction of DCP and Impurities from Na 2,4-D Solution Under Pressure

A glass apparatus was designed and fabricated from heavy wall glass pipe as shown schematically in Figure 9 . The main pot was equipped with a mechanical stirrer and was loaded with 700g of material from V-301 (948 Bldg). The reactor was sealed and heated to 125°C. The perchloroethylene was added in 649 gm increments from the pressurized shot tank. The perc layer was drained into the bottom receiver where it was cooled before draining into a bottle. All analyses on the perc and Na 2,4-D layers were performed in the 948 Bldg Q. C. Laboratory.

The Carbon Clean up of Molten 2,4-D

A glass pressure apparatus was assembled in which molten 2,4-D was pumped onto a carbon column (downflow). The apparatus is shown schematically in Figure 10. The flow of 2,4-D was controlled by controlling the pressure drop across a capillary tube. To handle

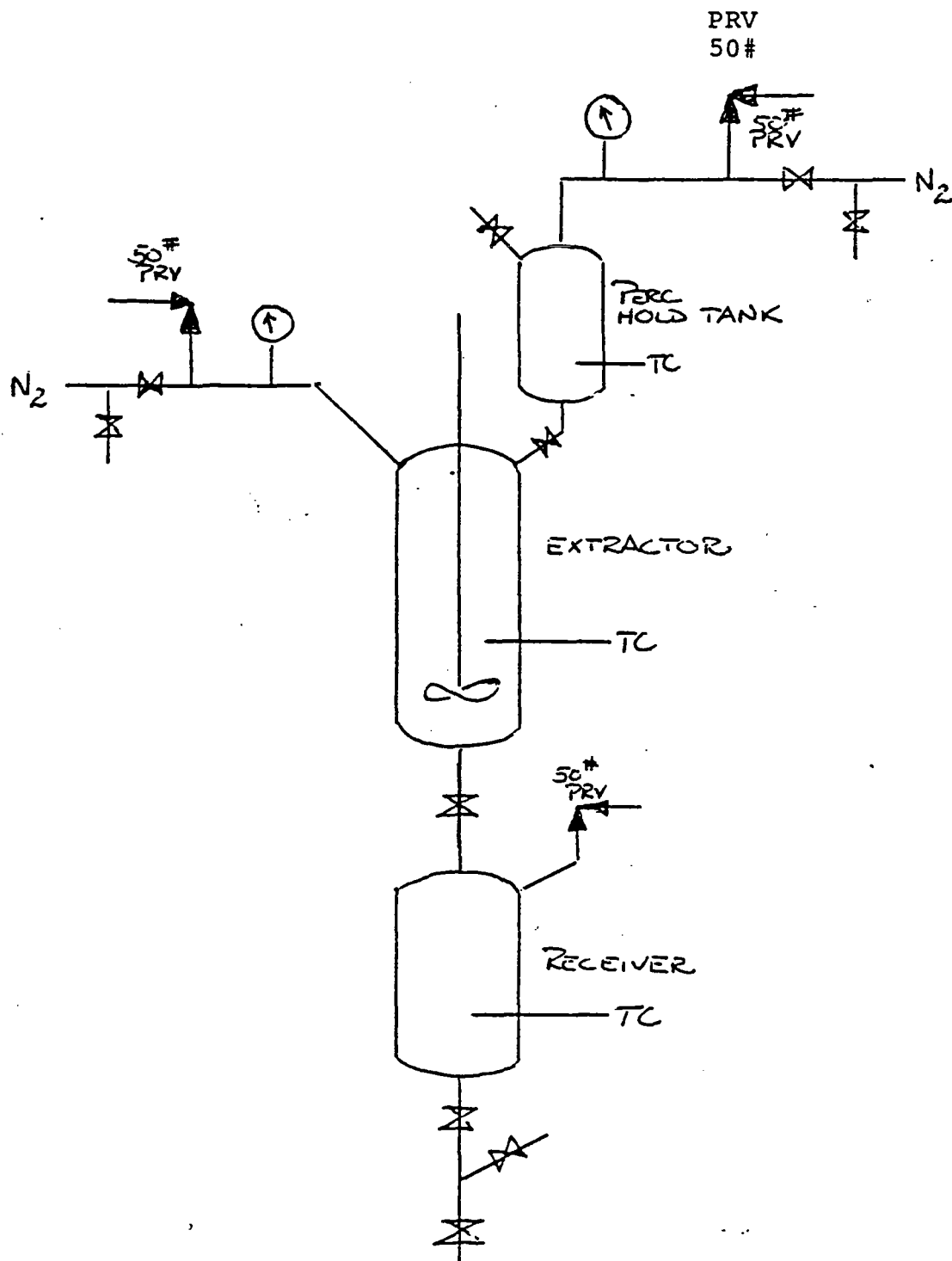
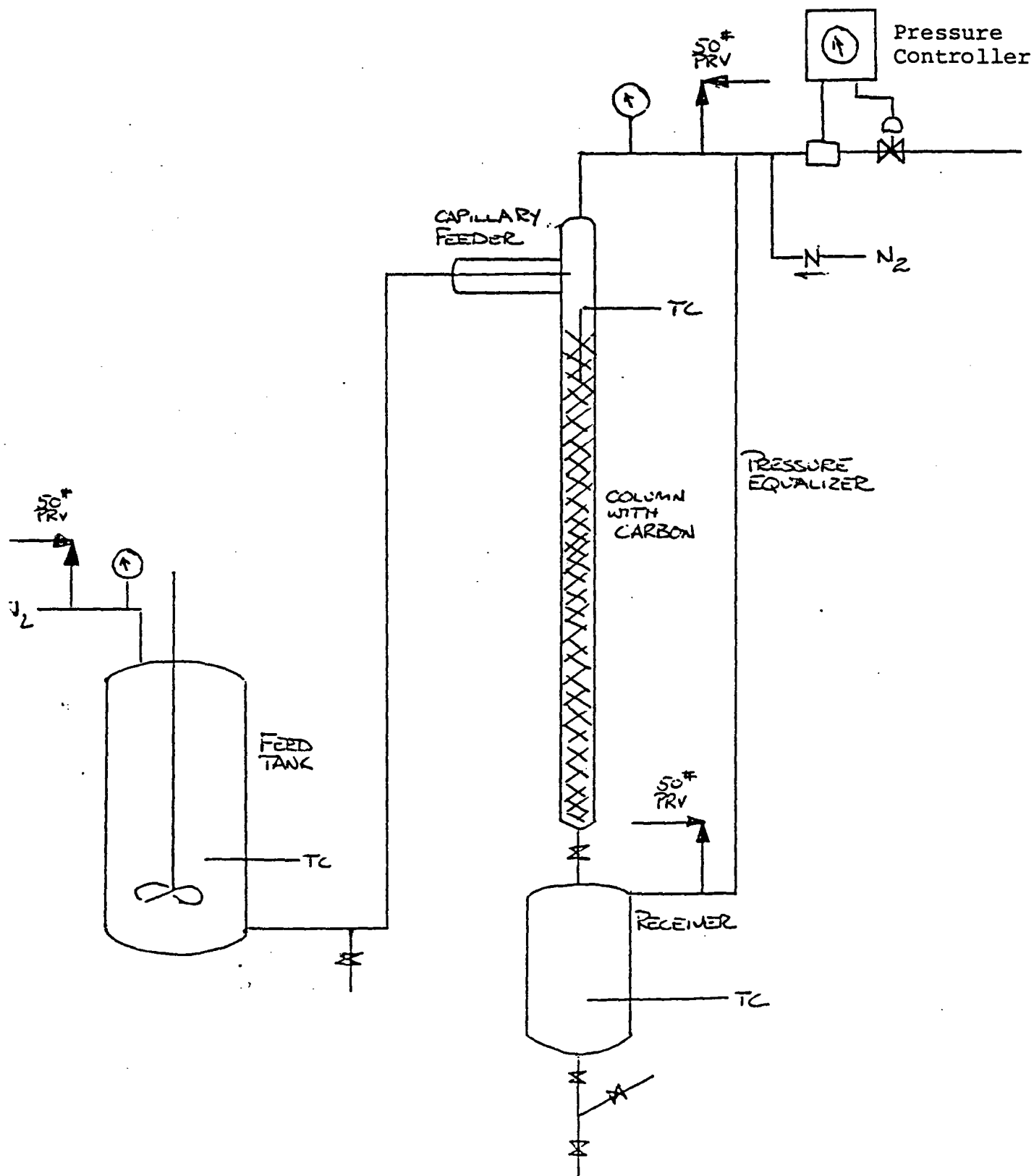


Figure 9: A Schematic Drawing of the apparatus used for Extracting DCP from Na 2,4-D with Perchloroethylene.

Figure 10: A Schematic Drawing of the apparatus used to treat Molten 2,4-D with activated carbon



molten 2,4-D reliably and effectively, required at least 10 psig/
~100-105°C to avoid flashing and freezing problems.

The 2,4-D and a slight excess of water were placed in the feed tank and heated to 110°C. When the entire contents were melted the valve on the bottom of the column was closed, the column was filled with molten acid to 1" above the top of the carbon, and the system stood for 60 min. The pressure drop across the capillary was adjusted to 7 psi (~10 ml/min flow) and the valve on the bottom of the column was adjusted so as to maintain the liquid level above the carbon bed. The results are shown in Table 10.

ACKNOWLEDGEMENTS

The authors wish to thank D. Humbert, R. MacLachlan, T. Evans, G. Jewett, P. Schloemann, and their colleagues for their analytical support. The assistance of K. First and his process modeling efforts are also acknowledged.

REFERENCES

1. R. McLachlan, D. Humbert, G. Kallos, AL 7800101, to be issued.
2. P. Keller, et. al., HET K-2372-(18) February 9, 1978.
3. D. Humbert et. al., unpublished results.
4. Unpublished results to date.
5. Beilstein I, 17, 354.
6. Organic Synthesis Coll, Vol 1, Pg. 552.
7. Beilstein 19 (3) 222, Merck Index 9, 4040.
8. Morrison & Boyd Organic Chemistry, Allan and Bacon, Boston (1963) Pg. 684.
9. (a) S. MacLean, AL-75-20021. (b) V. Stevens, Communication, Inorganic Chem. TS&D.
10. D. Humbert, unpublished results.
11. K. L. Krumel, LR 78-74, 8-15-78.
12. H. F. Brust, OC 0730013-2, 2-26-73.
13. Y. R. Dhingra OCR Lab Book OC 327-5, p. 22-67, 1972.
14. D. L. Fern, PE 73-10, 4-16-73.
15. F. G. Aerstin, private discussion.
16. K. L. Krumel, OC 78-17 LR, 39-78.
17. S. Siegel, Results to be published.
18. Absorption Handbook: Issued by Activated Carbon Div., Calgon Corp., Pittsburg, PA.

LABORATORY NOTEBOOK REFERENCES:

- R. F. Arnold OC 417, Pg. 109-150, OC 640 Pg. 1-73.
K. L. Krumel OC 559, Pg. 95-131.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

NOV 23 1990

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Garry Hamlin, Manager
Corporate Public Affairs
DowElanco
P.O. Box 681428
9002 Purdue Road
Indianapolis, IN 46268-1189

Subject: Krumel Report

Dear Mr. Hamlin:

The EPA Office of Pesticide Programs anticipates receiving requests under the Freedom of Information Act for copies of the documents listed on Enclosure 1, and in accordance with 40 CFR 2.204(a)(3), we are asking you to examine them for confidential information.

If you do not claim these records to be confidential, we will release them under FOIA to requesters who submit a signed Affirmation of Non-multinational Status. A blank affirmation and an explanation of its requirements are enclosed (Enclosure 2).

HOW TO RESPOND TO THIS LETTER

Please answer the questions on Enclosure 3 if you believe any of the records or portions of the records identified on Enclosure 1 contain confidential information.

Instructions to assist you with preparing your answers are attached to Enclosure 3. As stated in the instructions, you must respond to each question, and your reply should be as detailed as necessary to thoroughly and unambiguously answer the questions.

CONCURRENCES							
SYMBOL	H7506C	H7506C					
SURNAME	<i>Erdow</i>	<i>Lawrence</i>					
DATE	11-23-90	11-23-90					

FINAL OPPORTUNITY TO SEPARATE CONFIDENTIAL MATERIAL

Your response will constitute your final opportunity to separate material you believe is confidential from that which can be disclosed to qualified requesters. You are therefore asked to carefully prepare your reply to questions 1 and 2 on Enclosure 3.

WHERE TO SEND COMMENTS

Your reply can be mailed to me at the following address:

Susan Lawrence, Acting Chief
Public Information Branch
Field Operations Division (H7506C)
Office of Pesticide Programs
Environmental Protection Agency
Washington, D.C. 20460

Or your reply can be delivered to the following address:

Crystal Mall #2, Room 246
1921 Jefferson Davis Highway
Arlington, Virginia 22202

DEADLINE FOR RESPONSE

Your reply must be postmarked or hand-delivered within 15 business days of your receipt of this letter.

REQUESTS FOR EXTENSION OF DEADLINE

You may request an extension of the 15-day deadline by writing to me at the address given above or by calling me at (703) 557-4454. Your request for an extension must be made within the 15-day period.

FAILURE TO RESPOND TO THIS LETTER

Failure to respond by the established deadline will constitute a waiver of your claim of confidentiality. If we do not receive any reply from you within the specified time period, we will verify that no response has been sent and then declare the records not to be entitled to confidential treatment.

RELEASE OF NON-CONFIDENTIAL RECORDS TO REQUESTERS

Records named on Enclosure 1 which are not claimed as confidential will be released under FOIA to requesters who submit a signed Affirmation of Non-multinational Status.

This office maintains a public file of letters and signed affirmations from FOIA requesters who are provided with FIFRA health and safety data determined not to be confidential. The file is organized by company name and then subdivided by pesticide name. You can review the file of letters and affirmations in Room 242, Crystal Mall #2. Or you can request copies of the letters and affirmations by writing to me at the address given above. In your request, please specify the company and pesticide of interest.

This file will be your only notification of any release of the records or portions of the records named on Enclosure 1 determined not to be confidential. You will not receive written notification before the records are released to FOIA requesters who submit a signed Affirmation of Non-multinational Status.

CONTACT PERSON FOR QUESTIONS ABOUT THIS LETTER

If you have any questions or need additional information about this letter, please contact me at (703) 557-4454.

Cordially,

Susan M. Lawrence, Acting Chief
Public Information Branch
Field Operations Division
Office of Pesticide Programs

Enclosures



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

Date NOV 23

COMPANY DATA REVIEW REQUESTED UNDER 40 CFR 2.204(a)(3)

The following records, which were submitted by your organization to the EPA Office of Pesticide Programs, may be requested under the Freedom of Information Act. You are asked to review these records and substantiate any claims of confidentiality by answering the questions on Enclosure 3.

Company name DowElanco Pesticide 2,4-D

Volume number:

"A Study of the Formation and Removal of Impurities... for 2,4-D."
(Krumel Report)

- ☐ Microfiche copies of the records are enclosed.
- ☒ Paper copies of the records are enclosed.
- ☐ Sample pages which identify the records are enclosed.
- ☐ No copies are enclosed. The reference numbers will direct you to the records in your files.

PRIN-_____ Docket Number-_____

Enclosure 1 (Letter C)

20322

TRANSMITTAL DOCUMENT

425510-00

1. Name and address of submitter:

Hunt-Wesson, Inc.
(La Choy Food Products Division)
1645 W. Valencia Drive
Fullerton, CA 92633-3899

2. Regulatory action in support of which this package is submitted:

Reregistration of Para chlorophenoxy acetic acid
Company No.: 008906-1
Chemical No.: 019401
Case No.: 2115

3. Transmittal Date:

October 30, 1992

4. List of Submitted Data:

Reg. Volume 1: Possible Maximum Dioxin/Furan Contamination in Bean Sprouts
42551001 Volume 2: Summary of Levels of Substituted Dioxins and Benzofurans in Samples of 2,4-D
42551002 Volume 3: Determination of Dioxins and Benzofurans in 2,4-D, 2,4-DCP, MCPA, 2,4-DP, CMPP and 2,4-DPB by GC/MS
Admin ✓ Volume 4: July 25, 1990 letter to EPA summarizing Hunt-Wesson's request to waive dioxin/furan data and documents supporting low volume/minor use. Includes EPA's response of March 31, 1991.
Reg. Volume 5: August 11, 1992 letter from Hunt-Wesson to R.J. Otten reporting result of analysis of 4-CPA.
42551003 Volume 6: Report from Wright State University.
42551004 Volume 7: 4-CPA Magnitude of Residue Study.
42551005 Volume 8: Hunt-Wesson Report.

COMPANY OFFICIAL:


Richard J. Otten, Regulatory Consultant

COMPANY NAME:

Hunt-Wesson, Inc.

COMPANY CONTACT:

Richard J. Otten Phone: 919-846-7860

ACTIVE INGREDIENTS FOR CASE

0073 2,4-D

PC CODE CHEMICAL NAME

30001	2,4-Dichlorophenoxyacetic acid
30002	Lithium 2,4-dichlorophenoxyacetate
30004	Sodium 2,4-dichlorophenoxyacetate
30005	Ammonium 2,4-dichlorophenoxyacetate
30010	Alkanol* amine 2,4-dichlorophenoxyacetate *(salts of the ethanol and isopropanol series)
30011	Alkyl* amine 2,4-dichlorophenoxyacetate *(100% C12)
30013	Alkyl* amine 2,4-dichlorophenoxyacetate *(100% C14)
30014	Alkyl* amine 2,4-dichlorophenoxyacetate *(as in fatty acids of tall oil)
30016	Diethanolamine (2,4-dichlorophenoxy)acetate
30017	Diethylamine 2,4-dichlorophenoxyacetate
30019	Dimethylamine 2,4-dichlorophenoxyacetate
30020	N,N-Dimethylethylamine 2,4-dichlorophenoxyacetate
30021	Ethanolamine 2,4-dichlorophenoxyacetate
30023	Heptylamine 2,4-dichlorophenoxyacetate
30024	Isopropanolamine 2,4-dichlorophenoxyacetate
30025	Isopropylamine 2,4-dichlorophenoxyacetate
30028	Morpholine 2,4-dichlorophenoxyacetate
30029	N-Oleoyl-1,3-propylenediamine 2,4-dichlorophenoxyacetate
30030	Octylamine 2,4-dichlorophenoxyacetate
30033	Triethanolamine 2,4-dichlorophenoxyacetate
30034	Triethylamine 2,4-dichlorophenoxyacetate
30035	Triisopropanolamine 2,4-dichlorophenoxyacetate
30039	N,N-Dimethyl oleoyl-linoleyl amine 2,4-dichlorophenoxyacetate
30052	Butoxyethoxypropyl 2,4-dichlorophenoxyacetate
30053	Butoxyethyl 2,4-dichlorophenoxyacetate
30055	3-Butoxypropyl 2,4-dichlorophenoxyacetate
30056	Butyl 2,4-dichlorophenoxyacetate
30062	Isobutyl 2,4-dichlorophenoxyacetate
30063	Acetic acid, (2,4-dichlorophenoxy)-, 2-ethylhexyl ester
30064	Isooctyl(2-ethyl-4-methylpentyl) 2,4-dichlorophenoxyacetate
30065	Isooctyl(2-octyl) 2,4-dichlorophenoxyacetate
30066	Isopropyl 2,4-dichlorophenoxyacetate
30072	Propylene glycol butyl ether 2,4-dichlorophenoxyacetate

11/26/93

REFERENCE FILES SYSTEM

PAGE 1

ACTIVE INGREDIENTS FOR CASE

Ø196 2,4-DB

PC CODE CHEMICAL NAME

30801	4-(2,4-Dichlorophenoxy)butyric acid
30804	Sodium 4-(2,4-dichlorophenoxy)butyrate
30819	Dimethylamine 4-(2,4-dichlorophenoxy)butyrate
30853	Butoxyethanol 4-(2,4-dichlorophenoxy)butyrate
30856	Butyl 4-(2,4-dichlorophenoxy)butyrate
30863	Isooctyl 4-(2,4-dichlorophenoxy)butyrate

11/26/93

REFERENCE FILES SYSTEM

PAGE 1

ACTIVE INGREDIENTS FOR CASE

Ø294 2,4-DP

PC CODE CHEMICAL NAME

31401	2-(2,4-Dichlorophenoxy)propionic acid
31419	Dimethylamine 2-(2,4-dichlorophenoxy)propionate
31453	Butoxyethyl 2-(2,4-dichlorophenoxy)propionate
31463	Isooctyl 2-(2,4-dichlorophenoxy)propionate

20325

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

SEARCH TERMS:

CHEMICALS: 030001 OR 030002 OR 030004 OR 030005 OR 030010
OR 030011 OR 030013 OR 030014 OR 030016 OR 030017
OR 030019 OR 030020 OR 030020 OR 030021 OR 030023
OR 030024 OR 030025 OR 030028 OR 030029 OR 030030

AND

SUBJECT: PRODUCT CHEMISTRY

AND

SUBMITTER: ALL

AND

SUBMISSION DATE: ALL

AND

LAB-ID: ALL

AND

DOCUMENT TYPES: ALL SELECTED STUDIES
REGARDLESS OF DOCUMENT TYPE

AND

ENTRY DATE: ALL

NUMBER OF STUDIES: 759

MRID SEQUENCE BIBLIOGRAPHY -----	NUMBER OF COPIES:	1
AUTHOR SEQUENCE BIBLIOGRAPHY ----	NUMBER OF COPIES:	0
SUBMITTER SEQUENCE BIBLIOGRAPHY -	NUMBER OF COPIES:	0
GUIDELINE SEQUENCE BIBLIOGRAPHY		
SUMMARY FORMAT -----	NUMBER OF COPIES:	0
EXPANDED FORMAT -----	NUMBER OF COPIES:	0

PAPER SIZE: 8 1/2 BY 11 INCH PAPER

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00004039	Starr, R.I.; Cunningham, D.J. (1966?) Translocation and Degradation of 4-Aminopyridine in Corn Plants. (Unpublished study received Jan 3, 1973 under 1F1013; prepared by U.S. Fish and Wildlife Service, Denver Wildlife Research Center, submitted by Phillips Petroleum Co., Bartlesville, Okla.; CDL:091757-T)
00004126	Starr, B. (19??) Thin-Layer Chromatography--Avitrol. (Unpublished study received Apr 15, 1969 under 224-EX-3; prepared by U.S. Fish and Wildlife Service, Denver Research Center, submitted by Phillips Petroleum Co., Bartlesville, Okla.; CDL:122745-J)
00004457	Dow Chemical Company (1967) Introduction and General Consideration Regarding the Performance Section of Compilation. Summary of studies 003622-B through 003622-Y, 003622-AA through 003622-AB. (Unpublished study received Nov 6, 1967 under 464-398; CDL: 003622-A)
00004480	Watson, A.J.; Reimer, C.A. (1965) Response of Selkirk Spring Wheat to Foliage Sprays of Tordon and Combinations of Tordon and 2,4-D or MCPA--1963. (Unpublished study received Nov 6, 1967 under 464-398; submitted by Dow Chemical U.S.A., Midland, Mich.; CDL: 003622-AA)
00004725	Stanley, C.W. (1966) Derivatization of pesticide-related acids and phenols for gas chromatographic determination. Journal of Agricultural and Food Chemistry 14(3):321-323. (Also°In°unpublished submission received Sep 12, 1968 under 8F0676; submitted by Dow Chemical U.S.A., Midland, Mich.; CDL:092980-AQ)
00004729	Storrs, E.E.; Burchfield, H.P. (1962) Internal standards in the analysis of Chlorine-containing herbicides by gas chromatography. Contributions from the Boyce Thompson Institute 21(7):423-437. (Also°In°unpublished submission received Sep 12, 1968 under 8F0676; submitted by Dow Chemical U.S.A., Midland, Mich.; CDL: 092980-AV)
00004731	Bruynje, J.H. (1973) Principles of MCPP and 2.4 D Production at Akzo's. (Unpublished study received Feb 20, 1973 under 6305-10; prepared by Akzo & Zout Chemie nv, submitted by Robeco Chemicals, Inc., New York, N.Y.; CDL:022388-B)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00004777	Kenaga, E.E. (1972) The Comparative Toxicity to Birds of Dow Herbicides Containing Chlorophenoxyalkanoic Acids and Derivatives. (Unpublished study received Apr 16, 1974 under 802-517; prepared by Dow Chemical Co., submitted by Lilly Charles H. Co., Miller Rd. Div., Portland, Oreg.; CDL:128581-A)
00004784	Chipman Chemical Company, Incorporated. (1967) Summary of Available Acute Toxicity Data on a Bromoxynil octanoate/MCPA Isoocty Ester Formulation as Compared with Bromoxynil and MCPA: SR/3/67. (Unpublished study received Mar 10, 1967 under 359-601; submitted by Rhone-Poulenc, Inc., Monmouth Junction, N.J.; CDL:023320-D)
00004816	Klingman, G.C. (1966) Laboratory Determination of Precipitates Formed from Various 2,4-D Formulations with Solutions of Ammonium nitrate and Mixtures of Ammonium nitrate and Urea (Uran 30%). (Unpublished study including letter dated May 5, 1966 from B.A. Sprayberry for files, received Mar 13, 1967 under 677-245; prepared in cooperation with North Carolina State Univ., submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL:133084-E)
00005568	Velsicol Chemical Corporation (1973) Banvel + Lasso + Sprayable Fluid Fertilizer. (Unpublished study received Mar 15, 1973 under 876-25; CDL:005053-A)
00013389	Guardigli, A. (1971) Analysis of Weed-Broom Formulation by Ultra-violet Spectrophotometry and Thin Layer Chromatography. Rhodia Analytical Method No. 114 dated Nov 1, 1971. (Unpublished study received Dec 14, 1971 under 359-627; prepared by Rhodia, Inc., submitted by Rhone-Poulenc, Inc., Monmouth Junction, N.J.; CDL:003176-D)
00019897	Garbrecht, T.P., Sr. (1978) Determination of Dicamba, 2,4-D, MCPA, or MCPP in Formulations by High Pressure Liquid Chromatography (HPLC). Method no. CF 78-2 dated Feb 16, 1978. (Unpublished study received Nov 6, 1979 under 538-160; submitted by O.M. Scott & Sons Co., Marysville, Ohio; CDL:241349-F)
00021791	Stauffer Chemical Company (19??) R-1910 + 2,4-D 3-1E. (Unpublished study received Mar 30, 1966 under unknown admin. no., CDL:123645-A)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00021792	Stauffer Chemical Company (19??) †Composition of R-1910; Shipments of R-1910 . (Unpublished study received Mar 30, 1966 under unknown admin. no.; CDL:123645-C)
00022448	O.M. Scott & Sons Company (1966) Summary of Results Report for Five Dry Granular Fertilizer and Vermiculite Formulations Containing Dicamba as a Replacement for MCPP. (Unpublished study received Jun 15, 1966 under 538-28; CDL:023114-A)
00022516	Stagen, R. (1972) B12D--W.S. B12T--W.S.: Report 407386, No. 1. (Unpublished study received May 10, 1972 under 876-176; submitted by Velsicol Chemical Corp., Chicago, Ill.; CDL:005085-I)
00022545	Ferguson, F. (1978) Accelerated Shelf Life Study: New Fertilizer plus Dicot Weed Control: Formulation F-8481. (Unpublished study received Nov 1, 1978 under 538-33; submitted by O.M. Scott & Sons Co., Marysville, Ohio; CDL:235612-A)
00022614	Velsicol Chemical Corporation (1969) Stability of Stull Invert Formulations Containing Banvel and Various Other Herbicides at 0-oMF and 122-oMF. (Unpublished study received Jul 9, 1969 under 2738-56; submitted by Stull Chemical Co., San Antonio, Tex.; CDL:006092-A)
00022721	Stagen, R.S. (1973) 1 Lb. Banvel-(R)M--3 LbS. 2,4D-Dimethylamine Salt/Gal. W.S.: Report 407386, No. 3. (Unpublished study received Nov 2, 1973 under 876-203; submitted by Velsicol Chemical Corp., Chicago, Ill.; CDL:009058-D)
00025386	Ross, R.D.; Morrison, J.; Rounbehler, D.P.; et al. (1977) °N°#-Nitroso compound impurities in herbicide formulations. Journal of Agricultural and Food Chemistry 25(6):1416-1418. (Also°In°unpublished submission received Feb 27, 1978 under 876-25; submitted by Velsicol Chemical Corp., Chicago, Ill.; CDL:233352-A)
00026306	Zaratzian, V.L. (1966) †R-1910: Toxicity to Rats and Rabbits . (U.S. Agricultural Research Service, Pesticides Regulation Div., unpublished report.)
00026341	Boots Pure Drug Company, Limited (1957) Iso-Cornox: (Formulation of CMPP). (Unpublished study received Jan 2, 1980 under 2217-485; submitted by PBI-Gordon Corp., Kansas City, Kans.; CDL:241579-W)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00026721	Diamond Shamrock Corporation (19??) Formula: Dacthal-(R) W-75 Herbicide (75% Wettable Powder): A Selective Preemergence Herbicide for Control of Annual Grasses and Certain Broadleaved Weeds. (Unpublished study received Dec 10, 1968 under 9F0780; CDL: 092028-A)
00028174	S.C. Johnson and Sons, Incorporated (19??) Johnson Yard Master Foam Lawn Weed Killer: Analytical Stability Data. Includes undated method. (Unpublished study received Oct 30, 1972 under 4822-124; CDL:007519-A)
00028314	O.M. Scott & Sons Company (1967) The Stability of 2,4-D-Dicamba Combinations on Vermiculite and Fertilizer Carriers. (Unpublished study received Jan 10, 1967 under 538-9; CDL:004053-A)
0028317	Rhodia, Incorporated (1969) Analysis of a Granular Formulation Containing 2,4-D, Banvel D, MCPP, and Chlordane: AR No. 45. (Unpublished study received May 22, 1969 under 359-621; submitted by Rhone-Poulenc Chemical Co., Monmouth Junction, N.J.; CDL: 003173-A)
00028325	Stebbins, P.; Drew, D. (1979) Formal Report of Analysis for N-Nitroso Compounds: Report No. 5450-711. (Unpublished study received Aug 29, 1979 under 2217-624; prepared by Thermo Electron Corp., submitted by PBI-Gordon Corp., Kansas City, Kans.; CDL: 240871-A)
00028326	Forrette, J.E.; Trujillo, W.A; Smith, M.; et al. (1977) Analysis of the Dimethylnitrosamine Content of Technical Dicamba, Principal Banvel Formulations and Dimethylamine Used in the Formulation of Banvel Products: Report No. 4. Unpublished study; 43p.
00028327	Rozeck, A.; Grins, G.; Smith, M. (1978) Analysis of Various Pesticide Formulations for Nitrosamine Content: Report No. 2. (Unpublished study received Feb 8, 1979 under 35911-16; prepared by Velsicol Chemical Corp., submitted by Rivhard Conn., Inc., South Field, Mich.; CDL:238583-B)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00028328	Born, G.L. (1979) Long Term Shelf Life Storage. (Unpublished study including letter dated Jan 24, 1979 from G.L. Born to U.S. Environmental Protection Agency, Office of Pesticide Programs, Registration Div., received Jan 24, 1979 under 538-33; submitted by O.M. Scott & Sons Co., Marysville, Ohio; CDL:236858-A)
00028333	F.J. Weck Company (1978) Study of Herbicides for N-Nitroso Compounds. (Unpublished study received Mar 14, 1979 under 557-1654; submitted by Swift Agricultural Chemical, Chicago, Ill.; CDL:237844-A)
00028396	Momar, Incorporated (19??) Quality Control Test for Chlorine Content. Undated method. (Unpublished study received on unknown date under 1553-83; CDL:101698-A)
0028460	Bishop, J.R. (1979) Production of 2,4-D Acid. (Unpublished study received Mar 10, 1980 under 264-231; submitted by Union Carbide Agricultural Products Co., Ambler, Pa.; CDL:241984-C)
00030428	Schwamb, L. (1980) Formal Report of Analysis for N-Nitroso Compounds: Report No. 5450-892. (Unpublished study received Mar 18, 1980 under 9198-47; prepared by Thermo Electron Corp., submitted by Anderson Lawn Fertilizer, Div. of Free Flow Fertilizer Co., Maumee, Ohio; CDL:242167-A)
00032125	Dow Chemical Company (1977) Determination of N-Nitrosodimethylamine in DMA-6 Herbicide. Method ML-AM-77-56 dated Dec 27, 1977. (Unpublished study received Mar 18, 1980 under 802-146; submitted by Chas. H. Lilly Co., Miller Road Div., Portland, Oreg.; CDL:242334-A)
00032217	Kaldon, H. (19??) 4L Compatibilities. (Unpublished study received Oct 22, 1969 under 100-497; submitted by Ciba-Geigy Corp., Greensboro, N.C.; CDL:000523-D)
00032366	O.M. Scott & Sons (1964) Quantitative Analysis of Proposed Combination Product Formulations. (Unpublished study received Sep 16, 1964 under 538-29; CDL:050136-B)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00033124	American Chemical Paint Company (1955) Weedazol: H-60. (Unpublished study received Jun 9, 1955 under 264-68; submitted by Union Carbide Agricultural Products Co., Ambler, Pa.; CDL: 001845-A)
00033316	Geigy Chemical Corporation (19??) Simazine Herbicides for Selective and Non-Selective Uses. Ardsley, N.Y.: Geigy. (Simazine technical bulletin no. 62-1; also°In°unpublished submission received Feb 8, 1963 under 7401-192; submitted by Voluntary Purchasing Group, Inc., Bonham, Tex.; CDL:009207-A)
00034185	Davis, D.L.; Kondo, W.T.; Sumida, A.M.; et al. (1965) ¶Efficacy of Paraquat on Lawn Weeds : Project No. 170-W64-1. (Unpublished study including project nos. S64-13 and 118-S64-13, received Aug 11, 1966 under 239-1994; submitted by Chevron Chemical Co., Richmond, Calif.; CDL:001437-A)
00035914	Woolson, E.A.; Thomas, R.F.; Ensor, P.D.J. (1972) ¶Without title . Journal of Agricultural and Food Chemistry 20(2):351-354. (Also #°In°unpublished submission received Sep 24, 1970 under 1E1046; submitted by U.S. Dept. of the Army, Office of the Chief of Engineers, Washington, D.C.; CDL:096474-D)
00035936	Bandurski, R.S. (1947) Spectrophotometric method for determination of 2,4-Dichlorophenoxyacetic acid. Botanical Gazette ? (?/Mar):446-449. (Also°In°unpublished submission received Jul 11, 1971 under 1E1046; submitted by U.S. Dept. of the Army, Washington, D.C.; CDL:093359-A)
00035940	Carlile, B.L. (1968) Degradation and Depletion of Herbicides in Drainage Waters and Accumulation of Residues in Crops Irrigated with Treated Water: Annual Report--2,4-D and Silvex. (Battelle Memorial Institute, unpublished study; CDL:093359-E)
00036042	Tennessee Valley Authority (19??) Name, Chemical Identity, and Composition. (Unpublished study; CDL:095539-A)
00037488	Thermo Electron Corporation (1979) Recovery Data for Nitrosamines. (Unpublished study including letter dated Jan 14, 1980 from W.A. Davis to Willa Y. Garner, received Jan 15, 1980 under 264-236; submitted by Union Carbide Agricultural Products Co., Ambler, Pa.; CDL:242777-A)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00039731	National Agricultural Chemicals Association's Industry Task Force on Phenoxy Herbicide Tolerances (19??) Ingredient Data Sheet: ‡Amine 4D . (Unpublished study received Dec 8, 1967 under 8F0670; CDL:095152-D)
00039733	Dow Chemical U.S.A. (1972) 2,4-D Sodium salt Weed Killer. (Unpublished study received on unknown date under 8F0670; submitted by National Agricultural Chemicals Association's Industry Task Force on Phenoxy Herbicide Tolerances, Washington, D.C.; CDL: 095152-H)
00039738	Dow Chemical U.S.A. (1972) Dow DMA-4 Weedkiller: M-3538. (Unpublished study received on unknown date under 8F0670; submitted by National Agricultural Chemicals Association's Industry Task Force on Phenoxy Herbicide Tolerances, Washington, D.C.; CDL: 095152-M)
00039739	Dow Chemical U.S.A. (1972) Dow DMA-6 Weed Killer: M-3637. (Unpublished study received on unknown date under 8F0670; submitted by National Agricultural Chemicals Association's Industry Task Force on Phenoxy Herbicide Tolerances, Washington, D.C.; CDL: 095152-N)
00039748	Dow Chemical U.S.A. (1972) Formula 40: M-3604. (Unpublished study received on unknown date under 8F0670; submitted by National Agricultural Chemicals Association, Industry Task Force on Phenoxy Herbicide Tolerances, Washington, D.C.; CDL:095152-W)
00039753	Rhodia, Incorporated (1971) Chipman 2,4-D Amine No. 4. (Unpublished study received on unknown date under 8F0670; submitted by National Agricultural Chemicals Association, Industry Task Force on Phenoxy Herbicide Tolerances, Washington, D.C.; CDL: 095152-AB)
00039754	Rhodia, Incorporated (1971) Chipman 2,4-D Amine No. 6. (Unpublished study received on unknown date under 8F0670; submitted by National Agricultural Chemicals Association, Industry Task Force on Phenoxy Herbicide Tolerances, Washington, D.C.; CDL: 095152-AC)

20333

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00040425	Eshel, Y.; Warren, G.F. (1967) A simplified method for determining phytotoxicity, leaching, and adsorption of herbicides in soils. Weeds 15(2):115-118. (Also°In°unpublished submission received Feb 24, 1977 under 748-161; submitted by PPG Industries, Inc., Barberton, Ohio; CDL:096035-B)
00043758	U.S. Department of the Army, Office of the Chief of Engineers (1961) Nomenclature, Physical and Chemical Properties, Use, and Behavior of 2,4-D. (Unpublished study; CDL:099544-C)
00043765	U.S. Department of the Army, Office of the Chief of Engineers (19??) Summary for All Sections of Petition. Summary of study 099544-J. (Unpublished study; CDL:099544-K)
00043828	Gangstad, E.O.; Fish, F.; Stanley, R.A.; et al. (1976) Butoxy-ethanol ester of 2,4-D for Control of Eurasian Water Milfoil. Final rept. Vicksburg, Miss.: U.S. Army Engineer, Waterways Experiment Station. (Aquatic Plant Control Program, technical report 12, published study; CDL:099542-A)
00044670	Althaus, R.E.; Howe, G.L. (1965) The Name, Chemical Identity, Physical Composition of the Pesticide Chemical: ‡Roundup . (Unpublished study received Sep 30, 1965 under 524-157; submitted by Monsanto Co., Washington, D.C.; CDL:100754-A)
00044817	Song, L. (1977) Formal Report of Analysis: ‡NDMA . (Unpublished study received May 10, 1978 under 8414-15; prepared by Thermo Electron Research Center, submitted by Hoyt's Insecticide Co., Atlanta, Ga.; CDL:242938-A)
00045408	Dow Chemical Company (1969) The Name, Chemical Identity, and Composition of the Pesticide Chemical: ‡Tordon . (Unpublished study received Aug 4, 1969 under OF0863; CDL:093160-F)
00046137	Nachemco, Incorporated (19??) Comparison of Dimethylamine salt of 2,4-Dichlorophenoxyacetic acid with Dimethylammonium-2,4-Dichlorophenoxyacetate. (Unpublished study received on unknown date under 10629-2; CDL:013013-A)
00046138	Nachemco, Incorporated (19??) Gator Weed Spray. (Unpublished study received on unknown date under 10629-2; CDL:013013-B)

20334

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00046140	Penniman & Browne, Incorporated (1971) Report of Analysis: Acetamide: Report No. 711196. (Compilation; unpublished study including report no. 711196-A, received on unknown date under 10629-2; submitted by Nachem, Inc., Fort Lauderdale, Fla.; CDL: 013013-F)
00046185	U.S. Office of Science and Technology, Panel on Herbicides (1970) Report on 2,4-D. (Unpublished study; CDL:119429-A)
00048102	Clearwater Chemical Corporation (19??) Dimethyl 2-4-D Acetate. (Unpublished study received Nov 22, 1971 under 16133-1; CDL: 015056-M)
00048909	Stull Chemical Company (1969) Stability of Stull Invert Formulations Containing Banvel and Various Other Herbicides at 0-oz F and 120-oz F. (Unpublished study received Jul 9, 1969 under 2738-55; CDL:225649-A)
00048910	Stull Chemical Company (1969) Stability of Stull Invert Formulations Containing Banvel and Various Other Herbicides at 0-oz F and 122-oz F. (Unpublished study received Jul 8, 1969 under 2738-54; CDL:225648-A)
00048911	Stull Chemical Company (1969) Stability of Stull Invert Formulations Containing Banvel and Various Other Herbicides at 0-oz F and 122-oz F. (Unpublished study received Jul 9, 1969 under 2738-55; CDL:225647-A)
00048912	Stull Chemical Company (1969) Stability of Stull Invert Formulations Containing Banvel and Various Other Herbicides at 0-oz F and 122-oz F. (Unpublished study received Jul 9, 1969 under 2738-52; CDL:225646-A)
00051196	Kross, R.D. (1971) Letter sent to L.H. Nash dated Aug 13, 1971: C,H,N,O,Cl percent composition, and stability of aqueous solution. (Unpublished study received on unknown date under 10629-2; prepared by Kross-Reference Laboratories, submitted by Nachemco, Inc., Fort Lauderdale, Fla.; CDL:013013-E)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00051197	Erwin, R. (1972) Letter sent to L.H. Nash dated Nov 30, 1972 ¶In-fra-red curves of Dimethylamine salt of 2-4-D and Dimethylammonium 2-4-dichlorophenoxyacetate : Y-037326. (Unpublished study received on unknown date under 10629-2; prepared by Erwin Chemical Laboratory, submitted by Nachemco, Inc., Fort Lauderdale, Fla.; CDL:013013-G)
00051198	Erwin, R. (1972) Letter sent to L.H. Nash dated Nov 30, 1972 ¶Light transmission graph of Dimethylamine salt of 2-4-D and Dimethylammonium 2-4-D acetate : Y-037326. (Unpublished study received on unknown date under 10629-2; prepared by Erwin Chemical Laboratory, submitted by Nachemco, Inc., Fort Lauderdale, Fla.; CDL:013013-H)
00051202	Sherwin-Williams Company of Canada, Limited (1964) ¶Toxicity Study of CMPP, MCPA and 2,4-D--Rats, Mice . (Compilation; unpublished study received Feb 10, 1964 under 461-EX-13; submitted by Stubbins Hollander Co., East Orange, N.J.; CDL:127413-A)
00051206	Nash, L.H. (1971) Letter sent to Environmental Protection Agency, Pesticide Regulation Division dated Nov 18, 1971 ¶Efficacy, safety, stability and chemistry of Dimethylammonium-2,4-dichlorophenoxyacetate . (Unpublished study received Nov 22, 1971 under 16133-1; prepared by Nachemco, Inc., submitted by Clearwater Chemical Corp., Mt. Myers, Fla.; CDL:015056-A)
00052294	U.S. Department of the Army, Office of the Chief of Engineers (19??) Data Sheet Giving the Chemical and Physical Properties of the Chemical: ¶3 MCAP-24 . (Unpublished study; CDL:096474-H)
00052298	U.S. Department of the Army, Office of the Chief of Engineers (19??) Mechanism of Release: ¶2,4-D . (Unpublished study; CDL:096474-L)
00052607	U.S. Environmental Protection Agency (19??) 2,4-D acetate Evaluation Summary Report. Summary of studies 128404-B through 128404-D. (Chemical & Biological Investigations Branch, Technical Services Div., unpublished study; CDL:128405-A)
00052612	Thomas, R.F. (1972) Report of Tests on Two 2,4-D Products. (Unpublished study received Apr 5, 1973 under 10629-1; submitted by Nachemco, Inc., Fort Lauderdale, Fla.; CDL:128404-A)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00053697	Upton, E.T. (1972) Letter sent to Drew M. Baker, Jr. dated Jun 5, 1972 Identity of the inert ingredients used in the formulations for 2,4-D, Silvex and MCPA . (Unpublished study received on unknown date under 9F0761; prepared by Thompson-Hayward Chemical Co., submitted by National Agricultural Chemicals Association, Industry Task Force on Phenoxy Herbicide Tolerances, Washington, D.C.; CDL:096516-G)
00053746	Akzo Zout Chemie Nederland, B.V. (1973) Determination of Total Acid in Phenoxy acetic acid or Phenoxy propionic acid and Their Salts by Direct Potentiometric Titration. Method 248.1 dated Feb 12, 1973. (Unpublished study received Aug 15, 1977 under 38117-2; CDL:231352-B)
00053748	Akzo Zout Chemie Nederland, B.V. (1973) Spectrophotometric Determination of Chlorophenol in Phenoxy acetic acid or Phenoxy propionic acid and Their Salts with 4-Amino antipyrine. Method no. 259.3 dated Feb 12, 1973. (Unpublished study received Aug 15, 1977 under 38117-2; CDL:231352-D)
00055668	O.M. Scott & Sons Company (1980) Method of Manufacture: Dry Applied Super Broadleaved Weed Control and Fertilizer F-8791: New Improved Super Turf Builder Plus 2. (Unpublished study received Nov 6, 1980 under 538-167; CDL:243671-A)
00055669	O.M. Scott & Sons Company (1980) New Improved Super Turf Builder Plus 2: Long Term Shelf Life Storage. (Unpublished study received Nov 6, 1980 under 538-167; CDL:243671-B)
00056373	Hercules, Incorporated (19??) Hercules-(R)M Rosin Amines--Amine D, Amine 750, Amine D acetate and Amine 750 acetate. Wilmington, Del.: Hercules. (Bulletin PC-132A; also°In°unpublished submission received Jun 14, 1976 under 900-110; submitted by Chemical Service, Franklin Park, Ill.; CDL:226020-B)
00058889	Dow Chemical Company (1971) Analytical Method: Determination of 2,3,7,8-Tetrachlorodibenzo-p-dioxin in 2,4,5-Trichlorophenoxy-acetic acid and Related Materials. Method ML-AM-71-48 dated Sep 24, 1971. (Unpublished study received Oct 7, 1974 under 359-670; submitted by Rhone-Poulenc Chemical Co., Monmouth Junction, N.J.; CDL:230487-B)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00059656	Dow Chemical U.S.A. (19??) Basic Manufacturing Process for Lontrel 205 Herbicide. (Unpublished study received Nov 12, 1980 under 464-563; CDL:099729-G)
00059657	Dow Chemical U.S.A. (19??) Lontrel 205 Herbicide (M-3785). (Unpublished study received Nov 12, 1980 under 464-563; CDL:099729-H)
00059658	Boswell, G.L.; Jensen, D.J. (1979) Analysis of Dowco 290 and Various Amine salts of 2,4-D in Formulation M-3785. Method # 79.5 dated Jul 6, 1979. (Unpublished study received Nov 12, 1980 under 464-563; submitted by Dow Chemical U.S.A., Midland, Mich.; CDL:099729-I)
00059659	Dow Chemical U.S.A. (19??) Physical and Chemical Properties of Lontrel 205 Herbicide. (Unpublished study received Nov 12, 1980 under 464-563; CDL:099729-J)
00059660	Krause, R.E. (1976) Dowco 290 Alkanolamine salt Herbicide Formulations: Dowco 290/2,4-D; M-3785 and Dowco 290/MCP; M-3786: Two Year Stability Data. (Unpublished study received Nov 12, 1980 under 464-563; submitted by Dow Chemical U.S.A., Midland, Mich.; CDL:099729-K)
00059698	Boswell, G.L.; Jensen, D.J. (1979) Analytical Procedure: Analysis of Dowco 290 and Various Amine salts of 2,4-D in Formulation M-3785. Method # 79.5 dated Jul 6, 1979. (Unpublished study received Nov 12, 1980 under 464-563; submitted by Dow Chemical U.S.A., Midland, Mich.; CDL:099730-C)
00059947	Pollock, R.J. (1980) Letter sent to Richard Mountfort dated Aug 1, 1980 How levels of Nitrosamine are calculated. (Unpublished study received Aug 6, 1980 under 802-30; prepared by Analytical Development Corp., submitted by Chas. H. Lilly Co., Miller Road Div., Portland, Oreg.; CDL:243045-A)
00059948	Dow Chemical Company (1977) Determination of N-Nitrosodimethylamine in DMA-6 Herbicide. Method ML-AM-77-56 dated Dec 27, 1977. (Unpublished study received Aug 6, 1980 under 802-30; submitted by Chas. H. Lilly Co., Miller Road Div., Portland, Oreg.; CDL:243045-B)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00059949	Pollock, R.J. (1980) Letter sent to Willa Y. Garner dated Mar 26, 1980 ¶Raw data for Nitrosamine levels found in Chas. H. Lilly Co.'s products . (Unpublished study received Aug 6, 1980 under 802-30; prepared by Analytical Development Corp., submitted by Chas. H. Lilly Co., Miller Road Div., Portland, Oreg.; CDL: 243045-C)
00060052	Green Dot Chemical Company (19??) Storage Stability Tests. (Unpublished study received Nov 25, 1969 under 10685-1; CDL: 226776-B)
00060871	Dow Chemical U.S.A. (19??) The Name, Identity, and Composition of the Pesticidal Chemical: ¶2,4-D . (Unpublished study received Jan 2, 1958 under PP0162; CDL:092439-B)
0061317	Guth Chemical Company (1961) Memorandum: ¶Lithium . (Unpublished study received Feb 24, 1961 under unknown admin. no.; CDL: 101836-A)
00061642	Dow Chemical Company (19??) Lontrel 205 Herbicide (M-3785). (Unpublished study received Nov 12, 1980 under 464-563; CDL: 099730-B)
00063496	Monsanto Company (19??) The Name, Chemical Identity, Physical Composition of the Pesticide Chemical and Physical Properties: ¶Limit . (Unpublished study received Aug 15, 1963 under 524-148; CDL:100169-A)
00063508	Boving, P.A. (1978) Letter sent to Frank Phipps dated Apr 19, 1978 ¶Tests of Sulv formulation using 80015 nozzles to apply 3/4 pint per acre of 2,4-D). (U.S. Department of Agriculture, Science and Education Administration, Federal Research--Western Region, Yakima Agricultural Research Laboratory; unpublished study, including Thompson-Hayward Chemical Co. no. 4711; CDL:244533-K)
00063509	Boving, P.A.; Winterfeld, R.G. (1977) Flow Tests and Droplet Sizing for Selected Materials from Thompson-Hayward Chemical Company. (U.S. Agricultural Research Service, Western Region, Yakima Agricultural Research Laboratory; unpublished study, including Thompson-Hayward Chemical Co. no. 4440; CDL:244533-G)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00063510	Colorado. Department of Agriculture (1977) Report on Flow Tests of Thompson-Hayward Sulv 2,4-D Preparations. (Unpublished study, including Thompson-Hayward Chemical Co. no. 4392; CDL:244533-M)
00063816	Chevron Chemical Company (19??) Product Chemistry Data for Weed-B-Gon Intermediate. (Unpublished study received Nov 12, 1980 under 239-2485; CDL:243695-A)
00064510	Oxford Chemicals (1971) Analysis of 222 for 2,4-Dichlorophenoxyacetic Acid. (Unpublished study received Mar 23, 1971 under unknown admin. no.; CDL:228334-A)
00066153	Velsicol Chemical Corporation (1971?) Summary. Summary of studies 229171-B, 229171-C and 229171-E. (Unpublished study received Aug 4, 1976 under 876-222; CDL:229171-A)
00067481	Vertac Chemical Corporation (1981) Product Chemistry for Vertac A-6D Technical. (Unpublished study received Jan 7, 1981 under 39511-84; CDL:244051-A)
00067482	Vertac Chemical Corporation (19??) 2,4-Dichlorophenoxyacetic Acid (2,4-D), Determination of. Undated method VJ-DA-1. (Unpublished study received Jan 7, 1981 under 39511-84; CDL:244051-B)
00067483	Fisher, J.R. (1980) 2,4-Dichlorophenoxyacetic Acid (2,4-D), Determination of the Isomeric Composition of. Undated method VJ-DA-5. (Unpublished study received Jan 7, 1981 under 39511-84; submitted by Vertac Chemical Corp., Memphis, Tenn.; CDL:244051-C)
00067484	Vertac Chemical Corporation (19??) Sodium Chloride Content of the Phenoxy Acids. Undated method VJ-MS-4. (Unpublished study received Jan 7, 1981 under 39511-84; CDL:244051-D)
00067500	Vertac Chemical Corporation (19??) Chlorophenoxyalkanoic Acids--Loss on Drying. Undated method VJ-MS-2. (Unpublished study received Jan 7, 1981 under 39511-84; CDL:244051-E)
00067501	Vertac Chemical Corporation (19??) Determination of Dichlorophenol in 2,4-D Acid. Undated method VJ-DA-4. (Unpublished study received Jan 7, 1981 under 39511-84; CDL:244051-F)

20340

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00068008	Buser, H.R. (1976) Determination of 2,3,7,8-TCDD in TPH Samples; GC-MS Analysis of Fraction 2 of TPH Samples; prepared by Swiss Federal Research Station for Fruit Growing, Viticulture and Horticulture, Switzerland. Unpublished study; 10 p.
00071447	Chevron Chemical Company (1980) [Nitrosamine Analyses: 2,4-D Amine and Other Products]. (Reports by various sources; unpublished study received Mar 3, 1981 under 239-2342; CDL:244486-A)
00072445	Anderson Lawn Fertilizer (1979) Chromatogram Revisions. (Compilation; unpublished study received Aug 28, 1980 under 9198-46; CDL:243173-A)
00072452	Anderson Lawn Fertilizer (1980) Chromatogram Revisions. (Compilation; unpublished study received Aug 28, 1980 under 9198-46; CDL:243173-B)
00072597	Louie, H. (1981) [Chemical Data Regarding Weed-B-Gon Intermediate (SX-1290)]: Notebook No. 7107-07. (Unpublished study received May 12, 1981 under 239-2485; submitted by Chevron Chemical Co., Richmond, Calif.; CDL:245071-A)
00073761	Norris, E.; Policastro, P. (1979) Formal Report of Analysis for N-Nitroso Compounds: Report No. 5450-677. (Unpublished study received Jul 24, 1979 under 7764-48; prepared by Thermo Electron Corp., submitted by Heritage House Products Corp., Warrensville Heights, Ohio; CDL:238886-A)
00075710	Day, E.W.; Powers, F.L.; Koenig, D.K. (1978) Determination of Volatile Nitrosamines in Granular Formulations of Dinitroaniline Herbicides. Undated method 5801695. (Unpublished study received Mar 20, 1978 under 961-209; prepared by Eli Lilly and Co., submitted by Lebanon Chemical Corp., Lebanon, Pa.; CDL:242875-A)
00075713	Marchio, J.L.; Spurlock, O.L. (1981) Letter sent to L.J. Helfant dated May 7, 1981: Nitrosamines in Super D Weedone, FWC. (Unpublished study received Jun 8, 1981 under 264-190; submitted by Union Carbide Agricultural Products Co., Inc., Ambler, Pa.; CDL:245480-A)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00075788	Dow Chemical Company (1963?) List of Formulations: ‡Tordon‡. (Unpublished study received Nov 21, 1967 under 8F0660; CDL: 091155-V)
00077280	U.S. Department of Labor, Occupational Safety and Health Administration (1972) Material Safety Data Sheet. (Unpublished study; CDL:244533-I)
00078452	Marchio, J.L.; Spurlock, O.L. (1981) Letter sent to Stan Harrison dated Jan 20, 1981 ‡Analyses for nitrosamine‡. (Unpublished study, including letter dated Sep 18, 1980 from J. Kruzynski to S.L. Harrison, received Jun 24, 1981 under 264-47; submitted by Union Carbide Agricultural Products Co., Inc., Ambler, Pa.; CDL: 245309-A)
0078878	Ralston Purina Company (1981) Four Power Plus: RT Lab No. 866441. Includes undated method entitled: Analysis of non-polar nitrosamines. (Unpublished study received Jul 16, 1981 under 34704-84; submitted by Platte Chemical Co., Fremont, Nebr.; CDL: 245565-A)
00079473	Rothman, L.D.; Wisniewski, D.F.; Kracht, W.R. (1978) Analysis of DMA-(TM)-4 Herbicide, DMA-6 Unsequestered Herbicide, DMA-6 Sequestered Herbicide and MCP-amine Herbicide for N-nitrosodimethylamine: ML-AL 78-00370. Includes method dated Jun 19, 1978. (Unpublished study received Aug 24, 1978 under 464-467; submitted by Dow Chemical U.S.A., Midland, Mich.; CDL:245000-A)
00079603	O.M. Scott & Sons Company (19??) Method of Manufacture--Dry Applied Super Turf Builder Plus 2, F-9299 (Improved ‡sic‡ Super Turf Builder Plus 2). (Unpublished study received Nov 6, 1980 under 538-168; CDL:243676-A)
00083114	Cholakis, J.M. (1979) Primary Eye Irritation Studies in Rabbits Using PBI/Gordon Corporation Test Materials EH590, EH591, EH597, and EH598: MRI Project No. 4823-B(1). Final rept. (Unpublished study received Jul 15, 1981 under 2217-624; prepared by Midwest Research Institute, submitted by PBI-Gordon Corp., Kansas City, Kans.; CDL:245537-A)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00083115	Unwin, S.E.; Cholakis, J.M. (1980) Primary Eye Irritation Study in Rabbits Using PBI/Gordon Corporation Test Material EH552: MRI Project No. 4823-B(3). Final rept. (Unpublished study received Jul 15, 1981 under 2217-624; prepared by Midwest Research Institute, submitted by PBI-Gordon Corp., Kansas City, Kans.; CDL:245537-B)
00083116	Cholakis, J.M. (1980) Letter sent to J.S. Skaptason dated Jan 17, 1980: Eye irritation screen on nine (9) test compounds (EH604-EH612): MRI Project No. 4823-B(2). (Unpublished study received Jul 15, 1981 under 2217-624; prepared by Midwest Research Institute, submitted by PBI-Gordon Corp., Kansas City, Kans.; CDL:245537-C)
00083117	Cholakis, J.M. (1979) Primary Eye Irritation Studies in Rabbits Using PBI/Gordon Corporation Test Materials EH588, EH589, EH592, EH594, EH595, and EH596: MRI Project No. 4823-B(1). Final rept. (Unpublished study received Jul 15, 1981 under 2217-624; prepared by Midwest Research Institute, submitted by PBI-Gordon Corp., Kansas City, Kans.; CDL:245537-D)
00083119	PBI/Gordon Corporation (1981) Confidential Statement of Formula: Gordon's Brush Killer 823. (Unpublished study received Jul 15, 1981 under 2217-624; CDL:245537-F)
00083120	Mehta, C.S.; Cannelongo, B.F.; Sabol, R.J.; et al. (1979) Rabbit Eye Irritation: EH 599 (Code 875): Project No. 1340-79. (Unpublished study received Jul 15, 1981 under 2217-624; prepared by Stillmeadow, Inc., submitted by PBI-Gordon Corp., Kansas City, Kans.; CDL:245537-H)
00083121	Cholakis, J.M. (1980) Primary Eye Irritation Studies in Rabbits Using PBI/Gordon Corporation Test Materials EH595 and EH601: MRI Project No. 4823-B(2). Final rept. (Unpublished study received Jul 15, 1981 under 2217-624; prepared by Midwest Research Institute, submitted by PBI-Gordon Corp., Kansas City, Kans.; CDL:245537-I)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00083123	Mehta, C.S.; Sabol, E.J.; Soliz, D.P. et. al. (1981) Rabbit Eye Irritation: EH 683 Amine 2,4-D Acid 3.323% Dicamba 4.89% EX 003: Project No. 2131-81. (Unpublished study received Jul 15, 1981 under 2217-624; prepared by Stillmeadow, Inc., submitted by PBI-Gordon Corp., Kansas City, Kans.; CDL:245537-K)
00083124	PBI/Gordon Corporation (1981) Confidential Statement of Formula: BL 8,000 Lawn Weed Killer. (Unpublished study received Jul 15, 1981 under 2217-624; CDL:245537-S)
00083125	PBI/Gordon Corporation (1981) Confidential Statement of Formula: Trimec-(R) 448 Turf Herbicide Mfg. Conc. (Unpublished study received Jul 15, 1981 under 2217-624; CDL:245537-T)
00083127	PBI/Gordon Corporation (1981) Confidential Statement of Formula: Gordon's Professional Turf Products' Trimec-(R) Herbicide. (Unpublished study received Jul 15, 1981 under 2217-624; CDL: 245537-V)
00083128	PBI/Gordon Corporation (1979) Confidential Statement of Formula: Gordon's Professional Turf Products' Amine 2,4-D Turf Herbicide. (Unpublished study received Jul 15, 1981 under 2217-624; CDL: 245537-W)
00084413	O.M. Scott & Sons Company (19??) Method of Manufacture: †Super Plus 2 Weed Control . (Unpublished study received Nov 23, 1981 under 538-175; CDL:246282-A)
00084414	O.M. Scott & Sons Company (19??) Methods of Manufacture: †Dry Applied Fertilizer Plus Dicot Weed Control . (Unpublished study received Nov 23, 1981 under 538-175; CDL:246282-B)
00084415	O.M. Scott & Sons Company (19??) Accelerated Shelf Life Study: †Super Plus 2 Weed Control . (Unpublished study received Nov 23, 1981 under 538-175; CDL:246282-C)
00084416	O.M. Scott & Sons Company (19??) Accelerated Shelf Life Study: †Dry Applied Fertilizer plus Dicot Weed Control . (Unpublished study received Nov 23, 1981 under 538-175; CDL:246282-D)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00085933	O.M. Scott & Sons Company (19??) Accelerated Shelf Life Study--Dry Applied Super Turf Builder Plus 2 (Improved Super Turf Builder Plus 2). (Unpublished study received Nov 6, 1980 under 538-168, CDL:243676-B)
00087666	Helton, D.O. (1979) Letter sent to John Wise dated Feb 8, 1979: MRI letter report: Dimethylnitrosamine analysis in herbicide formulations: MRI Project No. 4534-C. (Unpublished study received Mar 6, 1979 under 1990-332; prepared by Midwest Research Institute, submitted by Farmland Industries, Inc., Kansas City, Mo.; CDL:237782-A)
00087667	Helton, D.O. (1978) Letter sent to John Wise dated Oct 26, 1978: Letter report: Dimethylnitrosamine analysis in herbicide formulations: MRI Project No. 4534-C. Unpublished study; 8 p.
00088573	Unwin, S.E.; Cholakis, J.M. (1980) Primary Eye Irritation Study in Rabbits Using PBI/Gordon Corporation Test Material EH595: MRI Project No. 4823-B(3). Final rept. (Unpublished study received Jul 15, 1981 under 2217-624; prepared by Midwest Research Institute, submitted by PBI-Gordon Corp., Kansas City, Kans.; CDL:245537-G)
00089021	Cantor, L. (1981) Formal Report of Analysis for N-Nitroso Compounds: Report No. 5450-3144. (Unpublished study received Jan 4, 1982 under 2217-647; prepared by Thermo Electron Corp., submitted by PBI-Gordon Corp., Kansas City, Kans.; CDL:246522-A)
00091037	Alferness, P. (1981) The Determination of Diethanolnitrosamine in Ortho Weed-b-gon Jet Weeder, Ortho Poison Ivy Control, and Ortho Diquat Water Weed Killer. Final rept. (Unpublished study received Jan 5, 1982 under 239-1663; prepared by SRI International, submitted by Chevron Chemical Co., Richmond, Calif.; CDL:246548-A)
00091038	Alferness, P. (1981) The Determination of Diethanolnitrosamine in Ortho Weed-b-gon M. Final rept. (Unpublished study received Jan 5, 1982 under 239-2342; prepared by SRI International, submitted by Chevron Chemical Co., Richmond, Calif.; CDL:246549-A)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00093696	Cantor, L. (1981) Formal Report of Analysis for N-Nitroso Compounds: Report No. 5450-3267. (Unpublished study received Jan 8, 1982 under 2217-655; prepared by Thermo Electron Corp., submitted by PBI-Gordon Corp., Kansas City, Kans.; CDL:246578-A)
00094059	O.M. Scott & Sons Company (1979) Long Term Shelf Life Storage. (Unpublished study received Jan 28, 1982 under 538-176; CDL: 246696-A)
00094624	Powers, F.L. (1981) Nitrosamine Assay Report: ‡Leb 10-6-4/2,4-D . Includes procedure 5801695 dated Jan 4, 1978. (Unpublished study received Sep 17, 1981 under 961-214; prepared by Eli Lilly and Co., submitted by Lebanon Chemical Corp., Lebanon, Pa.; CDL:245975-A)
0094625	Powers, F.L. (1981) Nitrosamine Assay Report: ‡Lebanon Dandelion Killer . Includes procedure 5801695 dated Jan 4, 1978. (Unpublished study received Sep 17, 1981 under 961-214; prepared by Eli Lilly and Co., submitted by Lebanon Chemical Corp., Lebanon, Pa.; CDL:245975-B)
00094626	Powers, F.L. (1981) Nitrosamine Assay Report: ‡Green Gold . Includes procedure 5801695 dated Jan 4, 1978. (Unpublished study received Sep 17, 1981 under 961-214; prepared by Eli Lilly and Co., submitted by Lebanon Chemical Corp., Lebanon, Pa.; CDL: 245975-C)
00094629	Powers, F.L. (1981) Nitrosamine Assay Report: ‡Homestead Weed & Feed . Includes procedure 5801695 dated Jan 4, 1978. (Unpublished study received Sep 17, 1981 under 961-214; prepared by Eli Lilly and Co., submitted by Lebanon Chemical Corp., Lebanon, Pa.; CDL:245975-F)
00094630	Powers, F.L. (1981) Nitrosamine Assay Report: ‡Leb 10-6-4/2,4-D . Includes procedure 5801695 dated Jan 4, 1978. (Unpublished study received Sep 17, 1981 under 961-214; prepared by Eli Lilly and Co., submitted by Lebanon Chemical Corp., Lebanon, Pa.; CDL:245976-A)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00094631	Powers, F.L. (1981) Nitrosamine Assay Report: ‡Green Gold‡. Includes procedure 5801695 dated Jan 4, 1978. (Unpublished study received Sep 17, 1981 under 961-214; prepared by Eli Lilly and Co., submitted by Lebanon Chemical Corp., Lebanon, Pa.; CDL:245976-C)
00094634	Powers, F.L. (1981) Nitrosamine Assay Report: ‡Homestead Weed & Feed‡. Includes procedure 5801695 dated Jan 4, 1978. (Unpublished study received Sep 17, 1981 under 961-214; prepared by Eli Lilly and Co., submitted by Lebanon Chemical Corp., Lebanon, Pa.; CDL:245976-F)
00094635	Harwell, C.; Jones, C. (1981) Formal Report of Analysis for N-Nitroso Compounds: ‡MCP + 2,4-D Amine‡. Includes method no. F-12-5-81 dated May 1981. (Unpublished study, including published data, received Aug 24, 1981 under 677-437; submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL:245779-A)
00094655	Thompson-Hayward Chemical Company (1978) ‡Flow Rates and Droplet Sizing Tests on Sulv Formulations‡. (Compilation; unpublished study received Apr 21, 1981 under C081/3; submitted by state of Colorado for Thompson-Hayward Chemical Co., Kansas City, Kans.; CDL:246717-H)
00094657	Phipps, F.E.; Emenegger, D.B. (1981) A Study on the Drift of Two Different 2,4-D Amine Formulations from Aerial Application. (Unpublished study, including letters dated Apr 19, 1978 from P.A. Boving to Frank Phipps and Sep 25, 1981 from M. Montgomery to Frank Phipps, received Jan 27, 1982 under 46946-246; submitted by Agriculture & Nutrition Co., Crop Protection Div., Kansas City, Kans.; CDL:246715-A; 246714)
00094696	Cantor, L. (1982) Formal Report of Analysis for N-Nitroso Compounds: Report No. 5450-3283. (Unpublished study received Feb 1, 1982 under 10107-30; prepared by Thermo Electron Corp., submitted by Corn Belt Chemical Co., McCook, Nebr.; CDL:246743-A)
00094823	Thermo Electron Corporation (1981) ‡Analysis of Gordon's 2,4-D1 Dicamba Amine Turf Herbicide‡. (Unpublished study, including letter dated Dec 11, 1981 from U.A. Wessling to Richard Mountfort, received Dec 29, 1981 under 2217-647; submitted by PBI-Gordon Corp., Kansas City, Kans.; CDL:246521-A)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00096319	Cantor, L. (1982) Formal Report of Analysis for N-Nitroso Compounds: Report No. 5450-3360. (Unpublished study received Feb 19, 1982 under 2217-657; prepared by Thermo Electron Corp., submitted by PBI-Gordon Corp., Kansas City, Kans.; CDL:246839-A)
00096627	Cantor, L. (1982) Formal Report of Analysis for N-Nitroso Compounds: Report No. 5450-3379. (Unpublished study received Mar 15, 1982 under 2217-656; prepared by Thermo Electron Corp., submitted by PBI-Gordon Corp., Kansas City, Kans.; CDL:247003-A)
00097949	O.M. Scott & Sons Company (19??) Method of Manufacture: Pets TB+2 S. (Unpublished study received Mar 18, 1982 under 538-179; CDL:247085-A)
00097950	O.M. Scott & Sons Company (19??) Accelerated Shelf Life Study: Pets TB+2 (S) F-9974. (Unpublished study received Mar 18, 1982 under 538-179; CDL:247085-B)
00097951	O.M. Scott & Sons Company (1979) Long Term Shelf Life Storage: ‡New Improved Turf Builder Plus 2, F-79881. (Unpublished study received Mar 18, 1982 under 538-179; CDL:247085-C)
00097970	Drinkwine, A.D. (1982) Letter sent to Don Fox dated Mar 11, 1982: Letter report, MRI project no. 4712-A37, nitrosamine analysis. (Unpublished study received Mar 25, 1982 under 36480-53; prepared by Midwest Research Institute, submitted by Mid-America Chemical Co., Inc., Leavenworth, Kans.; CDL:247104-A)
00098483	Allen, A. (1981) Formal Report of Analysis for N-Nitroso Compounds: Report No. 5450-2586. (Unpublished study, including letter dated May 1, 1981 from U.A. Wessling to Richard Mountfort, received May 8, 1981 under 2217-647; prepared by Thermo Electron Corp., submitted by PBI-Gordon Corp., Kansas City, Kans.; CDL:245049-A)
00100096	Rozeck, A.; Grins, G.; Smith, M.; et al. (1978) Analysis of Various Pesticide Formulations for Nitrosamine Content: Report 480060, No. 2. (Unpublished study received Aug 29, 1978 under 876-234; submitted by Velsicol Chemical Corp., Chicago, IL; CDL:235035-B)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00100976	Forrette, J.; Trujillo, W.; Smith, M.; et al. (1977) Analysis of the Dimethylnitrosamine Content of Technical Dicamba, Principal Banvel Formulations and Dimethylamine Used in the Formulation of Banvel Products: Report 480060, No. 4. (Unpublished study received Aug 29, 1978 under 876-234; submitted by Velsicol Chemical Corp., Chicago, IL; CDL:235035-A)
00100977	Rozeck, A. (1978) Dimethylnitrosamine Storage Stability Study for Banvel DMA Formulations. (Unpublished study received Aug 29, 1978 under 876-234; submitted by Velsicol Chemical Corp., Chicago, IL; CDL:235035-C)
00101519	Warden, S.W. (1981) Weed-b-gon RTU (CC 11545). (Unpublished study received Apr 16, 1982 under 239-2499; submitted by Chevron Chemical Co., Richmond, Calif.; CDL:247287-A)
00101520	Chevron Chemical Company (19??) Product Chemistry Data for Weed-b-gon Weed Killer. (Unpublished study received Apr 16, 1982 under 239-2499; CDL:247288-A)
00101521	Chevron Chemical Company (1982) Weed-b-gon Weed Killer: Product Chemistry Data. (Unpublished study received Apr 16, 1982 under 239-2499; CDL:247289-A)
00101525	Eckerl, J.A. (1982) Determination of N-Nitrosodimethylamine in a Sample for Testing Broadleaf Spot Weed Killer Aerosol: PGU-01-82. Unpublished study; 10 p.
00101613	Eckert, J. (1982) Determination of N-Nitrosodimethylamine in a Sample for Testing Broadleaf Spot Weed Killer Aerosol: PGU-01-82: 1.21% DMA Salt of 2,4-D; 31% DMA Salt of Dicamba. Unpublished study; 10 p.
00101712	Dow Chemical Co. (1971) Determination of 2,3,7,8-Tetrachlorodibenzo-P-dioxin in 2,4,5-Trichlorophenoxyacetic Acid and Related Materials: ML-AM-71-48. (Unpublished study received Apr 18, 1972 under 464-431; CDL:003666-C)
00102539	Renner, V., inventor; O.M. Scott and Sons Co., assignee (1963) Fertilizer compositions and process. U.S. patent 3,076,700. Feb 5. 9 p. Cl. 71-29. (Published study; CDL:008534-A)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00102545	Parker Laboratory, Inc. (1971) Certificate of Analysis: †Chicago Activated Sludge†: Analysis No. 4611. (Unpublished study received Oct 28, 1971 under 7404-8; submitted by Nulife Fertilizers, Div. of Hygrade Food, Takoma, WA; CDL:009138-A)
00102546	Nulife Fertilizers (19??) Chicago Activated Sludge or Chi-organic or Sterilized Organic Matter. (Unpublished study received Oct 28, 1971 under 7404-8; CDL:009138-B)
00102565	Wirth, M.; Wasco, J. (19??) Formula 40 Herbicide: Evaluation of Boric Acid--Versene Acid Chelant Combination as Sequestrant. (Unpublished study received Sep 3, 1970 under 464-1; submitted by Dow Chemical U.S.A., Midland, MI; CDL:003389-A)
00102596	Wirth, M.; Wasco, J. (19??) DMA-4: Evaluation of Formulation M-3538. (Unpublished study received on unknown date under 464-196; submitted by Dow Chemical U.S.A., Midland, MI; CDL:022966-A)
00102604	General Aniline & Film Corp. (19??) Igepon. New York, NY: GAFC. (Technical bulletin 7543-093; also In unpublished submission received Apr 24, 1970 under 1990-102; submitted by Farmland Ind., Inc., Kansas City, MO; CDL:025222-A)
00102615	U.S. Dept. of the Army (19??) Data Sheet Giving the Chemical and Physical Properties of the Chemical: †Alkanolamine Salts of 2, 4-D†. (Unpublished study; CDL:091051-C)
00102617	U.S. Dept. of the Army (19??) Laboratory Test I: †Availability of Encapsulated Alkanolamine Salts of 2,4-D†. (Unpublished study; CDL:091051-E)
00102707	Florida Fruit & Vegetable Assoc. (19??) Name, Chemical Identity and Composition of the Pesticide Chemical: †2,4-D†. (Unpublished study received Sep 26, 1960 under PP0272; CDL:092551-A)
00102823	Dow Chemical Co. (1963) †2,4-Dow Weed Killer Formula: Chemical Study†. (Unpublished study received Apr 10, 1963 under unknown admin. no.; CDL:122181-A)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00102832	Anon. (1957) 2,4-D and 2,4,5-T Compounds. (Unpublished study received Aug 1, 1957 under unknown admin. no.; submitted by ?; CDL:124813-A)
00102880	Inter-Chem, Ltd. (1977) †Chemical Study of 2,4-Dichlorophenoxy-acetic Acid . (Compilation; unpublished study received Apr 25, 1977 under 40512-EX-1; CDL:233162-A)
00102882	Inter-Chem, Ltd. (1976) †Residue Studies of 2,4-Dichlorophenoxy-acetic Acid, Its Amine Salts and Esters on a Variety of Crops . (Compilation; unpublished study received Apr 25, 1977 under 40512-EX-1; CDL:233162-C)
00102890	Powers, F.; Koenig, D. (1978) Nitrosamine Assay Report: †Dandelion and Chickweed Killer . (Unpublished study received Oct 30, 1978 under 961-282; prepared by Eli Lilly and Co., submitted by Lebanon Chemical Corp., Lebanon, PA; CDL:235902-A)
00102891	Powers, F.; Koenig, D. (1978) Nitrosamine Assay Report. (Unpublished study received Oct 30, 1978 under 961-219; prepared by Eli Lilly and Co., submitted by Lebanon Chemical Corp., Lebanon, PA; CDL:235903-A)
00102892	Powers, F.; Koenig, D. (1978) Nitrosamine Assay Report. (Unpublished study received Oct 30, 1978 under 961-327; prepared by Eli Lilly and Co., submitted by Lebanon Chemical Corp., Lebanon, PA; CDL:235905-A)
00102893	Fan, T. (1978) Formal Report of Analysis for N-Nitroso Compounds. (Unpublished study received May 23, 1978 under 034704-5; prepared by Thermo Electron Corp., submitted by Platte Chemical Co., Fremont, NE; CDL:236546-A)
00102894	Kulkarni, S. (1978) Report on the Analysis of N-Nitrosoamine Contaminant: †Vertac Weed-Rhap A-6D Herbicide . (Unpublished study received Jul 14, 1978 under 35911-67; prepared by Vertac, Inc., submitted by Rivhard Conn., Inc., Southfield, MI; CDL:236547-A)
00102895	Kulkarni, S. (1977?) Report on the Analysis of N-Nitrosoamine Contaminant: †Vertac Weed Rhap A-5D Herbicide . Unpublished study received Jul 14, 1978 under 35911-66; prepared by Vertac, Inc., submitted by Rivhard Conn., Inc., Southfield, MI; CDL:236549-A)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00102896	Kulkarni, S. (1978) Report on the Analysis of N-Nitrosoamine Contaminant: ‡Vertac Brush Rhap A-2D-2T Herbicide . (Unpublished study received Jul 11, 1978 under 35911-16; prepared by Vertac, Inc., submitted by Rivhard Conn., Inc., Southfield, MI; CDL: 236550-A)
00102900	Stebbins, P. (1978) Formal Report of Analysis for N-Nitroso Compounds. (Unpublished study received Jan 4, 1979 under 34704-5; prepared by Thermo Electron Corp., submitted by Platte Chemical Co., Fremont, NE; CDL:236768-A)
00102901	Raltech Scientific Services, Inc. (1978) Report of Analyses. ‡228-148 Riverdale Turf Weedestroy-D : Lab No. 710806. (Unpublished study received Jan 12, 1979 under 228-148; submitted by Riverdale Chemical Co., Chicago Heights, IL; CDL:237378-A)
00102902	O.M. Scott & Sons Co. (1979) Long Term Shelf Life Storage: ‡New Improved Turf Builder Plus 2, F-7988 . (Unpublished study received Apr 18, 1979 under 538-28; CDL:238174-A)
00102903	Raltech Scientific Services, Inc. (1978) Report of Analyses: ‡Riverdale Turf Weedestroy-D: Batch BC-02 . (Unpublished study received Apr 17, 1979 under 228-148; submitted by Riverdale Chemical Co., Chicago Heights, IL; CDL:238201-A)
00102907	Verneti, J.; Meyer, D. (1979) HPLC Method and Analysis Results for Five Representative Samples of Technical 2,4-D Products. (Unpublished study received Aug 16, 1979 under 359-177; submitted by Rhone-Poulenc, Inc., Manmouth Junction, NJ; CDL: 240915-A)
00104673	Cantor, L. (1982) Formal Report of Analysis for N-Nitroso Compounds: Report No. 5450-3341. (Unpublished study received Feb 2, 1982 under 2217-662; prepared by Thermo Electron Corp., submitted by PBI-Gordon Corp., Kansas City, Kans.; CDL:246710-A)
00105194	Gaudin, D. (1982) Summary of Results: ‡Assay for N-nitrosodimethylamine in 2,4-D . (Unpublished study received Jun 15, 1982 under 677-446; submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, OH; CDL:247714-A)

20352

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00106021	Cantor, L. (1981) Formal Report of Analysis for N-nitroso Compounds: Report No. 5450-2980. (Unpublished study received Jul 7, 1982 under 2217-681; prepared by Thermo Electron Corp., submitted by PBI-Gordon Corp., Kansas City, MO; CDL:247822-A)
00107814	Hercules Powder Co., Inc. (1959) Amine D or Amine 750 Acetate in Water, Brine, Etc.: A 43.5-6. Rev. (Unpublished study received Oct 20, 1961 under unknown admin. no.; CDL:120046-A)
00108873	Rivhard Conn., Inc. (1978) Report on the Analysis of N-nitrosoamine Contaminant. (Compilation; unpublished study received Jul 14, 1978 under 35911-64; CDL:236548-A)
00109249	Hazleton Raltech, Inc. (1982) Report: Riverdale 3 Plus 3 Amine: ED08: RT Lab No. 932758. (Unpublished study received Jul 19, 1982 under 228-160; submitted by Riverdale Chemical Co., Chicago Heights, IL; CDL:247881-A)
00109282	Logsdon, O. (1982) Letter sent to L. Maillet dated Jul 8, 1982 [Data on dimethyl nitrosamine]. (Unpublished study received Jul 27, 1982 under 40831-124; prepared by Rocky Mountain Analytical Laboratory, submitted by Falls Chemicals, Inc., Great Falls, MT; CDL:247908-A)
00110436	Gaudin, D. (1982) Report of Analysis for N-Nitrosodimethylamine in MCPP/2,4-D Amine (2 + 2). (Unpublished study received Aug 17, 1982 under 677-451; submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, OH; CDL:248120-A)
00112870	Cormier, J. (1982) Formal Report of Analysis for N-nitroso Compounds: Report No. 5450-3832. (Unpublished study received Aug 30, 1982 under 2217-603; prepared by Thermo Electron Corp., submitted by PBI-Gordon Corp., Kansas City, MO; CDL:248222-A)
00116264	Lee, J. (1978) [Evik 80W: Chemical Study]: Project No. 102039. (Unpublished study received Jun 22, 1978 under 100-473; submitted by Ciba-Geigy Corp., Greensboro, NC; CDL:234173-A)
00118420	Cantor, L. (1982) Formal Report of Analysis for N-Nitroso Compounds: Report No. 5450-3979. (Unpublished study received Nov 23, 1982 under 2217-671; prepared by Thermo Electron Corp., submitted by PBI-Gordon Corp., Kansas City, MO; CDL:248890-A)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00118421	Hazleton Raltech, Inc. (1982) Fertilizer 10-6-4 (with Broadleaf Weed Killer): RT Lab No. 701516. (Unpublished study received Nov 22, 1982 under 8123-100; submitted by Frank Miller & Sons, Inc., Chicago, IL; CDL:248891-A)
00123280	Dow Chemical U.S.A. (1978) Chemical Study: Picloram . (Compilation; unpublished study received Dec 9, 1982 under 464-502; CDL: 248983-A)
00125386	Cantor, L. (1983) Formal Report of Analysis for N-Nitroso Compounds: Weed and Feed . Report No. 5450-4327. (Unpublished study received Feb 16, 1983 under 2217-697; prepared by Thermo Electron Corp., submitted by PBI-Gordon Corp., Kansas City, MO; CDL:249528-A)
00126081	Cantor, L. (1982) Formal Report of Analysis for N-Nitroso Compounds: Report No. 5450-4246. (Unpublished study received Feb 7, 1983 under 2217-543; prepared by Thermo Electron Corp., submitted by PBI-Gordon Corp., Kansas City, MO; CDL:249479-A)
00126136	Cantor, L. (1982) Formal Report of Analysis for N-nitroso Compounds: Report No. 5450-4221. (Unpublished study received Dec 17, 1982 under 802-547; prepared by Thermo Electron Corp., submitted by Chas. H. Lilly Co., Portland, OR; CDL:249140-A)
00126211	Hawley, T. (1983) Nitrosamine Analysis of Ded-weed Sulv. (Unpublished study received Feb 22, 1983 under 400-390; prepared by Hazleton Raltech, Inc., submitted by Uniroyal Chemical, Bethany, CT; CDL:249624-A)
00126683	Cantor, L. (1982) Formal Report of Analysis for N-Nitroso Compounds: Report No. 5450-3979. (Unpublished study received Apr 1, 1983 under 2217-703; prepared by Thermo Electron Corp., submitted by PBI-Gordon Corp., Kansas City, MO; CDL:249863-F)
00126758	Hazleton Raltech, Inc. (1983) Riverdale Weeddestroy AM-40 Amine Salt, Herbicide Dimethylamine Salt of 2,4-D 47.3%: 1: RT Lab No. 747117. (Unpublished study received Mar 24, 1983 under 228-145; submitted by Riverdale Chemical Co., Chicago Heights, IL; CDL:249900-A)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00127784	PBI-Gordon Corp. (1983) Product Chemistry: ‡Mecoprop, Trimec . (Compilation; unpublished study received Apr 1, 1983 under 2217-EX-3; CDL:071501-A)
00129608	Hazleton Raltech, Inc. (1983) Report: Ded Weed Sulv 2,4-D: 1816: RT Lab No. 780676. (Unpublished study received Jul 27, 1983 under 400-390; submitted by Uniroyal Chemical, Bethany, CT; CDL:250848-A)
00129634	O.M. Scott & Sons Co. (1983) Product Chemistry to Support Proturf Fertilizer Plus Dicot Weed Control III. (Compilation; unpublished study received Jul 28, 1983 under 538-186; CDL:250866-A)
00130239	Powers, F. (1981) Nitrosamine Assay Report: ‡Lebanon Dandelion Killer . (Unpublished study received Sep 17, 1981 under 961-214; prepared by Eli Lilly and Co., submitted by Lebanon Chemical Corp., Lebanon, PA; CDL:245976-A)
00130255	Hazleton Raltech, Inc. (1982) Report: ‡Dimethylamine Salt of 24D: 38.6% 24D Isomer . RT Lab No. 937477. (Unpublished study received Apr 2, 1982 under 34704-120; submitted by Platte Chemical Co., Fremont, NE; CDL:247137-A)
00130701	Chevron Chemical Co. (1983) Weed-B-Gon Jet Weeder Formula II: Human Safety Data. (Compilation; unpublished study received Aug 15, 1983 under 239-2510; CDL:251025-A)
00131028	Forster Consultants, Inc. (1983) Report of Analysis for N-Nitrosodimethylamine in . . . inert ingredient. Unpublished study.
00132505	O.M. Scott & Sons Co. (1979) ‡Study--Chemistry: Turf Builder Plus 2, F-7988 . (Compilation; unpublished study received Feb 15, 1983 under 538-28; CDL:249518-D)
00133169	Guardigli, A. (1971) Analysis of Weed-Broom Formulation by Ultraviolet Spectrophotometry and Thin Layer Chromatography. (Unpublished study received Dec 14, 1971 under 359-627; prepared by Rhodia, Inc., submitted by Rhone-Poulenc, Inc., Monmouth Junction, NJ; CDL:023338-B)

20355

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00135687	National Agricultural Chemicals Assoc. (1973) The Name, Chemical Identity and Composition of the Pesticide Chemical: ‡Dow 2,4-D Acid and Esters . (Compilation; unpublished study received Sep 7, 1973 under 8F0670; CDL:092969-A)
00138866	Dow Chemical U.S.A. (1983) Product Chemistry: ‡2,4-Dichlorophenoxy Acetic Acid . (Compilation; unpublished study received Jan 18, 1984 under 464-596; CDL:252291-A)
00139667	Bontoyan, W.R.; Law, M.W.; Wright, D.P., Jr. (1979) Nitrosamines in agricultural and home-use pesticides. Journal of Agricultural and Food Chemistry 27(3):631-635. (U.S. Environmental Protection Agency, Office of Pesticide Programs, Benefits and Field Studies Div., Chemical and Biological Investigations Branch; published report.)
00139956	Velsicol Chemical Corporation (1970) Analysis of Dicamba and 2,4-D in DMA Salt Formulations (Infrared Indirect Method). Method AM 0515 dated Oct 12, 1970. (Unpublished study received Jan 11, 1971 under 1F1131; CDL:091953-V)
00139957	Velsicol Chemical Corporation (1966) Analysis of Banvel-2,4-D-2,4,5-T Formulations (GC Method). Method AM 0388 dated Sep 8, 1966. (Unpublished study received Jan 11, 1971 under 1F1131; CDL:091953-W)
00139984	Rothman, L. (1978) Analysis of M-3785 Herbicide for Possible Presence of N-nitrosodiisopropanolamine and N-nitrosodiethanolamine. (Unpublished study received Dec 21, 1978 under 464-EX-55; submitted by Dow Chemical U.S.A., Midland, MI; CDL:236656-K)
00141319	Zilis, K. (1984) Letter sent to R. Mountfort dated July 3, 1984: [analysis of Dimethylnitrosoamine by Chromatograms . Prepared by Rocky Mountain Analytical Laboratory. 10 p.
00145022	Craine, E. (1984) A Stability Study with Lesco Tri-Power: Project WIL-23011. Unpublished study prepared by Wil Research Laboratories, Inc. 16 p.
00145023	Craine, E. (1984) A Method for Analysis of Active Ingredients in Lesco Tri-Power: Project: WIL-23011. Unpublished study prepared by Wil Research Laboratories, Inc. 16 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00145425	Union Carbide Agricultural Products Company, Inc. (1985) [Product Chemistry-Weedone DPC Amine]. Unpublished compilation. 23 p.
00146263	Kowite, W. (1985) Letter sent to W. Davis dated Jun 4, 1985. Weed-one DPC Amine Method of Manufacture. Prepared by Union Carbide Agricultural Products Co., Inc. 8 p.
00146504	Thermo Electron Corp. (1985) Formal Report of Analysis for N-Nitroso Compounds: Report No. 5450-5934. 23 p.
00146715	Union Carbide Agricultural Products Company, Inc. (19??) Product Chemistry [Super D Weedone Brand--Manufacturing Concentrate]. Unpublished compilation. 27 p.
00146718	Union Carbide Agricultural Products Company, Inc. (19??) Product Chemistry [Weedone Brand Super D--Pro Amine Herbicide]. Unpublished compilation. 28 p.
00146719	Union Carbide Agricultural Products Company, Inc. (19??) Product Chemistry [Super D Weedone Brand--Weed Killer Ready-To-Use]. Unpublished compilation. 28 p.
00147669	Chevron Chemical Co. (1983) Product Chemistry Data Requirements [for Weed-B-Gon Jet Weeder Formula II]. Unpublished compilation. 9 p.
00147670	Chevron Chemical Co. (1983) [Product Chemistry Data for Weed-B-Gon Jet Formula II]. Unpublished compilation. 3 p.
00150273	Velsicol Chemical Corp. (1985) [Product Chemistry Data of Weedmaster Herbicide]. Unpublished compilation. 27 p.
00152385	Pike, R.; Berk, H. (1984) Product Chemistry Data To Support Registration of Mon-8776, a Package Mixture of the N-Phosphonomethylglycine in the Form of Its Isopropylamine Salt and 2,4-Dichlorophenoxyacetic Acid in the Form of Its Isopropylamine Salt: Project No: 7663. Unpublished study prepared by Monsanto Co. 54 p.
00153852	Riverdale Chemical Company (1985) [Product Chemistry Data with Reports of Analysis of Riverdale Triamine Weed and Feed 25-3-3]. Unpublished study. 43 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00153855	Hazleton Laboratories America, Inc. (1985) Report of Analysis: Dimethylamine salt of 2,4-D, 2,4-DP, MCPA, Weed & Feed 25-3-3. Unpublished study. 6 p.
00153856	Riverdale Chemical Company (1985) [Product Chemistry Data with Reports of Analyses of Riverdale 3-Way Weed and Feed]. Unpublished study. 45 p.
00155815	Dow Chemical USA (1985) Manufacturing Process Description: Turflon II Amine Herbicide - M-4814. Unpublished study. 1 p.
00155816	Dow Chemical USA (1985) Analytical Method: 2,4-Dichlofophenoxyacetic Acid and Triclopyr in Experimental Herbicide XRM-4814. Unpublished study. 7 p.
0155817	Gegel, B. (1985) Formulation Registration Information Package [Physical and Chemical Characteristics of Turflon II Amine]. Unpublished study prepared by Dow Chemical USA. 2 p.
00158317	Pike, R.; Pulwer, M. (1985) Product Chemistry Data To Support Registration of MON-8776-4, a Package Mixture of N-Phosphonomethylglycine in the Form of Its Isopropylamine Salt and 2,4-Dichlorophenoxyacetic Acid in the Form of Its Isopropylamine Salt: Report No. MSL-4924; Project No. 7663. Unpublished study prepared by Monsanto Co. 67 p.
00158472	Askew, D.; Craine, E. (1986) A Method for Analysis of Active Ingredients in Lesco Three-Way Bentgrass Selective Herbicide: Project: WIL-23016. Unpublished study prepared by Wil Research Laboratories, Inc. in cooperation with Lesco Laboratories. 11 p.
00158828	Bonide Chemical Co., Inc. (1986) Product Chemistry Data: Weed Beater. Unpublished compilation. 13 p.
00159448	Wegner, M. (1986) Stauffer Lawn Care Broadleaf Weed Killer Product Chemistry: Report No. RRC 86-45. Unpublished study prepared by Stauffer Chemical Co. 14 p.
00159931	Craine, E. (1986) A Stability Study with LESCO Tri-Power: Project: WIL-23011: Analytical Report No. 86:3. Unpublished study prepared by WIL Research Laboratories, Inc. 29 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
00160096	Craine, E. (1986) Product Chemistry, Lesco Three-Way Bentgrass Selective Herbicide: Project No. WIL-23016. Unpublished study prepared by WIL Research Laboratories, Inc. 2 p.
00161968	Brillante, S. (1986) Active Ingredient Analysis of Sample Aged for 23 Months: Lilly/Miller Feed & Weed. Unpublished compilation prepared by Coffey Laboratories, Inc. 7 p.
00162561	Imperial Inc. (1986) 2,4-D 560 Amine Weed Killer: Product Chemistry. Unpublished study. 13 p.
00162573	MFA Oil Company (1986) Product Chemistry [Data for]: Amine Weed Killer. Unpublished study. 23 p.
00162574	Land O'Lakes, Inc. (1986) Product Chemistry [Data for]: Amine 4 2, 4-D Weed Killer. Unpublished study. 23 p.
00162578	Imperial Inc. (1986) Product Chemistry [Data for]: 2,4-D 380 Amine Weed Killer. Unpublished study. 23 p.
00163904	FMC Corp. (1986) Freshgard 26 Product Data: Product Chemistry Data. Unpublished compilation. 20 p.
00164096	Eimanis, A. (1986) (Dicamba) - 3 Lb./Gal. Isopropylamine Salt of Dicamba: Product Chemistry in Support of an End-use Product Based on a Registered Technical Source: SCP--Prod Chem - 93086. Unpublished study prepared by Sandoz Crop Protection. 6 p.
00165349	Cantor, L. (1983) Formal Report of Analysis for N-nitroso Compounds: Clean Crop Di-Mec Amine: Report No. 5450-4807. Unpublished study prepared by Thermo Electron Corp. 8 p.
00165350	Cantor, L. (1983) Formal Report of Analysis for N-nitroso Compounds: Clean Crop Mec Amine: 5450-4807. Unpublished study prepared by Thermo Electron Corp. 10 p.
00165589	Dow Chemical U.S.A. (1979) The Name, Chemical Identity, and Composition of the Pesticide: [Lontrel 205 Herbicide]. Unpublished compilation. 27 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
05002356	Nelson, N.H.; Faust, S.D. (1969) Acidic dissociation constants of selected aquatic herbicides. Environmental Science and Technology 3(11):1186-1188.
05003450	Malina, M. (1971) Collaborative study of infrared analysis of dicamba-2-methyl-4-chlorophenoxyacetic acid and dicamba-2,4-dichlorophenoxyacetic acid formulations. Journal of the Association of Official Analytical Chemists 54(3):706-710.
05003559	Collier, R.H.; Grimes, G.S. (1974) Determination of chlorophenoxy acids in formulations by gas-liquid chromatography of their trimethylsilyl derivatives. Journal of the Association of Official Analytical Chemists 57(4):781-784.
5003614	Synerholm, M.E.; Zimmerman, P.W. (1945) The preparation of some substituted phenoxy alkyl carboxylic acids and their properties as growth substances. Contributions from Boyce Thompson Institute 14:91-103.
05003909	Faust, S.D.; Hunter, N.E. (1965) Chemical methods for the detection of aquatic herbicides. Journal of the American Water Works Association 57(8):1028-1037.
05004185	Matell, M.; Lindenfors, S. (1957) Thermodynamic dissociation constants of 2,4-dichlorophenoxyacetic acid (2,4-D) and some related plant growth regulators. Acta Chemica Scandinavica 11(2):324-328.
05004649	Torstensson, N.T.L.; Stark, J.; Goransson, B. (1975) The effect of repeated applications of 2,4-D and MCPA on their breakdown in soil. Weed Research 15(3):159-164.
05004651	Crosby, D.G.; Bowers, J.B. (1966) Determination of 2,4-D residues in animal products. Bulletin of Environmental Contamination and Toxicology 1(3):104-107.
05004844	Cessna, A.J.; Grover, R. (1978) Spectrophotometric determination of dissociation constants of selected acidic herbicides. Journal of Agricultural and Food Chemistry 26(1):289-292.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
05005846	Zweig, G.; Sherma, J. (1972) 2,4-Dichlorophenoxyacetic acid. Pages 630-635, °In°Analytical Methods for Pesticides and Plant Growth Regulators. Vol. VI: Gas Chromatographic Analysis. New York: Academic Press.
05006328	Cohen, S.Z.; Zweig, G.; Law, M.; Wright, D.; Bontoyan, W.R. (1978) Analytical determination of °N#°-nitroso compounds in pesticides by the United States Environmental Protection Agency--a preliminary study. Pages 333-342, °In°Environmental Aspects of °N#°-Nitroso Compounds. Washington, D.C.: Environmental Protection Agency. (IARC scientific publications, vol. 19)
05009244	Keener, J.A.; Pless, C.D. (1974) Effects of direct application of selected pesticides on honey bee colonies. Tennessee Farm and Home Science Progress Report (89):5-8.
40041500	PBI/Gordon Corp. (1986) [Submission of Requested Nitrosamine Analysis for Trimec 869]. (Compilation of 1 study).
40041501	Goff, U. (1986) Trimec 869 (EH 869): Formal Report of Analysis for N-Nitroso Compounds: Report No. 5450-2407. Unpublished study prepared by Thermedics, Inc. Analytical Services Laboratory. 24 p.
40053700	PBI/Gordon Corp. (1986) Trimec 871 - Product Chemistry Data. Compilation of 1 study.
40053701	Cahoy, R. (1987) Trimec 871 - Product Chemistry. Unpublished study prepared by PBI/Gordon Corp. 6 p.
40095900	Riverdale Chemical Co. (1987) Application for Pesticide Registration on Riverdale Triamine Premium Liquid Weed and Feed. Transmittal of 1 study.
40095901	Sawyer, R. (1987) Product Chemistry [Data]: Riverdale Triamine Premium Liquid Weed and Feed. Unpublished study prepared by Riverdale Chemical Co. 19 p.
40109000	PBI/Gordon Corp. (1987) Submission of Product Chemistry Data to Support the Registration of Trimec Southern Liquid Weed & Feed 25-0-0. Transmittal of 2 studies.

20361

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
40109001	Cahoy, R. (1987) Trimec Southern Liquid Weed & Feed 25-0-0--Product Chemistry. Unpublished study prepared by PBI/Gordon Corp. 7 p.
40109002	Goff, U. (1987) Trimec Southern Liquid Weed & Feed 25-0-0: Formal Report of Analysis for N-Nitroso Compounds: Laboratory Project ID: 5450-2599. Unpublished study prepared by Thermedics, Inc. 16 p.
40124700	PBI/Gordon Corp. (1987) Submission of Chemistry Data to Support the Registration of Trimec 902. Transmittal of 1 study.
40124701	Cahoy, R. (1987) Trimec 902 - Product Chemistry. Unpublished study prepared by PBI/Gordon Corp. Formulation Laboratory. 7 p.
40129500	Riverdale Chemical Co. (1987) Submission of Product Chemistry Data in Support of Application for Registration of Riverdale Triamine 3-way Lawn Weed Killer. Transmittal of 1 study.
40129501	Sawyer, R. (1987) Product Chemistry: Triamine 3-way Lawn Weed Killer. Unpublished compilation prepared by Riverdale Chemical Co. 19 p.
40131600	MFA Oil Co. (1987) Supplemental Submission of Product Chemistry Data in Support of Application for Registration of MFA Oil Co. Amine Weed Killer. Transmittal of 1 study.
40131601	Currie, G. (1987) MFA Oil Co. Amine Weed Killer: Supplemental Submission: Storage Stability. Unpublished study prepared by Imperial, Inc. 6 p.
40134600	Imperial Inc. (1987) Submission of Chemistry Data To Support the Application for New Product Registration: Land O'Lakes, Inc. Amine 4 2,4-D Weed Killer. Transmittal of 1 study.
40134601	Currie, G. (1987) Land O'Lakes, Inc.: Amine 4 2,4-D Weed Killer: Product Chemistry. Unpublished compilation prepared by Imperial Inc. 6 p.
40134800	Imperial Inc. (1987) Submission of Chemistry Data To Support the Application for New Product Registration of Land O'Lakes, Inc. Low Volatile 4 2,4-D Weed Killer. Transmittal of 1 study.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
40134801	Currie, G. (1987) Land O'Lakes, Inc.: Low Volatile 4 2,4-D Weed Killer: Product Chemistry. Unpublished compilation prepared by Imperial Inc. 6 p.
40134900	Land O'Lakes, Inc. (1987) Submission of Product Chemistry Data To Support the Registration of Land O'Lakes Inc. Low Volatile 6 2,4-D Weed Killer. Transmittal of 1 study.
40134901	Currie, G. (1987) Land O'Lakes, Inc. Low Volatile 6 2,4-D Weed Killer: [Storage Stability Data]. Unpublished study prepared by Imperial Inc. 6 p.
40167700	Nationwide Chemical Products, Inc. (1987) Submission of Product Chemistry Data in Support of Registration of Liquid Weed & Feed for Sensitive Grasses. Transmittal of 1 study.
40167701	Nationwide Chemical Products, Inc. (1987) Liquid Weed & Feed for Sensitive Grasses: Product Chemistry Data. Unpublished compilation. 14 p.
40167800	Nationwide Chemical Products, Inc. (1987) Submission of Product Chemistry Data in Support of Application for Registration of Liquid Weed & Feed. Transmittal of 1 study.
40167801	Nationwide Chemical Products, Inc. (1987) Liquid Weed & Feed: Product Chemistry Data. Unpublished compilation. 14 p.
40180300	Riverdale Chemical Co. (1987) Submission of Data To Support the Application for Riverdale Triamine II Premium Liquid Weed and Feed Registration: Product Chemistry Study. Transmittal of 1 study.
40180301	Sawyer, R. (1987) Product Chemistry [Data for]: Riverdale Triamine II Premium Liquid Weed and Feed. Unpublished study prepared by Riverdale Chemical Co. 19 p.
40183100	PBI/Gordon Corp. (1987) Submission of Chemistry and Toxicity Data of Trimec M 905: Application for Registration. Transmittal of 2 studies.
40183101	Cahoy, R. (1987) Trimec M 905--Product Chemistry. Unpublished compilation prepared by PBI/Gordon Corp. 7 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
40201300	Riverdale Chemical Co. (1987) Submission of Data To Support the Application for Registration of Riverdale Triamine Premium 6666 Liquid Weed and Feed: Product Chemistry Study. Transmittal of 1 study.
40201301	Sawyer, R. (1987) Product Chemistry: Riverdale Triamine Premium 6666 Liquid Weed and Feed. Unpublished compilation prepared by Riverdale Chemical Co. 19 p.
40218800	Riverdale Chemical Co. (1987) Submission of Product Chemistry Data To Support the Application for Pesticide Registration of Riverdale Triamine II Premium 75 Liquid Weed and Feed. Transmittal of 1 study.
40218801	Sawyer, R. (1987) Product Chemistry: Riverdale Triamine II Premium 75 Liquid Weed and Feed. Unpublished study prepared by Riverdale Chemical Co. 19 p.
40221200	Riverdale Chemical Co. (1987) Submission of Data To Support the Application for Pesticide Registration of Riverdale Sweet Sixteen Weed and Feed with Triamine II. Transmittal of 7 studies.
40221201	Sawyer, R. (1987) Product Chemistry: Riverdale Sweet Sixteen Weed and Feed with Triamine II. Unpublished compilation prepared by Riverdale Chemical Co. 19 p.
40237900	Nationwide Chemical Products, Inc. (1987) Submission of Chemistry Data for Liquid Weed & Feed for Sensitive Grasses 20-0-0. Transmittal of 1 study.
40237901	Valentine, D. (1987) Liquid Weed & Feed for Sensitive Grasses 20-0-0: Product Chemistry Data. Unpublished study prepared by Nationwide Chemical Products, Inc. 14 p.
40241300	Riverdale Chemical Co. (1987) Submission of Product Chemistry Data in Support of Application for Registration of Riverdale Triamine Granular Weed Killer. Transmittal of 1 study.
40241301	Sawyer, R. (1987) Product Chemistry: Riverdale Triamine Granular Weed Killer. Unpublished compilation prepared by Riverdale Chemical Co. 19 p.

20364

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
40257200	Knox Fertilizer & Chemical Co. (1987) Submission of Product Chemistry Data To Support the Registration of Shaw's Premium Weed & Feed w/25-3-3 Lawn Food. Transmittal of 2 studies.
40257201	McLane, H. (1987) Product Specific Data: Shaw's Premium Weed & Feed W/25-3-3 Lawn Food: Laboratory Project ID: PC/8378-W&F.PC1. Unpublished study prepared by Knox Fertilizer & Chemical Co. in cooperation with Hazelton Laboratories, Inc. 6 p.
40257202	McLane, H. (1987) Nitrosamine Study: Shaw's Premium Weed & Feed W/25-3-3 Lawn Food: Laboratory Project ID: 02xx 000385-00. Unpublished study prepared by Hazelton Laboratories, Inc. 7 p.
40273600	Dow Chemical U.S.A. (1987) Submission of Product Chemistry Data for Curtail Herbicide. 38 p.
40273601	Baker, R. (1987) Product Chemistry: Curtail Herbicide. Unpublished study prepared by Dow Chemical U.S.A., Agricultural Chemistry Laboratories Research and Development. 38 p.
40286700	Nationwide Chemical Products, Inc. (1987) Submission of Chemistry Data of Liquid Weed & Feed 25-0-0. Transmittal of 1 study.
40286701	Valentine, D. (1987) Liquid Weed & Feed 25-0-0: [Product Chemistry]. Unpublished study prepared by Nationwide Chemical Products, Inc. 14 p.
40305300	PBI/Gordon Corp. (1987) Submission of Product Chemistry and Toxicology Data in Support of Application for Registration of DM 899 Liquid Weed & Feed. Transmittal of 8 studies.
40305301	Cahoy, R. (1987) DM 899 Liquid Weed & Feed--Product Chemistry. Unpublished compilation prepared by PBI/Gordon Corp. 7 p.
40305302	Goff, U. (1987) DM 899 Liquid Weed & Feed: Formal Report of Analysis for N-nitro Compounds: Lab Project ID: 5450-2626. Unpublished study prepared by Thermedics Inc. 20 p.
40305700	PBI/Gordon Corp. (1987) Submission of Product Chemistry & Toxicity Data To Support the Registration of DMDP 897. Transmittal of 8 studies.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
40305701	Cahoy, R. (1987) DMDP 897--Product Chemistry [Data]. Unpublished study prepared by PBI/Gordon Corp. 7 p.
40305702	Goff, U. (1987) DMDP 897: Formal Report of Analysis for N-Nitroso Compounds: Laboratory Project ID: 5450-2712. Unpublished study prepared by Thermedics Inc. 16 p.
40306700	PBI/Gordon Corp. (1987) Submission of Data To Support the Application for New Registration of DM 896. Transmittal of 8 studies.
40306701	Cahoy, R. (1987) DM 896--Product Chemistry [Data]. Unpublished compilation prepared by PBI/Gordon Corp., Formulation Laboratory. 4 p.
40307000	PBI/Gordon Corp. (1987) Submission of Chemistry Data for New Registration of Trimec M908. Transmittal of 2 studies.
40307001	Cahoy, R. (1987) Trimec M 908 Liquid Weed & Feed--Product Chemistry. Unpublished compilation prepared by PBI/Gordon Corp. 7 p.
40307002	Steven, J. (1987) Trimec M 908 Liquid Weed & Feed: Formal Report of Analysis for N-Nitroso Compounds: Laboratory Project ID: 5450-2815. Unpublished study prepared by Thermedics Inc. 18 p.
40307300	PBI/Gordon Corp. (1987) Submission of Toxicology Data to Support the Registration of DMDP 898 Liquid Weed & Feed. Transmittal of 8 studies.
40307301	Cahoy, R. (1987) DMDP 898 Liquid Weed & Feed - Product Chemistry. Unpublished study prepared by PBI/Gordon Corp. 7 p.
40309400	Imperial Inc. (1987) Submission of Product Chemistry Data in Support of Application for Registration of Cenex/Land O'Lakes 4LG. Transmittal of 1 study.
40309401	Currie, G. (1987) Cenex/Land O'Lakes 4LG: (2,4-D Amine)--Product Chemistry and Storage Stability. Unpublished compilation prepared by Imperial Inc. 26 p.
40339800	PBI/Gordon Corp. (1987) Submission of Data To Support the Application of Trimec 914: Product Chemistry Data. Transmittal of 2 studies.

20366

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
40339801	Cahoy, R. (1987) Trimec 914--Product Chemistry. Unpublished compilation prepared by PBI/Gordon Corp., Formulation Laboratory. 7 p.
40339802	Stevens, J. (1987) Trimec 914: Formal Report of Analysis for N-Nitroso Compounds: Laboratory Project ID: 5450-3165. Unpublished compilation prepared by Thermedics Inc., Analytical Service Laboratory. 14 p.
40346500	Dow Chemical Co. (1978) Submission of Efficacy, Toxicity and Environmental Fate Data To Support the New Registration of Garlon 3A Herbicide. Transmittal of 19 studies.
40424000	Chevron Chemical Co. (1987) Submission of Data To Support the Registration of Weed-B-Gon Ready-Spray Lawn Weed Killer: Product Chemistry Data. Transmittal of 1 study.
40424001	Thornberry, N.; Namnath, J. (1987) Product Identity and Composition Analysis and Certification of Product Ingredients, Physical and Chemical Characteristics: Laboratory Project ID: 8727050. Unpublished compilation prepared by Chevron Chemical Co. 32 p.
40475400	Platte Chemical Co. (1987) Submission of Chemistry Data in Support of Clean Crop Alkanolamine 4 Herbicide. Transmittal of 1 study.
40475401	Allen, W.; Mahlborg, W. (1987) Product Chemistry Data: Clean Crop Alkanolamine 4 Herbicide: Study No. 87-29A. Unpublished compilation prepared by Transbas, Inc. Laboratory in cooperation with Platte Chemical Co. 7 p.
40475500	Platte Chemical Co. (1987) Submission of Chemistry Data in Support of Clean Crop Low Vol 6 Ester Weed Killer. Transmittal of 1 study.
40475501	Allen, W.; Mahlborg, W. (1987) Product Chemistry Data: Clean Crop Low Vol 6 Ester Weed Killer: Study No. 87-21A. Unpublished compilation prepared by Transbas, Inc. Laboratory in cooperation with Platte Chemical Co. 19 p.
40475800	Platte Chemical Co. (1987) Submission of Chemistry Data in Support of Clean Crop 2,4-D Amine TC. Transmittal of 1 study.

20367

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
40475801	Allen, W.; Mahlborg, W. (1987) Product Chemistry Data: Clean Crop 2,4-D Amine TC: Study No. 87-15A. Unpublished study prepared by Transbas, Inc. Laboratory in cooperation with Platte Chemical Co. 21 p.
40475900	Platte Chemical Co. (1987) Submission of Chemistry Data to Support the Registration for Clean Crop Mec Amine-D. Transmittal of 1 study.
40475901	Allen, L.; Mahlborg, W. (1987) Clean Crop Mec-Amine D: Product Chemistry Data: Study No. 87-17A. Unpublished study prepared by Transbas, Inc. Laboratory. 10 p.
40476000	Platte Chemical Co. (1987) Submission of Data To Support the Registration of Clean Crop Mec Amine Plus: Product Chemistry Data. Transmittal of 1 study.
40476001	Allen, W.; Mahlborg, W. (1987) Product Chemistry Data: Clean Crop Mec-Amine Plus: Study No. 87-19A. Unpublished compilation prepared by Transbas, Inc. Laboratory. 12 p.
40476100	Platte Chemical Co. (1987) Submission of Chemistry Data in Response to Data Call-in for Dioxin/Furan. Transmittal of 1 study.
40476101	Allen, L.; Mahlborg, W. (1987) Clean Crop Four Plus Herbicide: Product Chemistry Data: Study No. 87-18A. Unpublished study prepared by Transbas, Inc. Laboratory. 10 p.
40546600	The Chas H. Lilly Co. (1988) Submission of Product Chemistry Data to Support the Registration of Lilly/Miller Ready-to-use Spurge & Oxalis Killer. Transmittal of 1 study.
40546601	Klettke, M. (1988) Lilly/Miiler Ready-to-use Spurge & Oxalis Killer Product Chemistry Data. Unpublished study prepared by The Chas H. Lilly Co. 35 p.
40589100	PBI/GORDON Corp. (1988) Submission of Data To Support the Application for Registration of EH 922; Product Chemistry Data. Transmittal of 1 study.
40589101	Cahoy, R. (1988) Trimec 922--Product Chemistry. Unpublished compilation prepared by PBI/GORDON Corp Formulation Laboratory. 7 p.

20368

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
40595700	Environmental Protection Agency (1988) Submission of Documents Received from the RD PM for Addition to the 2,4-D Registration Standard. Transmittal of 4 studies.
40595703	Aly, O.; Faust, S. (1964) Determination of Phenoxyacetic Acids with J and Phenyl J Acids. Analytical Chemistry 36(11):2200-2201.
40596500	PBI/Gordon Corp. (1988) Submission of Chemistry Data in Support of Trimec M 936. Transmittal of 1 study.
40596501	Cahoy, R. (1988) Trimec M936--Product Chemistry. Unpublished compilation prepared by PBI/Gordon Corp. 4 p.
40651500	PBI/Gordon Corp. (1988) Submission of Chemistry Data to Support the Registration for Trimec 973 Weed & Feed. Transmittal of 1 study.
40651501	Cahoy, R. (1988) Trimec 973 Weed & Feed - Product Chemistry. Unpublished study prepared by PBI/Gordon Corp. 7 p.
40651600	PBI/Gordon Corp. (1988) Submission of Chemistry Data to Support the Registration for DM 969 Liquid Weed & Feed. Transmittal of 1 study.
40651601	Cahoy, R. (1988) DM 969 Liquid Weed & Feed - Product Chemistry. Unpublished study prepared by PBI/Gordon Corp. 7 p.
40651700	PBI/Gordon Corp. (1988) Submission of Data To Support the Application for Registration of Trimec 970 Weed and Feed: Product Chemistry Data. Transmittal of 1 study.
40651701	Cahoy, R. (1988) Trimec 970--Product Chemistry. Unpublished study prepared by PBI/Gordon Corp. 7 p.
40748300	Chas H. Lilly Co. (1988) Submission of Data To Support the Registration of Lilly/Miller Ready-to-Use Spurge & Oxalis Killer: Product Chemistry Data: Accelerated Storage Stability. Transmittal of 1 study.
40748301	Klettke, M. (1988) Lilly/Miller Ready-to-Use Spurge & Oxalis Killer: Product Chemistry Data. Unpublished study prepared by Columbia Laboratories, Inc. 21 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
40772200	Riverdale Chemical Co. (1988) Submission of Product Chemistry Data in Support of Registration of Riverdale Weedestroy Amine 6D. Transmittal of 1 study.
40772201	Sawyer, R. (1986) Product Chemistry: Riverdale Weedestroy Amine 6D: Laboratory project ID Amine 6D. Unpublished study prepared by Riverdale Chemical Co. 17 p.
40808300	Platte Chemical Co. (1988) Submission of Product Chemistry Data to Support the Data Call-in Notice for Polyhalogenated Dibenzo-p-dioxins/Dibenzofurans in 2,4-Dichlorophenoxyacetic acid. Transmittal of 1 study.
40808301	Allen, W.; Mahlborg, W. (1988) Clean Crop 2,4-D Acid: Product Chemistry Data: Study No. 88-9A. Unpublished study prepared by Transbas, Inc. Laboratory. 64 p.
40935700	Hoechst Celanese Corp. (1988) Submission of Toxicity Data in Support of Application for Registration of Tiller Herbicide and Petition for Tolerance for Fenoxaprop-ethyl for Use on Wheat. Transmittal of 8 studies.
40935701	Albrecht, Dr.; Rexer, K. (1988?) Physical and Chemical Characteristics of Tiller Herbicide (Hoe 033171+ 2,4-D + MCPA)(24 EC 50 A 300). Unpublished study prepared by Hoechst AG. 16 p.
41035600	The Chas. H. Lilly Co. (1989) Submission of Chemistry Data in Support of Conditional Registration of Trimec. Transmittal of 1 study.
41035601	Klettke, M. (1989) Storage Stability/Corrosion Characteristics Data of Lilly/Miller Feed & Weed. Unpublished study prepared by Columbia Labs. 32 p.
41035700	The Chas. H. Lilly Co. (1989) Submission of Chemistry Data in Support of Conditional Registration of Lilly/Miller Super Rich Feed & Weed with Trimec Herbicide. Transmittal of 1 study.
41035701	Klettke, M. (1989) Storage Stability/Corrosion Characteristics Data of Lilly/Miller Super Rich Feed & Weed with Trimec Herbicide. Unpublished study prepared by Columbia Laboratories. 32 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41049700	Chas. H. Lilly Co. (1989) Submission of Data To Support Registration of Lilly/Miller Envy 2,4-D: Product Chemistry Data. Transmittal of 1 study.
41049701	Klettke, M. (1989) Product Chemistry Data: Pesticide Assessment (...): Lilly/Miller Envy 2,4-D. Unpublished study prepared by Chas. H. Lilly Co. 42 p.
41053200	E. B. Stone & Son, Inc. (1989) Submission of Chemistry Data in Support of GreenAll Pro-Formula Weed Control and Lawn Fertilizer 25-5-3. Transmittal of 1 study.
41053201	E. B. Stone & Son, Inc. (1989) Product Chemistry Data: GreenAll Pro-Formula Weed Control and Lawn Fertilizer 25-5-3. Unpublished compilation. 56 p.
41055800	Dow Chemical Co. (1989) Submission of Data To Support Registration of 2,4-D Acid: Product Chemistry Data. Transmittal of 20 studies.
41055801	Dow Chemical Co. (1989) 2,4-D Acid: Product Identity and Composition. Unpublished study. 40 p.
41055802	Dow Chemical Co. (1989) 2,4-D Acid: Analysis and Certification of Product Ingredients. Unpublished study. 32 p.
41055803	Dow Chemical Co. (1989) 2,4-D Acid: Physical and Chemical Characteristics. Unpublished study. 6 p.
41055804	Dow Chemical Co. (1989) 2,4-D Acid, Flake: Product Identity and Composition. Unpublished study. 14 p.
41055805	Dow Chemical Co. (1989) 2,4-D Acid, Flake: Analysis and Certification of Product Ingredients. Unpublished study. 12 p.
41055809	Dow Chemical Co. (1989) 2,4,-D DMA-6 Unsequestered Weedkiller: Product Identity and Composition. Unpublished study. 23 p.
41055810	Dow Chemical Co. (1989) 2,4-D-6 Unsequestered Weedkiller: Analysis and Certification of Product Ingredients. Unpublished study. 22 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41055811	Dow Chemical Co. (1989) 2,4-D DMA-6 Unsequestered Weedkiller: Physical and Chemical Characteristics. Unpublished study. 6 p.
41055812	Dow Chemical Co. (1989) 2,4-D Butoxyethyl Ester: Product Identity and Composition. Unpublished study. 27 p.
41055813	Dow Chemical Co. (1989) 2,4-D Butoxyethyl Ester: Analysis and Certification of Product Ingredients. Unpublished study. 34 p.
41055814	Dow Chemical Co. (1989) 2,4-D Butoxyethyl Ester: Physical and Chemical Characteristics. Unpublished study. 6 p.
41055815	Dow Chemical Co. (1989) 2,4-D Isopropylamine Salt: Product Identity and Composition. Unpublished study. 22 p.
1055816	Dow Chemical Co. (1989) 2,4-D Isopropylamine Salt: Analysis and Certification of Product Ingredients. Unpublished study. 26 p.
41055817	Dow Chemical Co. (1989) 2,4-D Isopropylamine Salt: Physical and Chemical Characteristics. Unpublished study. 6 p.
41065500	Master Nursery's Association (1989) Resubmission of Data To Support Registration of 49'er Weed Control and Lawn Fertilizer 25-5-3: Product Chemistry Data. Transmittal of 1 study.
41065501	Strong, L. (1989) Product Chemistry Data: 49'er Weed Control and Lawn Fertilizer 25-5-3. Unpublished study prepared by Master Nurserymen's Association. 56 p.
41067000	Rhone-Poulenc Ag Co. (1989) Submission of Product Chemistry Data to Support the Registration Standard of 2,4-D. Transmittal of 1 study.
41067001	May & Baker Ltd. (1988) Product Chemistry Data Requirements under EPA Pesticide Assessment Guidelines dated Oct 1982 (2,4-Dichlorophenoxy)acetic Acid 2,4-D Technical Acid. Unpublished study. 138 p.
41123600	Riverdale Chemical Co. (1989) Submission of Data To Support Reregistration of 2,4-D Products: Product Chemistry Data. Transmittal of 1 study.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41123601	Sawyer, R. (1989) Riverdale Sodium Salt of 2,4-D: Product Chemistry: Project ID: Sodium Salt of 2,4-D. Unpublished study prepared by Riverdale Chemical Co. 18 p.
41133600	Platte Chemical Co. (1989) Submission of Product Chemistry Data in Support of Clean Crop Weed & Feed 2,4-D Granular Registration Standard. Transmittal of 1 study.
41133601	Mahlburg, W.; Thompson, J. (1989) Product Chemistry Information Clean Crop Weed & Feed 2,4-D Granular: Study No. 89-13A. Unpublished study prepared by Platte Chemical Co. 90 p.
41136900	Platte Chemical Co. (1989) Submission of Product Chemistry Data in Support of Clean Crop Weed & Feed 2,4-D Granular Registration Standard. Transmittal of 1 study.
41136901	Stevens, J. (1989) Supplement to Product Chemistry Data Clean Crop Weed & Feed 2,4-D Granular: Lab ID No. 5450-4976B: Study No. 89-13B. Unpublished study prepared by Thermedics, Inc. 43 p.
41140200	A.H. Marks and Co., Ltd. (1989) Submission of Data To Support Registration of Products Containing 2,4-dichlorophenoxyacetic Acid (2,4-D): Product Chemistry Data. Transmittal of 1 study.
41140201	Hardwick, F. (1989) Product Chemistry for Marks 2,4D Technical Acid. Unpublished study prepared by A.H. Marks & Co., Ltd. 24 p.
41179100	The Chas. H. Lilly Co. (1989) Submission of Product Chemistry Data in Support of Lilly/Miller Super Rich Feed & Weed with Trimec Herbicide Conditional Registration. Transmittal of 1 study.
41179101	Klettke, M. (1989) Storage Stability/Corrosion Characteristics Data: Lilly/Miller Super Rich Feed & Weed with Trimec Herbicide. Unpublished study prepared by Columbia Laboratories. 25 p.
41179200	The Chas. H. Lilly Co. (1989) Submission of Product Chemistry Data in Support of Lilly/Miller Feed & Weed Conditional Registration. Transmittal of 1 study.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41179201	Klettke, M. (1989) Storage Stability/Corrosion Characteristics Data: Lilly/Miller Feed & Weed. Unpublished study prepared by Columbia Laboratories. 25 p.
41203300	Rhone-Poulenc Ag Co. (1989) Submission of Product Chemistry Data in Response to 2,4-D Dioxin Data Call-in. Transmittal of 1 study.
41203301	Silvestre, D. (1989) 2,4-D Determination of Polychlorinated Dibenzop-dioxins and Dibenzofurans by GC/MS: Laboratory ID: 89-10. Unpublished study prepared by Rhone-Poulenc Industrialisation. 133 p.
41219700	PBI/Gordon Corp. (1989) Submission of Chemistry Data in Support of Dibenzop-Dioxins/Dibenzo-furans. Transmittal of 1 study.
41219701	Ambruster, J. (1989) Certification of Limits for Dibenzop-Dioxins/Dibenzofurans. Unpublished study prepared by PBI/Gordon Corp. 179 p.
41223800	PBI/Gordon Corp. (1989) Submission of Product Chemistry Data in Support of Registration for 2,4-Dichlorophenoxyacetic Acid, EPA Reg. No. 2217-455. Transmittal of 1 study.
41223801	Armbruster, J. (1989) EPA Reg. No. 2217-455 - Product Chemistry of 2,4-Dichlorophenoxyacetic Acid. Unpublished study prepared by Agro-Gor Corp. 30 p.
41224200	Agrolinz, Inc. (1989) Submission of Product Chemistry Data in Support of Registration Standard of 2,4-D Isopropyl Ester. Transmittal of 1 study.
41224201	Fisher, J. (1989) Product Chemistry Data Requirements for Isopropyl 2,4-D Ester Technical: Proj. ID P-890824. Unpublished study prepared by Agrolinz, Inc. 61 p.
41243100	The Chas. H. Lilly Co. (1989) Submission of Chemistry Data in Support of Lilly/Miller Ready-to-Use Lawn Weed Killer Conditional Registration. Transmittal of 1 study.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41243101	Klettke, M. (1989) Product Chemistry Data - Storage Stability and Corrosion Characteristics: Lilly/Miller Ready-to-Use Lawn Weed Killer. Unpublished study prepared by Columbia Laboratory. 16 p.
41308900	Industry Task Force II on 2,4-D (1989) Submission of Product Chemistry Data in Support of the 2,4-D Reregistration Standard. Transmittal of 1 study.
41308901	Reim, R. (1989) Dissociation of 2,4-Dichlorophenoxyacetic Acid (2,4-D) and 2,4-D Dimethylamine Salt in Water: Lab Project Number: ML AL 89 041014. Unpublished study prepared by Dow Chemical U.S.A. 25 p.
41318500	A. H. Marks and Co., Ltd. (1990) Submission of Product Chemistry Data in Response to the 2,4-D Data Call-In. Transmittal of 3 studies.
41318501	Langvoigt, ?. (1989) Analysis of DD/DF in 2,4-D Acid for A. H. Marks. Unpublished study prepared by Chemserv Analytik, Austria. 11 p.
41318502	Langvoigt, ?. (1989) Analysis of DD/DP in 2,4-DP Acid for A. H. Marks. Unpublished study prepared by Chemserv Analytik. 11 p.
41318503	Langvoigt, ?. (1989) Analysis of DD/Df in 2,4-DB Acid for A. H. Marks. Unpublished study prepared by Chemserv Analytik. 11 p.
41329600	Riverdale Chemical Co. (1989) Submission of data in support of registration of Weedestroy Dri-D Amine; Product chemistry. Transmittal of 2 studies.
41329601	Sawyer, R. (1989) Product Chemistry: Riverdale Weedestroy Dri-D Amine: Lab Project Number: Dri-D Amine. Unpublished study prepared by Riverdale Chemical Co. 21 p.
41329602	Stevens, J. (1989) Nitrosamine Analysis: Tri-anahydramine; EX-01 (Dri-D Amine): Lab Project Number 5450-5598. Unpublished study prepared by Thermedics Inc. 16 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41332000	Industry Task Force on 2,4-D (1990) Submission of Product Chemistry Data in Support of the 2,4-D Data Call-In. Transmittal of 9 studies.
41332001	Hopkins, D. (1987) 2,4-Dichlorophenoxyacetic Acid Dimethylamine Salt: Determination of the Water Solubility: Lab Project Number: ES/DR/0008/3556/3. Unpublished study prepared by The Dow Chemical Co. 14 p.
41332002	Hopkins, D. (1987) 2,4-Dichlorophenoxyacetic Acid: Determination of the Water Solubility: Lab Project Number: ES/DR/0002/2297/8. Unpublished study prepared by The Dow Chemical Co. 14 p.
41332003	Chakrabarti, A.; Gennrich, S. (1987) Vapor Pressure of 2,4-Dichlorophenoxyacetic Acid: Lab Project Number: ML/AL/87/40047. Unpublished study prepared by The Dow Chemical Co. 9 p.
41332004	Bailey, R.; Hopkins, D. (1987) 2,4-Dichlorophenoxyacetic Acid: Determination of Octanol/Water Partition Coefficient: Lab Project Number: ES/DR/0002/2297/9. Unpublished study prepared by The Dow Chemical Co. 12 p.
41332005	Nicholson, L. (1989) Determination of the Octanol/Water Partition Coefficient for n-Propylbenzene Using Generator Column Technology: Lab Project Number: AL/88/080547. Unpublished study prepared by Dow Chemical Co. 31 p.
41332006	Nicholson, L. (1989) Determination of the Octanol/Water Partition Coefficient for Naphthalene Using Generator Column Technology: Lab Project Number: AL/88/080546. Unpublished study prepared by The Dow Chemical Co. 29 p.
41332007	Chakrabarti, A.; Gennrich, S. (1987) Vapor Pressure of 2,4-D-Ethoxyhexyl Ester: Lab Project Number: ML/AL/87/40048. Unpublished study prepared by The Dow Chemical Co. 9 p.
41332008	Helmer, D. (1987) Determination of the Water Solubility of 2,4-Dichlorophenoxy Acetic Acid, 2-ethylhexyl Ester: Lab Project Number: ML/AL/87/70817. Unpublished study prepared by the Dow Chemical Co. 13 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41332009	Helmer, D. (1987) Determination of the Octanol/Water Partition Coefficient for 2,4- Dichlorophenoxy Acetic Acid, 2-Ethylhexyl Ester: Lab Project Number: ML/AL/87/70819. Unpublished study prepared by Dow Chemical Co. 14 p.
41349000	Riverdale Chemical Co. (1990) Submission of Analytical Chemistry Data in Response to the Data Call-in Notice for Polyhalogenated Dibenzo-p-Dioxins/Dibenzofurans in 2,4-D Acid and Its Salts and Esters. Transmittal of 2 studies.
41349001	Fiene, J.; Mahlborg, W. (1990) Determination of Halogenated Dibenzo-p-Dioxins and Dibenzofurans in 2,4-D Acid: Lab Project Number: 90-1. Unpublished study prepared by Chemserv Industries Service Ges.m.b.H. 323 p.
1375700	Chas. H. Lilly Co. (1990) Submission of Supplemental Chemistry Data in Support of Lilly/Miller Ready-to Use Lawn Weed Killer. Transmittal of 1 study.
41375701	Klettke, M. (1990) Product Chemistry Data - Storage Stability: Lilly/Miller Ready-To-Use Lawn Weed Killer. Unpublished study prepared by Columbia Laboratories, Inc. 4 p.
41376700	Agrolinz, Inc. (1990) Submission of Product Chemistry Data to Support the Special Review on Polyhalogenated Dibenzo-p-dioxins/Dibenzofurans in 2,4-D and Its Salts and Esters. Transmittal of 1 study.
41376701	Fisher, J. (1989) Manufacturing Process for the Production of Esters of 2,4-Dichlorophenoxyacetic Acid: Lab Project ID: P89030L. Unpublished study prepared by Agrolinz, Inc. 15 p.
41431100	DowElanco (1990) Submission of Vapor Pressure Data in Support of 2,4-D Registration Standard. Transmittal of 1 study.
41431101	Chakrabarti, A. (1990) Vapor Pressure of the Isopropyl Amine Salt of 2,4-Dichlorophenoxy Acetic Acid Measured by the Knudsen-Effusion/Weight Loss Method: Lab Project Number: ML-AL 89-020235. Unpublished study prepared by Dow Chemical U.S.A. 11 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41447100	Rhone-Poulenc Ag Co. (1990) Submission of Product Chemistry Data to Support the 2,4-D DMA Dioxin/Dibenzofuran Data Call-in Notice. Transmittal of 1 study.
41447101	Scarborough, D. (1990) Weedar Brand 64 Broadleaf Herbicide Product Identity and Composition: Lab Project Number: AC-90-005. Unpublished study prepared by Rhone-Poulenc Ag Co. 84 p.
41472700	Riverdale Chemical Co. (1990) Submission of Product Chemistry Data to Support the Registration of Riverdale Triplet Selective Herbicide. Transmittal of 2 studies.
41472701	Sawyer, R. (1986) Riverdale Triplet Selective Herbicide. Unpublished study prepared by Riverdale Chemical Co. 20 p.
41472702	Stevens, J. (1990) Nitrosamine Analysis: Triplet: Lab Project No.: 5450-6221. Unpublished study prepared by Thermedics, Inc. 17 p.
41478700	Riverdale Chemical Co. (1990) Submission of Product Chemistry and Toxicological Data to Support the Registration of Riverdale Dri-Tri Amine. Transmittal of 8 studies.
41478701	Sawyer, R. (1990) Product Chemistry: Riverdale Weedestroy (R) Dri-Tri Amine. Unpublished study prepared by Riverdale Chemical Co. 20 p.
41478708	Stevens, J. (1990) Nitrosamine Analysis: Riverdale Dri-Tri Amine: Lab Project Number: 5450-6195. Unpublished study prepared by Thermedics, Inc. 17 p.
41496700	DowElanco (1990) Submission of Data in Response to Data Call-in for Dioxin/Furan: Product Chemistry Study. Transmittal of 1 study.
41496701	DowElanco (1990) 2,4-D Acid: Product Identity and Composition: "Amendment". Unpublished study prepared by The Dow Chemical Co. 51 p.
41525700	Fermenta ASC Corp. (1990) Submission of Product Chemistry and Toxicological Data to Support the Registration Standard for 2,4-D. Transmittal of 2 studies.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41525701	Sweetapple, G. (1990) Dacamine 4D Determination of Corrosion Characteristics: Fermenta ASC Proj. No. 1458I; Doc. No. 1081-89-0244-AS-001. Unpublished study prepared by Ricerca, Inc., Dept of Analytical Services. 38 p.
41527500	Rhone-Poulenc Ag Company (1990) Submission of product chemistry data in response to a dioxin/dibenzofuran data call-in. Transmittal of 1 study.
41527501	Scarborough, D. (1990) DPD-Amine Herbicide: Product Identity and Composition: Lab Project Number: 40781. Unpublished study prepared by Rhone-Poulenc Ag. Co. 64 p.
41539300	Lesco, Inc. (1990) Submission of Chemistry and Toxicity Data in Support of Registration of Three-way 53% DG Herbicide. Transmittal of 7 studies.
41539301	McLane, H. (1990) Lesco Three-way 53 percent DG Selective Herbicide: Product Chemistry: Lab Project Number: A LESCO 10-DGPC1.PM3. Unpublished study prepared by Lesco, Inc. 9 p.
41559800	Lesco, Inc. (1990) Submission of nitrosamine record of analysis for Lescopar herbicide. Transmittal of 1 study.
41559801	McClane, H. (1990) Lesco Lescopar Herbicide: Lab Project Number: W0 60388AS. Unpublished study prepared by Hazleton Labs America, Inc. 4 p.
41572000	DowElanco (1990) Submission of Product Chemistry Data in Support of Formula 40 Herbicide Amended Registration for Revised Formulation. Transmittal of 1 study.
41572001	Schriber, C. (1990) Product Chemistry for Formula 40 Herbicide: Lab Project Number: XRM-5226. Unpublished study prepared by Dow-Elanco. 28 p.
41599400	Rhone-Poulenc Ag Co. (1990) Submission of Additional Product Chemistry Data in Support of 2,4-D Dioxin Data Call-in. Transmittal of 1 study.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41599401	Buddle, G. (1990) 2,4-D Technical Acid Product Chemistry: Supplemental Information: Lab Project Number: ACD/GCB/MS/8364. Unpublished study prepared by Rhone-Poulenc Ag Co. 10 p.
41637500	PBI/GORDON Corp. (1990) Submission of Chemistry Data in Support of Lavelle 348 in Response of EPA Letter Dated July 11, 1990. Transmittal of 1 study.
41637501	Armbruster, J. (1990) Revised Partial Product Chemistry. Unpublished study prepared by PBI/GORDON Corp. 18 p.
41668700	NCH Corp. (1990) Submission of Product Chemistry Data to Support the Registration of the RF89482. Transmittal of 1 Study.
41668701	Wright, S. (1990) Product Chemistry: RF89482: Lab Project Number: 89/482. Unpublished study prepared by Mohawk Laboratories. 101 p.
41681900	AGRO/GOR Corp. (1990) Submission of Product Chemistry Data to Support the Registration of 2,4,-Dichlorophenoxyacetic acid. Transmittal of 1 Study.
41681901	Armbruster, J. (1990) Revised Partial Product Chemistry. Unpublished study prepared by AGRO/GOR Corp. 20 p.
41694900	Monsanto Agricultural Company (1990) Submission of Toxicology and Product Chemistry Data in Support of Registration of Mon-18729, Expedite Broadleaf Herbicide 3-way Amine. Transmittal of 7 studies.
41694901	Gibson, K. (1990) Product Chemistry Data to support the Registration of Mon-18729: Lab Project Number: 0436-90-15: MSL-10539: Unpublished study prepared by Monsanto Agriculture Company. 78 p.
41706300	PBI/Gordon Corp. (1990) Submission of Supplementary Product Chemistry Data to Fulfill MCPP Dioxin/Furan DCI Data Gaps. Transmittal of 93 studies.
41706302	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-488. Unpublished study prepared by PBI/Gordon Corp. 12 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41706303	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-489. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706304	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-483. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706305	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-507. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706306	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-508. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706307	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-516. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706308	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-517. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706309	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-529. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706310	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-530. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706311	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-531. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706312	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-532. Unpublished study prepared by PBI/Gordon Corp. 12 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41706313	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-533. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706314	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-536. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706315	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-537. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706316	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-539. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706317	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-540. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706318	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-543. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706319	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-559. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706320	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-560. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706321	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-561. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706322	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-563. Unpublished study prepared by PBI/Gordon Corp. 12 p.

20382

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41706323	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-566. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706324	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-567. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706325	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-568. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706326	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-570. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706327	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-571. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706328	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-579. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706329	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-580. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706330	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-581. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706331	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-585. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706332	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-593. Unpublished study prepared by PBI/Gordon Corp. 12 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41706333	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-594. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706334	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-597. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706335	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-602. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706336	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-603. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706337	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-615. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706338	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-618. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706339	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-621. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706340	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-623. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706341	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-624. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706342	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-625. Unpublished study prepared by PBI/Gordon Corp. 12 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41706343	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-639. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706344	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-640. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706345	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-643. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706346	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-644. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706347	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-655. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706348	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-656. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706349	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-657. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706350	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-658. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706351	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-659. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706352	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-660. Unpublished study prepared by PBI/Gordon Corp. 12 p.

20385

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41706353	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-661. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706354	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-662. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706355	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-663. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706356	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-674. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706357	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-681. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706358	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-694. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706359	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-695. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706360	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-698. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706361	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-709. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706362	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-710. Unpublished study prepared by PBI/Gordon Corp. 12 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41706363	Armbruster, J. (1990) Updated Product Identity and Composition: EPA Reg. No. 2217-716. Unpublished study prepared by PBI/Gordon Corp. 12 p.
41706364	Cahoy, R. (1990) EH 896--Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706365	Cahoy, R. (1990) EH 870--Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706366	Cahoy, R. (1990) EH 871--Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706367	Cahoy, R. (1990) Trimec Northern Liquid Weed & Feed 25-0-0: Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706368	Cahoy, R. (1990) Trimec Northern Liquid Weed & Feed 25-0-0: Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706369	Cahoy, R. (1990) Trimec 901: Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706370	Cahoy, R. (1990) Trimec 902: Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706371	Cahoy, R. (1990) M 885--Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706372	Cahoy, R. (1990) Trimec M886--Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706373	Cahoy, R. (1990) Trimec M887--Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706374	Cahoy, R. (1990) Trimec M903--Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706375	Cahoy, R. (1990) Trimec M904--Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41706376	Cahoy, R. (1990) Trimec M905--Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706377	Cahoy, R. (1990) MM890 Liquid Weed & Feed 20-0-0: Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706378	Cahoy, R. (1990) Trimec M 907 Liquid Weed & Feed: Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706379	Cahoy, R. (1990) Trimec M 908 Liquid Weed & Feed: Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
1706380	Cahoy, R. (1990) Trimec M 909 Liquid Weed & Feed: Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706381	Cahoy, R. (1990) DM 896--Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706382	Cahoy, R. (1990) DMDP 897--Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706383	Cahoy, R. (1990) DMDP 898 Liquid Weed & Feed--Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706384	Cahoy, R. (1990) DM 899 Liquid Weed & Feed--Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706385	Cahoy, R. (1990) Trimec M891 Weed & Feed--Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706386	Cahoy, R. (1990) Trimec M892 Weed & Feed--Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41706387	Cahoy, R. (1990) Trimec M893 Weed & Feed--Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706388	Cahoy, R. (1990) Trimec 914 Weed & Feed--Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706389	Cahoy, R. (1990) Trimec 932--Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706390	Cahoy, R. (1990) Trimec M936--Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706391	Cahoy, R. (1990) DM 969 Liquid Weed & Feed--Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706392	Cahoy, R. (1990) Trimec 970--Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41706393	Cahoy, R. (1990) Trimec 973 Weed & Feed--Product Chemistry: Supplement. Unpublished study prepared by PBI/Gordon Corp. 7 p.
41724200	Nufarm USA, Inc. (1990) Submission of product Chemistry Data in Response to the Data Call-in Notice for 2,4-D. Transmittal of 3 studies.
41724201	Landvoight, W. ; Mahlburg, W. (1990) Quality Assurance Project Plan for Determination of Halogenated Dibenzo-p-Dioxins and Dibenzofurans... in 2,4-D...: Lab Project Number: 90-3. Unpublished study prepared by Chemserve Industries Service Ges.m.b.H. 43 p.
41724202	Landvoight, W.; Mahlburg, W. (1990) Determination of Halogenated Dibenzo-p-Dioxins and Dibenzofurans in 2,4-D Acid by Method of Analysis 50288: Lab Project Number: 90-4. Unpublished study prepared by Chemserve Industries Service Ges.m.b.H. 561 p.
41734800	Lesco, Inc. (1990) Submission of product chemistry data to reflect changes in the end product (Lesco 53 Three-Way DG) due to a change of supplier of formulating materials. Transmittal of 1 study.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41734801	McLane, H. (1990) Lesco Three-Way 53% DG Selective Broadleaf Herbicide: Product Chemistry: Lab Project Number: 10-AOPC1. PM3. Unpublished study prepared by Lesco, Inc. 9 p.
41735700	Rhone-Poulenc Ag Co. (1990) Submission of Additional Product Chemistry Data In Support of Technical 2,4-D Acid. Transmittal of 1 Study.
41735701	Silvestre, D. (1990) Determination of Polychlorinated Dibenzo-p-Dioxins and Dibenzofurans In 2,4-D: Complementary Analytical Raw Data Relative to Study 89-10: Lab Project Number: 343-484. Unpublished study prepared by Rhone-Poulenc Industrialisation. 100 p.
41745300	PBI/Gordon Corp. (1991) Submission of Chemistry data in support of 2,4-Dichlorophenoxyacetic Acid in response to agency's letter dated July 11, 1990. Transmittal of 2 studies.
41745301	Etchepareborda, I.; Sancrica, J. (1990) Storage Stability of Technical 2,4 Dichlorophenoxyacetic Acid. Unpublished study prepared by Atanor S.A./ Laboratorios de Estudios Analiticos. 8 p.
41745302	Castaneda, J. (1990) 2,4 Dichlorophenoxyacetic Acid Explodability: Unpublished study prepared by Instituto de Desarrollo Tecnológico/para la Industria Química (INTEC). 8 p.
41755700	DowElanco (1991) Submission of Product Chemistry Data to Support the Reregistration of 2,4-D Dimethylamine Salt Solution. Transmittal of 1 Copy.
41755701	Schriber, C. (1990) Chemical Stability of 2,4-D Dimethyl Salt Solution: Lab Project Number: GH-C 24428. Unpublished study prepared by DowElanco. 17 p.
41760100	Rhone-Poulenc Ag Company (1991) Submission of product chemistry data to support the registration of Weedar 64 Broadleaf Herbicide (2,4 D). Transmittal of 1 study.
41760101	Crownover, R. (1990) Product Chemistry: Weedar 64 Broadleaf Herbicide: Analysis and Certification of Ingredients: Lab Project Number: AC-90-019. Unpublished study prepared by Rhone-Poulenc Ag Company. 63 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41787900	S.C. Johnson & Sons, Inc. (1991) Submission of Product Chemistry Data to Support the Application for Amended Registration of Johnson Yard Master Foam Lawn Weed Killer. Transmittal of 1 Study.
41787901	Duda, D. (1990) Lawn Weed Killer: EPA No. 4822-124: Lab Project Number: 5966D114-2C1. Unpublished study prepared by S.C. Johnson & Son Inc. 47 p.
41789900	Rhone-Poulec AG Co. (1991) Submission of Supplemental Chemistry data in support of 2,4-D Dioxin Data Call-in. Transmittal of 2 studies.
41789901	Rajoharison, G. (1991) Responses to EPA Queries on 2,4-D Product Chemistry: Lab Project Number: GR/BC/91-189/PTC211. Unpublished study prepared by Rhone-Poulenc Chimie. 9 p.
41789902	Buddle, G.; Patel, P. (1991) 2,4-dichlorophenoxyacetic acid (2,4-D): Analysis and Certification of Product Ingredients, Provision of Supplementary Analytical Method Validation: Lab Project Number: P-91-016. Unpublished study prepared by Rhone-Poulenc Agriculture Ltd. 20 p.
41790600	PBI/Gordon Corp. (1991) Submission of Chemistry data in support of Dioxin/Furan data gaps cited in agency's letter dated Nov. 27, 1990. Transmittal of 2 studies.
41790601	Armbruster, J. (1991) Product Chemistry: 61 & 63 Series. Unpublished study prepared by PBI/Gordon Corp. 8 p.
41790602	Armbruster, J. (1989) Certification of Limits for Dibenzo-p-Dioxins/Dibenzofurans. Unpublished study prepared by PBI/Gordon Corp. 489 p.
41796200	Agor-Gor Corp. (1991) Submission of Product Chemistry Data to Support the Supplemental Application for Registration of Dioxin Furan. Transmittal of 2 Studies.
41796201	Armbruster, J. (1989) EPA Reg No. 61469-001-Product Chemistry. Unpublished study prepared by Agro-Gor Corp. 8 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41796202	Armbruster, J. (1989) EPA REG No. 6149-001-Certification of Limits for Dibenzo-p-Dioxins/Dibenzofurans. Unpublished study prepared by Agro-Gor Corp. 489 p.
41799500	A H Marks & Company Limited (1991) Submission of Product Chemistry Data to Support the Application for Registration of 2,4-D Data Call-In. Transmittal of 3 Studies.
41799501	Landvoigt, ?. (1990) Summary of Analysis of 2,4-D: Detailing the Levels of Substituted Dioxins and Benzfurans Found in the Samples. Unpublished study prepared by Chemserve Industrie Service Ges.m.b.H. 19 p.
41799502	Landvoigt, ?. (1990) Determination of Dioxins and Benzofurans in 2,4-D, 2,4-DCP, MCPA, 2,4-DP, CMPP and 2,4-DPB by GC/MS: Lab Project Number: 40288. Unpublished study prepared by Chemserve Industrie Service Ges.m.b.H. 15 p.
41799503	Landvoigt, ?. (1990) Product Chemistry: Calibration File Using TM1 to TM10: Lab Project Number: 0689. Unpublished study prepared by Chemserve Industrie Service Ges.m.b.H. 30 p.
41800800	A H Marks & Company Limited (1991) Submission of Product Chemistry Data to Support the Data Call-In of 2,4-DB. Transmittal of 2 Studies.
41800801	Landvoigt, ?. (1990) Summary of Analysis of 2,4-DB Detailing the Levels of Substituted Dioxins and Benzfurans Found in the Samples. Unpublished study prepared by Chemserve Industrie Services Ges.m.b.H. 19 p.
41800802	Landvoigt, ?. (1990) Determination of Dioxins and Benzofurans in 2,4-D, 2,4-DCP, MCPA, 2,4-DP, CMPP and 2,4-DPB by GC/MS: Lab Project Number: 40288. Unpublished study prepared by Chemserve Industrie Service Ges. m.b.H. 15 p.
41801100	A H Marks & Company Limited (1991) Submission of Product Chemistry Data to Support the Dioxins/Furans Data Call-In. Transmittal of 3 Studies.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41801101	Landvoigt, W. (1990) Summary of Analysis of 2,4-DP: Detailing the Levels of Substituted Dioxins and Benzfurans Found in the Samples. Unpublished study prepared by Chemserve Industrie Service Ges.m.b.H. 19 p.
41801102	Landvoigt, W. (1990) Determination of Dioxins and Benzofurans in 2,4-D, 2,4-DCP, MCPA, 2,4-DP, CMPP and 2,4-DPB by GC/MS: Lab Project Number: 40288. Unpublished study prepared by Chemserve Industrie Service Ges.m.b.H. 15 p.
41801103	Landvoigt, W. (1990) Calibration File Using TM1 to TM10: Lab Project Number: 0689. Unpublished study prepared by Chemserve Industrie Service Ges. m.b.H. 35 p.
41814500	McLane, H.R., Inc. (1991) Submission of product chemistry data to support the registration of Lesco Lescopar Herbicide. Transmittal of 1 study.
41814501	McLane, H. (1990) Lesco Lescopar Herbicide: Nitrosamine Record Analysis: Lab Project Number: EPA LESCO 10-AIPC1.PM3. Unpublished study prepared by Hazleton Labs America. 12 p.
41842000	Howard Fertilizer Co. (1991) Submission of Chemistry data in support of Turf Pride Lawn Food with Trimec in response to Agency's Letter dated Mar 23 1991. Transmittal of 1 study.
41842001	McLane, H. (1991) Product Specific Data: Turf Pride Lawn Food with Trimec: Lab Project Number: EPA/PC/35512-EN. PC1. Unpublished study prepared by Howard Fertilizer Co. 5 p.
41876500	A H Marks & Company Ltd. (1991) Submission of Data to Support the Registration of Dioxin/Furan Data Call-In for 2,4-DP: Product Chemistry Data. Transmittal of 1 Study.
41876501	Landvoigt, W. (1990) Calibration File Using TM1 to TM10: Analysis & Certification: Lab Project Number: MARKS 0689. Unpublished Study prepared by Chemserv Industrie Service Ges.m.b.H. 35 p.
41880600	Rhone-Poulenc Ag Co. (1991) Submission of Data in Response to Data Call-in for 2,4-D Dioxin: Product Chemistry Study. Transmittal of 1 study.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41880601	Cicotti, M. (1991) Determination of the Solubility of 2,4-D in Organic Solvents in accordance with EPA 63-8 and BBA Guidelines: Lab Project Number: BE/P/1/91/01/BG. Unpublished study prepared by Battelle Europe. 15 p.
41890700	Van Diest Supply Co. (1991) Submission of Data To Support Cornbelt Salvan Application for Registration: Product Chemistry Study. Transmittal of 1 study.
41890701	Hanson, W. (1991) Salvan--Product Chemistry & Data . Unpublished study prepared by Van Diest Supply Co., Formulation & Control Labs. 38 p.
41920500	PBI Gordon/Corp. (1991) Submission of product chemistry data to support the registration standard for 2,4-D Diethanolamine Salt. Transmittal of 2 studies.
41920501	Hambrick, A. (1990) 2,4-Dichlorophenoxyacetic Acid, Diethanolamine Salt--Analytical Characterization: Lab Project Number: 4102-90-0303-AS-001. Unpublished study prepared by Ricerca, Inc. 33 p.
41920502	Hambrick, A. (1990) 2,4-Dichlorophenoxyacetic Acid, Sodium Salt: Analytical Characterization: Lab Project Number: 4102-90-0302-AS-001. Unpublished study prepared by Ricerca, Inc. 72 p.
41924300	Celex Corporation (1991) Submission of product chemistry data in support of registration of Super K-Gro Weed and Feed, Formula II Transmittal of 1 study.
41924301	Celex Corporation (1991) Product Chemistry: Super K-Gro Liquid Weed and Feed Formula II. Unpublished study prepared by Celex Corporation. 15 p.
41926200	PBI/Gordon (1991) Submission of product chemistry data to fulfill subject data gaps for 2,4 dichlorophenoxyacetic acid 97%. Transmittal of 3 studies.
41926201	Etchepareborda, I.; Sancricca, J. (1991) Preliminary Analysis of 2,4 Dichlorophenoxyacetic acid 97%. Unpublished study prepared by Atanor S. A. 17 p.

20394

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41926202	Etchepareborda, I. (1991) pH of 2,4-Dichlorophenoxyacetic acid 97%. Unpublished study prepared by Atanor S. A. 5 p.
41926203	Etchepareborda, I.; Sancricca, J. (1991) Storage Stability (1 year in commercial packaging) of 2,4 Dichlorophenoxyacetic acid 97%. Unpublished study prepared by Atanor S. A. 7 p.
41932200	DowElanco (1991) Submission of Data to Support the Application for New End Use Product Registration for XRM-5202: Product Chemistry Data. Transmittal of 1 Study.
41932201	Hamburg, F. (1990) Product Chemistry for XRM-5202 Herbicide: Lab Project Number: M-005202. Unpublished study prepared by Dow-Elanco. 35 p.
1932500	DowElanco (1991) Submission of product chemistry and toxicity studies to support the application for registration of Justice Herbicide (2,4-D). Transmittal of 9 studies.
41932501	Cobb, J. (1991) Series 61: Product Identity and Composition of XRM-5238 (Justice) Herbicide: Lab Project Number: GH-C 2558. Unpublished study prepared by DowElanco, Formulations and Environmental Chem. Lab. 23 p.
41932502	Murphy, G. (1991) Series 62: Analysis and Certification of Product Ingredients of XRM 5238 (Justice Herbicide) an End Use Wettable Powder Formulation of 2,4-Dichlorophenoxyacetic Acid: Lab Project Number: FOR91074. Unpublished study prepared by DowElanco, Formulations and Environmental Chem. Labs. 15 p.
41932503	Murphy, G. (1991) Series 63: Physical and Chemical Characteristics of XRM-5238 (Justice Herbicide), an End Use Wettable Powder Formulation of 2,4-Dichlorophenoxyacetic Acid: Lab Project Number: GH-C 2557. Unpublished study prepared by DowElanco, Formulations and Environmental Chem. Lab. 10 p.
41932504	Murphy, G. (1991) Determination of Color, Physical State, Odor, pH, Density, Oxidizing and Reducing Action and Explodability of XRM-5238 (Justice Herbicide): Lab Project Number: FOR91073. Unpublished study prepared by DowElanco, Formulations and Environmental Chem. Lab. 15 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41961300	DowElanco (1991) Submission of supplemental product chemistry data in support of reregistration of 2,4-D. Transmittal of 1 study.
41961301	DowElanco (1991) 2,4-D Butoxyethyl Ester: Response to 2,4-D Task 4: Registrants Response to Product Chemistry Data Requirements DEB No. 5454-5455, 5440-5544 Dated September 22, 1989. Unpublished study. 11 p.
41964400	DowElanco (1991) Submission of Data to Support the Reregistration of 2,4-D: Product Chemistry. Transmittal of 1 Study.
41964401	DowElanco (1991) Response to 2,4-D Task 4: Registrant's Response to Product Chemistry Data Requirements DEB No. 5454-5455, 5440-5544 Dated Sep. 22, 1989 (Tinsworth Letter Dated January 23, 1990) 2,4-Dimethylamine Salt. Unpublished study prepared by DowElanco. 17 p.
41972500	PBI/Gordon Corp. (1991) Submission of Data To Support the Reregistration of Diethanolamine Salt of 2,4-D: Product Chemistry Study. Transmittal of 1 study.
41972501	Gallacher, A. (1991) Dissociation of 2,4-Dichlorophenoxyacetic Acid (2,4-D) and 2,4-D Diethanolamine Salt in Water: Lab Project Number: 4102-90-0304-AS: 4102-90-0304-AS-001. Unpublished study prepared by Ricerca, Inc. 231 p.
41973500	DowElanco (1991) Submission of product chemistry data in support of reregistration of 2,4-D. Transmittal of 2 studies.
41973501	DowElanco (1991) 2,4-D Acid and 2,4-D Acid Flake: Response to 2,4-D Task 4: Registrant's Response of Product Chemistry Data Requirements Deb. No. 5454-5455, 5489, 5440-5544 Dated September 22, 1989. Unpublished study. 57 p.
41973502	Schriber, C. (1991) Chemical Stability of 2,4-Dichlorophenoxyacetic Acid: Lab Project Number: 90089. Unpublished study prepared by DowElanco. 17 p.
41978000	DowElanco (1991) Submission of product chemistry data in support of reregistration of 2,4-D isopropylamine salt. Transmittal of 2 studies.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
41978001	DowElanco (1991) 2,4-D Isopropylamine Salt: Response to 2,4-D Task 4: Registrant's Response to Product Chemistry Data Requirements DEB Nos. 5454-5455, 5489, 5440-5544 Dated September 22, 1989. Unpublished study prepared by DowElanco. 16 p.
41978002	Schriber, C. (1991) Chemical Stability of 2,4-D Isopropylamine Salt Solution: Lab Project Number: 90088. Unpublished study prepared by DowElanco 17 p.
42021000	DowElanco (1991) Submission of product chemistry data in support of reregistration of 2,4-D. Transmittal of 2 studies.
42021001	MacDaniel, R.; Weiler, D. (1987) Vapor Pressure Determination of 2,4-Dichlorophenoxyacetic Acid: Dimethylamine Salt: Lab Project Number: 41023. Unpublished study prepared by Rhone-Poulenc Inc. 9 p.
42021002	Hopkins, D. (1987) 2,4-Dichlorophenoxyacetic Acid Dimethylamine Salt: Determination of the Water Solubility: Lab Project Number: ES-DR-0008-3556-3. Unpublished study prepared by The Dow Chemical Company. 15 p.
42023600	PBI Gordon Corp. (1991) Submission of product chemistry data in support of fulfilling the subject data gaps cited in an EPA letter dated May 15, 1991 for 2,4-D acid. Transmittal of 1 study.
42023601	Desai, L. (1991) Technical 2,4-D Acid: Physical and Chemical Characteristics: Lab Project Number: 91-GR-0004. Unpublished study prepared by Toxicon Corp. 120 p.
42102900	A>H. Marks & Co. (1991) Submission of product chemistry data to comply with an Agency data call-in for dioxin/furan data. Transmittal of 1 study.
42102901	Landvoight, ? (1990) Analysis of DD/DF in 2,4-D Acid...: Lab Project Number: KNR. 2954367. Unpublished study prepared by Chem-serv Industrie Service Ges.m.b.H. 57 p.
42105500	Riverdale Chemical Co. (1991) Submission of Data To Support Registration of Riverdale Dissolve: Product Chemistry. Transmittal of 1 study.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
42105501	Sawyer, R. (1990) Product Chemistry: Riverdale Dissolve: Lab Project Number: DRI/TRI/TRIAMINE/W/S. Unpublished study prepared by Riverdale Chemical Co. 8 p.
42149600	Riverdale Chemical Co. (1992) Submission of product chemistry and toxicity data to support the registration of Triamine Premium Granular Weed Killer. Transmittal of 7 studies.
42149601	Sawyer, R. (1990) Product Chemistry: †Riverdale Triamine Premium Granular Weed Killer . Unpublished study prepared by Riverdale Chemical Co. 19 p.
42149607	Bresnahan, J. (1991) Nitrosamine Analysis: †Triamine Premium Weed and Feed : Lab Project Number: 5450-6985. Unpublished study prepared by Thermedics, Inc. 30 p.
42190200	2,4-DP Task Force (1992) Submission of product chemistry data in support of a reregistration standard for 2,4-DP-P acid and dimethylamine salt. Transmittal of 10 studies.
42190201	Muller, F. (1991) Comminution of Herbicide: Lab Project Number: 191.0308.3. Unpublished study prepared by BASF Akteingesellschaft. 24 p.
42190202	Ziegler, ?. (1990) Determination of Dichlorprop: Lab Project Number: CF-A 414. Unpublished study prepared by BASF Akteingesellschaft. 19 p.
42190203	Liesner, M. (1990) 2,4-DP-P BASF Task Force Sample: Determination of Active Ingredient: Lab Project Number: PCP01126. Unpublished study prepared by BASF Akteingesellschaft. 10 p.
42190204	Liesner, M. (1991) 2,4-DP-P BASF Task Force Sample: Determination of Active Ingredient: Lab Project Number: PCP01419. Unpublished study prepared by BASF Akteingesellschaft. 10 p.
42190205	Petersen, M. (1991) 2,4-DP-P Composite Task Force Sample: Determination of Active Ingredient and Methods Information: Lab Project Number: PCP01517. Unpublished study prepared by BASF Akteingesellschaft. 14 p.

20398

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
42190206	Euler, K. (1991) 2,4-DP-P BASF Task Force Sample: Determination of Impurities: Lab Project Number: 0/91/12. Unpublished study prepared by BASF Akteingesellschaft. 28 p.
42190207	Euler, K. (1991) 2,4-DP-P A.H. Marks Task Force Sample: Determination of Impurities: Lab Project Number: 0/91/6555-57. Unpublished study prepared by BASF Akteingesellschaft. 13 p.
42190208	Euler, K. (1991) 2,4-DP-P Composite Task Force Sample: Determination of Impurities: Lab Project Number: 0/91/16306-308. Unpublished study prepared by BASF Akteingesellschaft. 13 p.
42190209	Landvoigt, W. (1990) 2,4-DP-P Summary of Dioxin/Dibenzofuran Analysis: Lab Project Number: 2057516: 2057517. Unpublished study prepared by Chemserv Industrie Service Ges.m.b.H. 8 p.
42190210	Landvoigt, W. (1990) A.H. Marks Analytical Methods Information: Lab Project Number: 40288: 2060150: 2060151. Unpublished study prepared by Chemserv Industrie Service Ges.m.b.H. 98 p.
42212100	Riverdale Chemical Co. (1992) Submission of product chemistry and toxicity data in support of registration of Riverdale Sweet Sixteen Weed and Feed with Dissolve. Transmittal of 6 study.
42212101	Sawyer, R. (1991) Riverdale Sweet Sixteen Weed and Feed with Dissolve: Product Chemistry: Lab Project Number: SWEET SIXTEEN WEED A. Unpublished study prepared by Riverdale Chemical Co. 14 p.
42227500	Riverdale Chemical Co. (1992) Submission of Data To Support Reregistration of 2,4-D Riverdale Sodium Salt: Product Chemistry Study. Transmittal of 1 study.
42227501	Sawyer, R. (1990) Product Chemistry: Riverdale Sodium Salt of 2,4-D. Unpublished study prepared by Riverdale Chemical Co. 8 p.
42240200	Riverdale Chemical Co. (1992) Submission of Data To Support Application for Registration of Riverdale Sweet Sixteen Weed and Feed with Dissolve: Product Chemistry Study. Transmittal of 1 study.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
42240201	Bresnahan, J. (1992) Nitrosamine Analysis: Riverdale Sweet Sixteen Weed & Feed with Dissolve: Lab Project Number: 5450-7922. Unpublished study prepared by ThermedeTec Inc. 21 p.
42258800	Riverdale Chemical Co. (1992) Submission of Data To Support Application for Riverdale Dissolve Weed and Feed Registration: Product Chemistry Study. Transmittal of 1 study.
42258801	Sawyer, R. (1992) Product Chemistry: Riverdale Dissolve Weed and Feed. Unpublished study prepared by Riverdale Chemical Co. 15 p.
42264700	Riverdale Chemical Co. (1992) Submission of product chemistry and toxicity data in support of registration of Riverdale Dri D + DP Amine. Transmittal of 7 studies.
42264701	Sawyer, R. (1992) Product Chemistry: Riverdale Dri D + DP Amine: Lab Project Number: DRI D + DP AMINE. Unpublished study prepared by Riverdale Chemical Co. 18 p.
42264707	Stevens, J. (1990) Nitrosamine Analysis: Riverdale Dri-D + DP Amine: Lab Project Number: 5450-6298. Unpublished study prepared by Thermedics, Inc. 18 p.
42285800	Riverdale Chemical Co. (1992) Submission of chemistry and toxicity data to support the registration of Riverdale Triplet Water Soluble. Transmittal of 7 studies.
42285801	Sawyer, R. (1992) Riverdale Triplet Water Soluble: Product Chemistry: Lab Project Number: TRIPLET WS. Unpublished study prepared by Riverdale Chemical Co. 23 p.
42285807	Bresnahan, J. (1991) Triplet W. S.: Nitrosamine Analysis: Lab Project Number: 5450-7371. Unpublished study prepared by C.S.E., Inc. 22 p.
42454500	Riverdale Chemical Co. (1992) Submission of product chemistry data in support of the registration of Riverdale Sweet Sixteen Weed and Feed with CL/DAP. Transmittal of 1 study.

20400

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
42454501	Sawyer, R. (1991) Riverdale Sweet Sixteen Weed and Feed with CL/DAP. Unpublished study prepared by Riverdale Chemical Co. 8 p.
42518000	Chevron Chemical Co. (1992) Submission of product chemistry and toxicity data in support of the registration of Kleenup Grass & Weed Killer. Transmittal of 7 studies.
42518001	Wong, D. (1992) Kleenup Grass and Weed Killer Formula II Product Chemistry: Lab Project Number: 92003. Unpublished study prepared by Chevron Chemical Co. 42 p.
42537500	Riverdale Chemical Co. (1992) Submission of product chemistry data in support of the registration of Riverdale Sodium Salt of 2,4-D. Transmittal of 1 study.
42537501	Sawyer, R. (1992) Product Chemistry--Addendum: Riverdale Sodium Salt of 2,4-D. Unpublished study prepared by Riverdale Chemical Co. 14 p.
42545000	Riverdale Chemical Company (1992) Submission of product chemistry data in support of the registration of Riverdale Sweet Sixteen Weed and Feed with Dissolve. Transmittal of 1 study.
42545001	Sawyer, R. (1992) Product Chemistry: Riverdale Sweet Sixteen Weed and Feed with Dissolve. Unpublished study prepared by Riverdale Chemical Co. 8 p.
42676800	Chevron Chemical (1993) Submission of product chemistry data in support of the Ortho Triamine Jet Weeder registration. Transmittal of 1 study.
42676801	Wong, D. (1992) Ortho Triamine Jet Weeder Product Chemistry: Lab Project Number: 92007. Unpublished study prepared by Chevron Chemical Co. 41 p.
42724800	Riverdale Chemical Company (1993) Submission of Product Chemistry and Toxicity Data in Support of Registration for Riverdale Triplet MC DRI. Transmittal of 7 Studies.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
42724801	Sawyer, R. (1992) Product Chemistry: Riverdale Triplet MC DRI: Lab Project Number: TRIPLET MC DRI. Unpublished study prepared by Riverdale Chemical Company. 15 p.
42732300	DowElanco (1993) Submission of product chemistry data in support of the registration of 2,4-D/MCPP Weed Stick. Transmittal of 2 studies.
42732301	Burns, K. (1992) Product Identity and Composition of Weedstick Turflon V1.0: Series 61: Lab Project Number: GH-C 2720. Unpublished study prepared by DowElanco. 27 p.
42732302	Murphy, J. (1992) Analysis and Certification of Product Ingredients of the End Use Product Turflon V1.0 Weedmaster Weedstick, a Formulation Containing 2,4-D and Triclopyr: Series 62: Lab Project Number: GH-C 2844: GHC 2674. Unpublished study prepared by DowElanco. 42 p.
42764800	DowElanco (1993) Submission of product chemistry data to support the registration of Turflon II Weed Stick (Weedstick Turflon V1.0). Transmittal of 2 studies.
42764801	Burns, K. (1993) Series 61: Product Identity and Composition of Weedstick Turflon V1.0: Lab Project Number: GH-C 2720. Unpublished study prepared by DowElanco. 27 p.
42764802	Murphy, G. (1992) Series 62: Analysis and Certification of Product Ingredients of the End Use Product Turflon V1.0 Weedmaster Weedstick, a Formulation Containing 2,4-D and Triclopyr: Lab Project Number: GH-C 2844. Unpublished study prepared by DowElanco. 42 p.
42769800	Riverdale Chemical Co. (1992) Submission of product chemistry and toxicity data to support the registration of Riverdale Triplet MC SAF. Transmittal of 7 studies.
42769801	Sawyer, R. (1992) Riverdale Triplet MC SAF: Product Chemistry. Unpublished study prepared by Riverdale Chemical Co. 15 p.
42795400	DowElanco (1993) Submission of product chemistry data in support of registration standard for 2,4-D Acid Flake. Transmittal of 1 study.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
42795401	Murphy, J. (1993) Determination of Stability of 2,4-Dichlorophenoxyacetic Acid (2,4-D) Technical Grade of Active Ingredient (TGAI): Lab Project Number: FOR93058. Unpublished study prepared by Formulation Science and Technology Lab. 9 p.
42796200	DowElanco (1993) Submission of product chemistry data in support of the registration standard for 2,4-D 2HE and 2,4-D BEE. Transmittal of 1 study.
42796201	Murphy, G. (1993) Response to Letter Written by Lois A. Rossi (10/5/92) Subject: Product Chemistry Review for Dow Technicals: 62719-24, 62719-25, 62719-26, 62719-33 for 2,4-D Acid, IOE and BEE: Lab Project Number: GM052893C. Unpublished study prepared by DowElanco. 9 p.
42798100	DowElanco (1993) Submission of supplemental product chemistry data to support the registration of DowElanco's 2,4-D DMA salts. Transmittal of 1 study.
42798101	Murphy, G. (1993) Response to the Letter Written by Lois A. Rossi (10/05/92): Subject: Product Chemistry Review for DowElanco 2,4-D DMA FI: Lab Project Number: GM052793A. Unpublished study prepared by DowElanco. 7 p.
42798300	DowElanco (1993) Submission of supplemental product chemistry data to support the registration of 2,4-D IPA FI. Transmittal of 1 study.
42798301	Murphy, G. (1993) Response to Letter Written by Lois A. Rossi (1/08/93): Subject: Product Chemistry Review for DowElanco 2,4-D IPA FI: Lab Project Number: GM052793B. Unpublished study prepared by DowElanco. 7 p.
42803700	PBI/Gordon Corp. (1993) Submission of product chemistry and toxicity data in support of registration for Trimec 1144 40% SP. Transmittal of 8 studies.
42803701	Cahoy, R. (1993) Product Identity and Composition of Trimec 1144 40% SP. Unpublished study prepared by PBI/Gordon Corp. 16 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
42803702	Irving, J. (1992) Trimec 1144 40% SP: Chemical and Physical Properties: Lab Project Number: PBG-04. Unpublished study prepared by Dartec Inc. 49 p.
42804300	Riverdale Chemical Co. (1993) Submission of product chemistry data in support of the registration for Riverdale Dissolve 4000 Weed and Feed. Transmittal of 1 study.
42804301	Sawyer, R. (1993) Product Chemistry: Riverdale Dissolve 4000 Weed and Feed: Lab Project Number: DISSOLVE 4000 WEED AND FEED. Unpublished study prepared by Riverdale Chemical Co. 8 p.
42829900	DowElanco (1993) Submission of product chemistry data in support of registration for 2,4-D DMA Fl. Transmittal of 1 study.
42829901	Murphy, G. (1993) Determination of Melting Point of 2,4-Dichlorophenoxyacetic Acid Dimethylamine Salt (2,4-D DMA) Technical Grade of Active Ingredient (TGAI): Lab Project Number: FOR93053. Unpublished study prepared by Formulation Science and Technology Lab. DowElanco. 9 p.
42830700	DowElanco (1993) Submission of product chemistry and toxicity data in support of registration for 2,4-D/MCPP Weed Stick (Weedstick WMD2 V1.0). Transmittal of 6 studies.
42830701	Hamburg, F. (1992) Physical and Chemical Characteristics of Weedstick, WMD 2 VI.0: a Formulation of 2,4-Dichlorophenoxyacetic Acid and 2-(4-Chloro-2-Methylphenoxy) Propionic Acid: Lab Project Number: FOR 91039.02. Unpublished study prepared by Formulation & Environmental Chemistry Labs, DowElanco. 10 p.
42830800	DowElanco (1993) Submission of product chemistry and toxicity data in support of registration for Turflon II Weed Stick (Weedstick Turflon V1.0). Transmittal of 6 studies.
42830801	Hamburg, F. (1992) Physical and Chemical Characteristics of Weedstick, Turflon VI.0 an End Use Formulation of Turflon II Amine: Lab Project Number: FOR 91039. Unpublished study prepared by Formulation & Environmental Chemistry Labs. DowElanco. 10 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
42831000	DowElanco (1993) Submission of product chemistry data in support of registration for 2,4-D IPA. Transmittal of 1 study.
42831001	Murphy, G. (1993) Determination of Melting Point of 2,4-Dichlorophenoxyacetic Acid Isopropylamine Salt (2,4-D IPA) Technical Grade of Active Ingredient (TGAI): Lab Project Number: FOR93054. Unpublished study prepared by Formulation Science and Technology Lab. DowElanco. 9 p.
42857200	PBI/Gordon Corp. (1993) Submission of product chemistry data in support of registration standard for Diethanolamine Salt of 2,4-D. Transmittal of 9 studies.
42857201	Malone, S. (1992) Characterization of Technical Diethanolamine Salt of (2,4-Dichlorophenoxy) Acetic Acid: Lab Project Number: 4102-92-0055-AS: 4102-92-0055-AS-001. Unpublished study prepared by Ricerca, Inc. 47 p.
42857202	Malone, S. (1992) Characterization of Purified Diethanolamine Salt of (2,4-Dichlorophenoxy) Acetic Acid: Lab Project Number: 4102-92-0056-AS: 4102-92-0056-AS-001. Unpublished study prepared by Ricerca, Inc. 73 p.
42857203	Wojcieck, B. (1992) Color, Physical State, Odor of the Diethanolamine Salt of (2,4-Dichlorophenoxy) Acetic Acid: Lab Project Number: 4102-92-0082-AS: 4102-92-0082-AS-001. Unpublished study prepared by Ricerca, Inc. 24 p.
42857204	Wojcieck, B. (1992) Bulk Density of the Diethanolamine Salt of (2,4-Dichlorophenoxy) Acetic Acid: Lab Project Number: 4102-92-0083-AS: 4102-92-0083-AS-001. Unpublished study prepared by Ricerca, Inc. 22 p.
42857205	Douglass, M. (1993) Technical Diethanolamine Salt of (2,4-Dichlorophenoxy) Acetic Acid--Solubility: Lab Project Number: 4102-92-0057-AS: 4102-92-0057-AS-001. Unpublished study prepared by Ricerca, Inc. 92 p.
42857206	Douglass, M. (1993) Purified Diethanolamine Salt of (2,4-Dichlorophenoxy) Acetic Acid--Vapor Pressure: Lab Project Number: 4102-92-0058-AS: 4102-92-0058-AS-001. Unpublished study prepared by Ricerca, Inc. 68 p.

20405

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
42857207	Douglass, M. (1993) Purified Diethanolamine Salt of (2,4-Dichlorophenoxy) Acetic Acid--Octanol/Water Partition Coefficient: Lab Project Number: 4102-92-0059-AS: 4102-92-0059-AS-001. Unpublished study prepared by Ricerca, Inc. 55 p.
42857208	Furlong, K. (1992) pH of the Diethanolamine Salt of (2,4-Dichlorophenoxy) Acetic Acid: Lab Project Number: 4102-92-0088-AS: 4102-92-0088-AS-001. Unpublished study prepared by Ricerca, Inc. 27 p.
42857209	Malone, S. (1993) Technical Diethanolamine Salt of (2,4-Dichlorophenoxy) Acetic Acid--Stability: Lab Project Number: 4102-92-0085-AS: 4102-92-0085-AS-001. Unpublished study prepared by Ricerca, Inc. 51 p.
42870600	The Scotts Company (1993) Submission of product chemistry and toxicity data in support of registration for Fertilizer With Weed Control. Transmittal of 8 studies.
42870601	Davidson, A. (1993) Product Specific Chemistry Requirements for Fertilizer with Weed Control: Lab Project Number: SS-013: S-4298. Unpublished study prepared by The O. M. Scott & Sons Co. 5 p.
42870602	Daugherty, G. (1993) Product Specific Chemistry Requirements for Fertilizer with Weed Control. Unpublished study prepared by The O. M. Scott & Sons Co. 6 p.
42895000	DowElanco (1993) Submission of Toxicity Data for NAF-73 in Support of Experimental Use Permit on Field Corn. Transmittal of 9 Studies.
42895001	Baker, R. (1993) Product Identity and Composition of NAF-73, A Water Dispersible Granule Formulation of 2,4-D, Clopyralid, and Flumetsulam: Lab Project Number: GH-C 3049. Unpublished study prepared by Formulation Science & Technology Lab. 75 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 1

MRID	CITATION
42895002	Hamilton, T. (1993) Analysis and Certification of Product Ingredients of the End Use Product NAF-73, a Water Dispersible Granule Formulation of 2,4-D, Clopyralid, and Flumetsulam: Lab Project Number: GH-C 3052. Unpublished study prepared by Formulation Science & Technology Lab. 31 p.
42895003	Hamilton, T. (1993) Determination of Physical and Chemical Properties of NAF-73, a Water Dispersible Granule Formulation of 2,4-D, Clopyralid, and Flumetsulam: Lab Project Number: FOR93092. Unpublished study prepared by Formulation Science & Technology Lab. 12 p.
42927000	Whitmire Research Labs., Inc. (1993) Submission of Toxicity Data for Whitmire TC 73 Weed Killer in Support of Registration. Transmittal of 7 Studies.
42927001	Sarli, M. (1993) Whitmire TC 73 Weed Killer Herbicide: Product Chemistry: Lab Project Number: WRL-92-0059: 92-0061: 92-0070. Unpublished study prepared by Whitmire Research Lab., Inc. 12 p.
42973900	PBI/Gordon Corp. (1993) Submission of Product Chemistry and Acute Toxicology Data in Support of Registration of EH 1148 Herbicide. Transmittal of 7 Studies.
42973901	Cahoy, R. (1993) Product Identity and Composition of EH 1148 Herbicide. Unpublished study prepared by PBI/Gordon Corp. 9 p.
42992700	PBI/GORDON Corp. (1993) Submission of Product Chemistry Data for EH 1148 Weed and Feed in Support of Registration. Transmittal of 1 Study.
42992701	Irving, J. (1993) EH 1148 Weed and Feed: Chemical and Physical Properties: Lab Project Number: PBG-07. Unpublished study prepared by DARTEC Inc. 38 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

SEARCH TERMS:

CHEMICALS: 030033 OR 030034 OR 030035 OR 030039 OR 030052
OR 030053 OR 030055 OR 030056 OR 030062 OR 030063
OR 030064 OR 030065 OR 030066 OR 030072

AND

SUBJECT: PRODUCT CHEMISTRY

AND

SUBMITTER: ALL

AND

SUBMISSION DATE: ALL

AND

LAB-ID: ALL

AND

DOCUMENT TYPES: ALL SELECTED STUDIES
REGARDLESS OF DOCUMENT TYPE

AND

ENTRY DATE: ALL

NUMBER OF STUDIES: 259

MRID SEQUENCE BIBLIOGRAPHY -----	NUMBER OF COPIES:	1
AUTHOR SEQUENCE BIBLIOGRAPHY ----	NUMBER OF COPIES:	0
SUBMITTER SEQUENCE BIBLIOGRAPHY -	NUMBER OF COPIES:	0
GUIDELINE SEQUENCE BIBLIOGRAPHY		
SUMMARY FORMAT -----	NUMBER OF COPIES:	0
EXPANDED FORMAT -----	NUMBER OF COPIES:	0

PAPER SIZE: 8 1/2 BY 11 INCH PAPER

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
00004777	Kenaga, E.E. (1972) The Comparative Toxicity to Birds of Dow Herbicides Containing Chlorophenoxyalkanoic Acids and Derivatives. (Unpublished study received Apr 16, 1974 under 802-517; prepared by Dow Chemical Co., submitted by Lilly Charles H. Co., Miller Rd. Div., Portland, Oreg.; CDL:128581-A)
00013373	Nalco Chemical Company (1977) Gas Chromatographic Analysis of Herbicide Formulations Containing the Isooctyl Ester of 2,4 Dichlorophenoxy acetic acid (2, 4 D). Method dated Mar 18, 1977. (Unpublished study received Nov 9, 1977 under 1706-104; CDL: 232180-B)
00013377	Nalco Chemical Company (19??) Analysis of Active Components: Nalkil 2728 (BX-939) Emulsifiable Concentrate. (Unpublished study received Nov 9, 1977 under 1706-105; CDL:232177-C)
00013380	Nalco Chemical Company (19??) Analysis of Active Components: Nalkil 2726 (BX-933) Emulsifiable Concentrate. (Unpublished study received Nov 9, 1977 under 1706-107; CDL:232183-C)
00022377	Friedrich, W.E.; Smith, W.J.; Below, J.F. (1964) The Analyses of Knoxweed 52, Knoxweed 105 and Knoxweed 42: Report No. RR-64-51. Three methods dated Aug 13, 1964. (Unpublished study received Oct 20, 1964 under 476-1794; submitted by Stauffer Chemical Co., Richmond, Calif.; CDL:101402-A)
00022391	Stauffer Chemical Company (19??) Composition of Formulation: Eptam. (Unpublished study received Dec 4, 1963 under unknown admin. no.; CDL:119596-A)
00022392	Smith, W.J.; Below, J.F. (1963) The Determination of Eptam and 2, 4-D Isooctyl ester in the 2,4-E Formulations: Report No. 63-572. Method dated Oct 15, 1963. (Unpublished study received Dec 4, 1963 under unknown admin. no.; submitted by Stauffer Chemical Co., Richmond, Calif.; CDL:119596-B)
00023109	Oregon State University (1961) Annual Report--1961. (Unpublished study received Aug 30, 1965 under 6F0466; prepared by Agricultural Experiment Station, Dept. of Agricultural Chemistry, submitted by Velsicol Chemical Corp., Chicago, Ill.; CDL: 090517-AM)

20409

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
00028194	Stagen, R.; Omilinsky, B.; Lyons, R.J.; et al. (1971) Laboratory Report: Report No. 7. (Unpublished study received Oct 7, 1971 under 876-156; submitted by Velsicol Chemical Corp., Chicago, Ill.; CDL:005075-A)
00028313	Velsicol Chemical Corporation (19??) Stability Data: Banvel-(R)H 310, Oil Soluble Industrial Herbicide. (Unpublished study received Sep 15, 1972 under 876-180; CDL:220115-A)
00028315	Stagen, R. (1971) B12D; B12T; and B14D Oil Soluble Formulations: Report No. 8. (Unpublished study received Jan 25, 1972 under 876-168; submitted by Velsicol Chemical Corp., Chicago, Ill.; CDL:133116-A)
00032217	Kaldon, H. (19??) 4L Compatibilities. (Unpublished study received Oct 22, 1969 under 100-497; submitted by Ciba-Geigy Corp., Greensboro, N.C.; CDL:000523-D)
00036042	Tennessee Valley Authority (19??) Name, Chemical Identity, and Composition. (Unpublished study; CDL:095539-A)
00036152	Dow Chemical Company (19??) Tordon-(R)H 202 Mixture. (Unpublished study received Jul 3, 1975 under 6F1653; CDL:094499-E)
00036153	Dow Chemical Company (1966) Tordon 202 Mixture. Method no. 87124 dated May 24, 1966. (Unpublished study received Jul 3, 1975 under 6F1653; CDL:094499-F)
00039732	National Agricultural Chemicals Association's Industry Task Force on Phenoxy Herbicide Tolerances (19??) Ingredient Data Sheet: #2,4-D 20% Terra G1. (Unpublished study received Dec 8, 1967 under 8F0670; CDL:095152-E)
00039734	Dow Chemical U.S.A. (1972) Brushkiller LV 2-2: M-3509. (Unpublished study received on unknown date under 8F0670; submitted by National Agricultural Chemicals Association's Industry Task Force on Phenoxy Herbicide Tolerances, Washington, D.C.; CDL:095152-I)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
00039735	Dow Chemical U.S.A. (1972) Brush Killer X: M-3507. (Unpublished study received on unknown date under 8F0670; submitted by national Agricultural Chemicals Association's Industry Task Force on Phenoxly Herbicide Tolerances, Washington, D.C.; CDL:095152-J)
00039736	Dow Chemical U.S.A. (1972) Butyl 265: M-3512. (Unpublished study received on unknown date under 8F0670; submitted by National Agricultural Chemicals Association's Industry Task Force on Phenoxly Herbicide Tolerances, Washington, D.C.; CDL:095152-K)
00039737	Dow Chemical U.S.A. (1972) Dow Butyl 400: M-3527. (Unpublished study received on unknown date under 8F0670; submitted by National Agricultural Chemicals Association's Industry Task Force on Phenoxly Herbicide Tolerances, Washington, D.C.; CDL:095152-L)
00039740	Dow Chemical U.S.A. (1972) Esteron-(R) Brush Killer: M-3507. (Unpublished study received on unknown date under 8F0670; submitted by National Agricultural Chemicals Association's Industry Task Force on Phenoxly Herbicide Tolerances, Washington, D.C.; CDL:095152-O)
00039741	Dow Chemical U.S.A. (1972) Esteron Four Low Volatile Weed Killer: M-3503. (Unpublished study received unknown date under 8F0670; submitted by National Agricultural Chemicals Association's Industry Task Force on Phenoxly Herbicide Tolerances, Washington, D.C.; CDL:095152-P)
00039742	Dow Chemical U.S.A. (1972) Esteron 6E: M-3564. (Unpublished study received on unknown date under 8F0670; submitted by National Agricultural Chemicals Association's Industry Task Force on Phenoxly Herbicide Tolerances, Washington, D.C.; CDL:095152-Q)
00039743	Dow Chemical U.S.A. (1972) Esteron-(R) 44 Weed Killer: M-3704. (Unpublished study received on unknown date under 8F0670; submitted by National Agricultural Chemicals Association's Industry Task Force on Phenoxly Herbicide Tolerances, Washington, D.C.; CDL:095152-R)
00039744	Dow Chemical U.S.A. (1972) Esteron-(R) 76BE: M-3555. (Unpublished study received on unknown date under 8F0670; submitted by National Agricultural Chemicals Association's Industry Task Force on Phenoxly Herbicide Tolerances, Washington, D.C.; CDL:095152-S)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
00039745	Dow Chemical U.S.A. (1972) Esteron 76E: M-3558. (Unpublished study received on unknown date under 8F0670; submitted by National Agricultural Chemicals Association, Industry Task Force on Phenoxo Herbicide Tolerances, Washington, D.C.; CDL:095152-T)
00039746	Dow Chemical U.S.A. (1972) Esteron-(R)M 99: M-3502. (Unpublished study received on unknown date under 8F0670; submitted by National Agricultural Chemicals Association, Industry Task Force on Phenoxo Herbicide Tolerances, Washington, D.C.; CDL:095152-U)
00039747	Dow Chemical U.S.A. (1972) Esteron-(R)M 99 Concentrate: M-3503. (Unpublished study received on unknown date under 8F0670; submitted by National Agricultural Chemicals Association, Industry Task Force on Phenoxo Herbicide Tolerances, Washington, D.C.; CDL:095152-V)
00039749	Dow Chemical U.S.A. (1972) Tippon-(R)M 2-2: M-2213. (Unpublished study received on unknown date under 8F0670; submitted by National Agricultural Chemicals Association, Industry Task Force on Phenoxo Herbicide Tolerances, Washington, D.C.; CDL:095152-X)
00039750	Dow Chemical U.S.A. (1972) Verton-(R)M 2D: M-3591. (Unpublished study received on unknown date under 8F0670; submitted by National Agricultural Chemicals Association, Industry Task Force on Phenoxo Herbicide Tolerances, Washington, D.C.; CDL:095152-Y)
00039751	Dow Chemical U.S.A. (1972) Weed Killer LV 4: M-3514. (Unpublished study received on unknown date under 8F0670; submitted by National Agricultural Chemicals Association, Industry Task Force on Phenoxo Herbicide Tolerances, Washington, D.C.; CDL:095152-Z)
00039752	Thompson-Hayward Chemical Company (19??) Confidential Disclosure of Ded-weed Products. (Unpublished study received Dec 8, 1967 under 8F0670; submitted by National Agricultural Chemicals Association, Industry Task Force on Phenoxo Herbicide Tolerances, Washington, D.C.; CDL:095152-AA)
00039755	Rhodia, Incorporated (1971) Chipman 2,4-D Butyl ester 334E. (Unpublished study received on unknown date under 8F0670; submitted by National Agricultural Chemicals Association, Industry Task Force on Phenoxo Herbicide Tolerances, Washington, D.C.; CDL:095152-AD)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
00039756	Rhodia, Incorporated (1971) Chipman 2,4-D Low Volatile Ester 4L. (Unpublished study received on unknown date under 8F0670; submitted by National Agricultural Chemicals Association, Industry Task Force on Phenoxy Herbicide Tolerances, Washington, D.C.; CDL:095152-AE)
00039757	Rhodia, Incorporated (1971) Chipman 2,4-D Butyl ester 6E. (Unpublished study received on unknown date under 8F0670; submitted by National Agricultural Chemicals Association, Industry Task Force on Phenoxy Herbicide Tolerances, Washington, D.C.; CDL:095152-AF)
00041485	Dow Chemical Company (1963) Formulations Used in Fish and Wildlife Toxicity Studies: Summary Statement. (Unpublished study received Nov 6, 1967 under 0F0863; CDL:094524-S)
00043764	Anchem Products, Incorporated (1969) Chemistry: Aqua-Kleen 201. (Unpublished study received Dec 17, 1971 under 2E1221; submitted by U.S. Dept. of the Army, Office of the Chief of Engineers, Washington, D.C.; CDL:099544-J)
00043765	U.S. Department of the Army, Office of the Chief of Engineers (19??) Summary for All Sections of Petition. Summary of study 099544-J. (Unpublished study; CDL:099544-K)
00043828	Gangstad, E.O.; Fish, F.; Stanley, R.A.; et al. (1976) Butoxy-ethanol ester of 2,4-D for Control of Eurasian Water Milfoil. Final rept. Vicksburg, Miss.: U.S. Army Engineer, Waterways Experiment Station. (Aquatic Plant Control Program, technical report 12, published study; CDL:099542-A)
00045066	Uniroyal Chemical (1970) 2,4-D Isooctyl Ester Technical--An Agricultural Herbicide for Formulating Use Only: Technical Bulletin AG 121. (Unpublished study received Oct 28, 1976 under 400-134; CDL:226397-A)
00045078	Uniroyal Chemical (1970) 2,4-D Butylester Technical--an Agricultural Herbicide for Formulating Use Only: Technical Bulletin AG 120. (Unpublished study received Oct 28, 1976 under 400-134; CDL:226395-A)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
00045080	Uniroyal Chemical (1976) Summary of Method of Preparation and Analysis of 2,4-D Isooctyl ester. Includes methods dated Oct 6, 1976. (Unpublished study received Oct 28, 1976 under 400-134; CDL:226394-B)
00045408	Dow Chemical Company (1969) The Name, Chemical Identity, and Composition of the Pesticide Chemical: ‡Tordon . (Unpublished study received Aug 4, 1969 under 0F0863; CDL:093160-F)
00046185	U.S. Office of Science and Technology, Panel on Herbicides (1970) Report on 2,4-D. (Unpublished study; CDL:119429-A)
00052566	National Agricultural Chemicals Association's Industry Task Force on Phenoxy Herbicide Tolerances (1970) Ingredient Data Sheet: ‡Butyl 4D . (Unpublished study received on unknown date under 8F0670; CDL:095152-B)
00052567	National Agricultural Chemicals Association's Industry Task Force on Phenoxy Herbicide Tolerances (1970) Ingredient Data Sheet: ‡Lo-Vol 4D . (Unpublished study received on unknown date under 8F0670; CDL:095152-C)
00052568	National Agricultural Chemicals Association's Industry Task Force on Phenoxy Herbicide Tolerances (1970) Ingredient Data Sheet: ‡Butyl 6D . (Unpublished study received on unknown date under 8F0670; CDL:095152-F)
00052569	National Agricultural Chemicals Association's Industry Task Force on Phenoxy Herbicide Tolerances (1970) Ingredient Data Sheet: ‡Lo-Vol 6D . (Unpublished study received on unknown date under 8F0670; CDL:095152-G)
00052617	Dow Chemical U.S.A. (1967) ‡Chemical Composition of Raw Materials of M-3766 . (Unpublished study received Jun 28, 1973 under unknown admin. no.; CDL:123467-A)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
00053697	Upton, E.T. (1972) Letter sent to Drew M. Baker, Jr. dated Jun 5, 1972 Identity of the inert ingredients used in the formulations for 2,4-D, Silvex and MCPA . (Unpublished study received on unknown date under 9F0761; prepared by Thompson-Hayward Chemical Co., submitted by National Agricultural Chemicals Association, Industry Task Force on Phenoxy Herbicide Tolerances, Washington, D.C.; CDL:096516-G)
00053793	Uniroyal Chemical (19??) 2,4-D Butyl ester technical: An agricultural herbicide for formulating use only. ? : Uniroyal. (Technical bulletin AG 120; summary of studies 226392-C through 226392-G; also°In°unpublished submission received Oct 28, 1976 under 400-133; CDL:226392-A)
00056548	Parsey, E.S.; Van Horn, R.L. (1970) Butyl 400: Evaluation of Formulation M-3527. (Unpublished study received Nov 9, 1972 under 464-184; submitted by Dow Chemical U.S.A., Midland, Mich.; CDL: 230490-B)
00063509	Boving, P.A.; Winterfeld, R.G. (1977) Flow Tests and Droplet Sizing for Selected Materials from Thompson-Hayward Chemical Company. (U.S. Agricultural Research Service, Western Region, Yakima Agricultural Research Laboratory; unpublished study, including Thompson-Hayward Chemical Co. no. 4440; CDL:244533-G)
00063510	Colorado. Department of Agriculture (1977) Report on Flow Tests of Thompson-Hayward Sulv 2,4-D Preparations. (Unpublished study, including Thompson-Hayward Chemical Co. no. 4392; CDL:244533-M)
00065214	Dow Chemical U.S.A. (19??) Stability of M-3516. (Unpublished study received Mar 26, 1970; Mar 25, 1970 under 464-382; CDL:230493-B)
00068565	Anon. (19??) 2,4-D Butyl Ester Technical, an Agricultural Herbicide for Formulating Use Only. N.P. (Technical bulletin AG 120; also°In°unpublished submission received Oct 28, 1976 under 400-133; submitted by Uniroyal Chemical, Bethany, Conn.; CDL: 226390-A)
00068566	Uniroyal Chemical (1976) Summary of Method of Preparation and Analysis of 2,4-D Butyl Ester. (Unpublished study received Oct 28, 1976 under 400-133; CDL:226390-B)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
00068567	Hager, F.M. (1976) Letter sent to Gracie Stone dated Feb 21, 1976: 2,4-D and 2,4,5-T ester processes. (Unpublished study received Oct 28, 1976 under 400-133; prepared by Uniroyal Ltd., Canada, submitted by Uniroyal Chemical, Bethany, Conn.; CDL:226390-C)
00068568	Thompson, H. (1976) Clover Bar Plant-Raw Material Specifications. (Unpublished study received Oct 28, 1976 under 400-133; prepared by Uniroyal Ltd., Canada, submitted by Uniroyal Chemical, Bethany, Conn.; CDL:226390-D)
00068569	Shipley, W.G. (1976) New Normal Butyl Alcohol. (Unpublished study received Oct 28, 1976 under 400-133; submitted by Uniroyal Chemical, Bethany, Conn.; CDL:226390-E)
00068570	Thompson, H. (1976) Clover Bar Plant--Raw Material Specifications. (Unpublished study received Oct 28, 1976 under 400-133; prepared by Uniroyal Ltd., Canada, submitted by Uniroyal Chemical, Bethany, Conn.; CDL:226390-F)
00068571	Hager, F.M. (1976) Method for Gas Chromatographic ~~psic~~ Determination of DCP (2,4-Dichlorophenol). Method dated Oct 6, 1976. (Unpublished study received Oct 28, 1976 under 400-133; submitted by Uniroyal Chemical, Bethany, Conn.; CDL:226390-G)
00068572	Hager, F.M. (1976) Method for Gas Chromatographic Determination of MCA (Monochloroacetic Acid). Method dated Oct 6, 1976. (Unpublished study received Oct 28, 1976 under 400-133; submitted by Uniroyal Chemical, Bethany, Conn.; CDL:226390-H)
00068573	Hager, F.M. (19??) Method for Gas Chromatographic Determination of Butyl Ester of 2,4-Dichlorophenoxy Acetic Acid. (Unpublished study received Oct 28, 1976 under 400-133; submitted by Uniroyal Chemical, Bethany, Conn.; CDL:226390-I)
00070900	Chevron Chemical Company (1978) Registration Program R-127: Tank Mix Stability: File No. 774.10. (Unpublished study received Mar 24, 1981 under 239-2186; CDL:244723-A)
00070901	Bohnert, W.P. (1978) Physical Compatability Assessment of Paraquat + Atrazine + Igran + 2,4-D Tank Mix. (Unpublished study received Mar 24, 1981 under 239-2186; submitted by Chevron Chemical Co., Richmond, Calif.; CDL:244723-B)

20416

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
00082612	Allen, A. (1981) Formal Report of Analysis for N-Nitroso Compounds: Report No. 5450-2586. (Unpublished study received May 15, 1981 under 2217-648; prepared by Thermo Electron Corp., submitted by PBI-Gordon Corp., Kansas City, Kans.; CDL:245094-A)
00083116	Cholakakis, J.M. (1980) Letter sent to J.S. Skaptason dated Jan 17, 1980: Eye irritation screen on nine (9) test compounds (EH604-EH612): MRI Project No. 4823-B(2). (Unpublished study received Jul 15, 1981 under 2217-624; prepared by Midwest Research Institute, submitted by PBI-Gordon Corp., Kansas City, Kans.; CDL:245537-C)
00088574	PBI/Gordon Corporation (1981) Confidential Statement of Formula: Gordon's Brush Killer 801. (Unpublished study received Jul 15, 1981 under 2217-624; CDL:245537-M)
00088575	PBI/Gordon Corporation (1981) Confidential Statement of Formula: Gordon's Brush Killer 800. (Unpublished study received Jul 15, 1981 under 2217-624; CDL:245537-Q)
00094655	Thompson-Hayward Chemical Company (1978) Flow Rates and Droplet Sizing Tests on Sulv Formulations. (Compilation; unpublished study received Apr 21, 1981 under CO81/3; submitted by state of Colorado for Thompson-Hayward Chemical Co., Kansas City, Kans.; CDL:246717-H)
00102547	Langer, J. (1973) Spot Weed Killer. (Unpublished study received Apr 3, 1973 under 498-90; submitted by Chase Products Co., Broadview, IL; CDL:020028-A)
00102548	Chase Products Co. (19??) Spot Weed Killer. (Unpublished study received Apr 3, 1973 under 498-90; CDL:020028-B)
00102566	Parsey, E.; Van Horn, R. (1970) Esteron 44: Evaluation of Formulation M-3499. (Unpublished study received Jul 30, 1970 under 464-26; submitted by Dow Chemical U.S.A., Midland, MI; CDL:003395-A)
00102568	Parsey, E.; Van Horn, R. (1970) Brush Killer LV2-2: Evaluation of Formulation M-3509. (Unpublished study received Sep 17, 1970 under 464-352; submitted by Dow Chemical U.S.A., Midland, MI; CDL:003553-A)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
00102591	Van Horn, R. (1973) Tordon 101 Mixture Reformulated as M-3943: Versene Acid Substituted for Diglycolic Acid. (Unpublished study received Jul 18, 1974 under 464-306; submitted by Dow Chemical U.S.A.; Midland, MI; CDL:022825-A)
00102592	Parsey, E.; Van Horn, R. (1970) Esteron 6E: Evaluation of Formulation M-3564. (Unpublished study received Sep 25, 1970 under 464-347; submitted by Dow Chemical U.S.A., Midland, MI; CDL: 022846-A)
00102593	Parsey, E.; Van Horn, R. (1970) Weed Killer LV-4: Evaluation of Formulation M-3514. (Unpublished study received on unknown date under 464-349; submitted by Dow Chemical U.S.A., Midland, MI; CDL:022853-A)
00102594	Parsey, E.; Van Horn, R. (1970) Esteron 76E: Evaluation of Formulation M-3558. (Unpublished study received Oct 13, 1970 under 464-150; submitted by Dow Chemical U.S.A., Midland, MI; CDL: 022937-A)
00102595	Parsey, E., Van Horn, R. (1970) Esteron 99: Evaluation of Formulation M-3502. (Unpublished study received Oct 13, 1970 under 464-150; submitted by Dow Chemical U.S.A., Midland, MI; CDL: 022937-B)
00102597	Parsey, E.; Van Horn, R. (1970) Butyl 265: Evaluation of Formulation M-3512. (Unpublished study received Sep 3, 1970 under 464-183; submitted by Dow Chemical U.S.A., Midland, MI; CDL: 022967-A)
00102598	Dow Chemical Co. (1959) Esteron 99 Concentrate: Method No. 22821. (Unpublished study received Oct 20, 1964 under 464-201; CDL: 022970-A)
00102599	Parsey, E.; Van Horn, R. (1970) Reformulation of Esteron 99 Concentrate. (Unpublished study received Feb 26, 1974 under 464-201; submitted by Dow Chemical U.S.A., Midland, MI; CDL: 022971-A)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
00102600	Parsey, E.; Van Horn, R. (1970) Esteron Brush Killer: Evaluation of Formulation M-3507. (Unpublished study received Jul 17, 1970 under 464-204; submitted by Dow Chemical U.S.A., Midland, MI; CDL:022972-A)
00102603	Twin City Testing and Engineering Laboratory, Inc. (1972) Report of Petroleum Inspection: Laboratory No. 2-17783. (Unpublished study received Nov 20, 1972 under 1180-17; submitted by Midland Cooperatives, Inc., Minneapolis, MN; CDL:024693-A)
00102620	U.S. Dept. of the Army (1969) Chemistry Data on Aqua Kleen 201. (Compilation; unpublished study received Jul 18, 1972 under 2E1221; CDL:091051-I)
00102727	U.S. Dept. of the Army, Office of the Chief of Engineers (19??) Name, Chemical Identity, and Composition: Butoxyethanol Ester of 2,4-Dichlorophenoxyacetic Acid (Granular). (Unpublished study; CDL:096649-B)
00102827	Hammond, H. (19??) Report on Herbicides: 2,4-D; 2,4,5-T and MCP Type Herbicides. (Unpublished study received on unknown date under unknown admin. no.; prepared by North Dakota, State Laboratories Dept., submitted by ?; CDL:122427-A)
00102897	Rivhard Conn., Inc. (1978) Transamine OA-3D Herbicide. (Unpublished study received Nov 28, 1978 under 35911-59; CDL:236627-A)
00102898	Kulkarni, S. (1978) Dinitro Weed-Killer. (Unpublished study received Nov 28, 1978 under 35911-59; prepared by Vertac, Inc., submitted by Rivhard Conn., Inc., Southfield, MI; CDL:236627-B)
00102899	Kadakia, H. (1978) Formal Report of Analysis for N-Nitroso Compounds. (Unpublished study received Nov 28, 1978 under 35911-59; prepared by Thermo Electron Corp., submitted by Rivhard Conn., Inc., Southfield, MI; CDL:236627-C)
00102904	Union Carbide Agricultural Products Co., Inc. (1979) Assay Procedure for Weedone Super BK-32. (Unpublished study received Apr 24, 1979 under 264-307; CDL:238208-A)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
00102907	Verneti, J.; Meyer, D. (1979) HPLC Method and Analysis Results for Five Representative Samples of Technical 2,4-D Products. (Unpublished study received Aug 16, 1979 under 359-177; submitted by Rhone-Poulenc, Inc., Manmouth Junction, NJ; CDL: 240915-A)
00107931	Union Carbide Agricultural Products Co., Inc. (1979) Assay Procedure for Weedone 20 Weed and Feed. (Unpublished study received Apr 24, 1979 under 264-309; CDL:238210-A)
00108695	Dow Chemical Co. (1967) Tordon 144 Brush Killer: Chemical Study . (Unpublished study received Apr 11, 1967 under 464-EX-26; CDL: 123519-C)
00111565	Wisniewski, D.; Rothman, L. (1978) Analysis for Possible Presence of N-Nitrosodiisopropanolamine in Tordon 101 Mixture Weed and Brush Killer, Tordon 101R Forestry Herbicide, Tordon 212 Mixture Herbicide, and Tordon 225E Herbicide and N-Nitrosodiethylamine in Tordon 225 Mixture Herbicide: ML-AL 78-00053. (Unpublished study received Aug 24, 1978 under 464-306; submitted by Dow Chemical U.S.A., Midland, MI; CDL:235093-A)
00115495	Parsey, E.; Van Horn, R. (1970) Brush Killer LV2-2: Evaluation of Formulation M-3509. (Unpublished study received Nov 16, 1970 under 464-352; submitted by Dow Chemical U.S.A., Midland, MI; CDL:022855-A)
00117989	Dow Chemical U.S.A. (1982) Chemical Study . (Compilation; unpublished study received Nov 12, 1982 under 464-502; CDL:248791-A)
00119032	Helfant, L.; Oestreicher, S. (1982) Temperature Stability of AXF-1182: Weedone CB Woody Plant Herbicide: Project No. 858F60, File No. 30763. (Unpublished study received Nov 26, 1982 under 264-393; submitted by Union Carbide Agricultural Products Co., Inc., Research Triangle Park, NC; CDL:248956-B)
00124806	Dow Chemical U.S.A. (1982) Chemical Study: Esteron BK Weed and Brush Killer . (Compilation; unpublished study received Jan 5, 1983 under 464-589; CDL:249242-A)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
00125254	Dow Chemical U.S.A. (1983) A Data Sheet Giving the Chemical and Physical Properties of the Chemical: A Complete Statement of the Names and Percentages by Weight of Each Active and Inert Ingredient in the Formulation To Be Shipped. (Compilation; unpublished study received Jan 14, 1983 under 464-EX-79; CDL: 249266-A)
00140230	Parsey, E.; Van Horn, R. (1970) Butyl 400: Evaluation of Formulation M-3527. (Unpublished study received Jul 17, 1970 under 464-184; submitted by Dow Chemical U.S.A., Midland, MI; CDL: 003457-A)
00140233	Parsey, E.; Van Horn, R. (1970) Esteron 99 Concentrate: Evaluation of Formulation M-3503. (Unpublished study received Jul 2, 1970 under 464-201; submitted by Dow Chemical U.S.A, Midland, MI; CDL:003465-A)
00140704	Parsey, E. (1969) Letter sent to R. Morgan dated Oct 28, 1969: Chemical stability of M-3516. (Unpublished study received Nov 12, 1969 under 464-382; submitted by Dow Chemical U.S.A., Midland, MI; CDL:003595-B)
00145783	Gilmore, Inc. (19??) [Product Chemistry of 2,4-D Solventless Butyl Ester 4]. Unpublished compilation. 22 p.
00150048	BASF Wyandotte Corporation (1985) [Product Chemistry of BAS 528 00 H.] Unpublished compilation. 20 p.
00158583	Riverdale Chemical Co. (1986) [Chemical Composition of Riverdale 1D + 1DP Low Vol]. Unpublished compilation. 11 p.
00158585	Riverdale Chemical Co. (1986) [Analytical Methods for Physical and Chemical Properties of Riverdale 1D+ 1DP Low Vol]. Unpublished compilation. 39 p.
00162558	Imperial Inc. (1986) 2,4-D 560 Butyl Ester Weed Killer: Product Chemistry. Unpublished study. 25 p.
00162559	Imperial Inc. (1986) 2,4-D 560 Lo Vol Ester Weed Killer: Product Chemistry. Unpublished study. 23 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
00162560	Imperial Inc. (1986) 2,4-D 380 Butyl Ester Weed Killer: Product Chemistry. Unpublished study. 25 p.
00162577	Imperial Inc. (1986) Product Chemistry [Data for]: 2,4-D 380 Lo Vol Ester Weed Killer. Unpublished study. 23 p.
00162594	Imperial Inc. (1986) Product Chemistry [Data]: Lo-V 2,4-D Weed Killer. Unpublished study. 23 p.
00162595	Imperial Inc. (1986) Product Chemistry [Data]: Low Volatile 4 2, 4-D Weed Killer. Unpublished compilation. 23 p.
00162596	Imperial Inc. (1986) Product Chemistry [Data]: Butyl Ester 2,4-D. Unpublished compilation. 25 p.
00162598	Imperial Inc. (1986) Product Chemistry [Data]: Low Volatile 6 2, 4-D Weed Killer. Unpublished compilation. 23 p.
00162599	Imperial Inc. (1986) Product Chemistry [Data]: Butyl Ester 6 2, 4-D Weed Killer. Unpublished compilation. 25 p.
00162600	Imperial Inc. (1986) Product Chemistry [Data]: Butyl Ester 6 2, 4-D Weed Killer. Unpublished compilation. 25 p.
00165214	Parsey, E.; Van Horn, R. (1970) Esteron 76BE: Evaluation of Formulation M-3555. Unpublished study prepared by Dow Chemical Co. 9 p.
05003909	Faust, S.D.; Hunter, N.E. (1965) Chemical methods for the detection of aquatic herbicides. Journal of the American Water Works Association 57(8):1028-1037.
05009244	Keener, J.A.; Pless, C.D. (1974) Effects of direct application of selected pesticides on honey bee colonies. Tennessee Farm and Home Science Progress Report (89):5-8.
40131700	Imperial Inc. (1987) Submission of Product Chemistry Data in Support of Application for Registration of MFA Oil Company Butyl Ester 2,4-D. Transmittal of 1 study.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
40131701	Currie, G. (1987) MFA Oil Company Butyl Ester 2,4-D: Supplemental Submission: Storage Stability. Unpublished study prepared by Imperial Inc. 6 p.
40132000	Imperial Inc. (1987) Submission of Data To Support Application for New Product Registration: Imperial Inc. 2,4-D 380 Butyl Ester Weed Killer. Transmittal of 1 study.
40132001	Currie, G. (1987) Imperial Inc. 2,4-D 380 Butyl Ester Weed Killer: Product Chemistry: [Tests Nos. 003-86-A; 003-86-B]. Unpublished compilation prepared by Imperial Inc. 6 p.
40132100	Imperial Inc. (1987) Submission of Data To Support Application for New Product Registration: Imperial Inc. 2,4-D 560 Butyl Ester Weed Killer. Transmittal of 1 study.
40132101	Currie, G. (1987) Imperial Inc. 2,4-D 560 Butyl Ester Weed Killer: Product Chemistry: [Tests Nos. 004-86-A; 004-86-B]. Unpublished compilation prepared by Imperial Inc. 6 p.
40132200	Imperial Inc. (1987) Submission of Data To Support Application for New Registration: Imperial Inc. 2,4-D 380 Lo Vol Ester Weed Killer. Transmittal of 1 study.
40132201	Currie, G. (1987) Imperial Inc. 2,4-D 380 Lo Vol Ester Weed Killer: Product Chemistry: [Tests Nos. 005-86-A; 005-86-B]. Unpublished compilation prepared by Imperial Inc. 6 p.
40132300	Imperial Inc. (1987) Submission of Data To Support Application for New Product Registration: Imperial Inc. 2,4-D 560 Lo Vol Ester Weed Killer. Transmittal of 1 study.
40132301	Currie, G. (1987) Imperial Inc. 2,4-D 560 Lo Vol Ester Weed Killer: Product Chemistry [Data: Tests Nos. 006-86-A; 006-86-B]. Unpublished compilation prepared by Imperial Inc. 6 p.
40134700	Imperial Inc. (1987) Submission of Chemistry Data To Support the Application for New Product Registration of Land O'Lakes, Inc. Butyl Ester 6 2,4-D Weed Killer. Transmittal of 1 study.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
40134701	Currie, G. (1987) Land O'Lakes, Inc.: Butyl Ester 6 2,4-D Weed Killer: Product Chemistry. Unpublished compilation prepared by Imperial Inc. 6 p.
40144200	Imperial Inc. (1987) Product Chemistry Data submitted To Support Butyl 4 2,4-D Weed Killer Registration. Transmittal of 1 study.
40144201	Currie, G. (1987) Land O'Lakes, Inc.: Butyl Ester 4 2,4-D Weed Killer: ... Storage Stability [Data]. Unpublished study prepared by Imperial Inc. 6 p.
40226700	Riverdale Chemical Co. (1987) Submission of Product Chemistry Data for Riverdale 25-3-3 Weed and Feed. Transmittal of 1 study.
40226701	Sawyer, R. (1987) Product Chemistry: Riverdale 25-3-3 Weed and Feed: Laboratory Project ID: 25-3-3 Weed and Feed. Unpublished study prepared by Riverdale Chemical Co. 18 p.
40232000	Riverdale Chemical Co. (1987) Submission of Product Chemistry Data for Inclusion in Registration File of Riverdale Fertilizer Plus 2,4-D. Transmittal of 1 study.
40232001	Sawyer, R. (1987) Product Chemistry: Riverdale Fertilizer Plus 2,4-D. Unpublished study prepared by Riverdale Chemical Co. 18 p.
40357700	Amvac Chemical Corp. (1987) Submission of Product Chemistry Studies for Technical Isopropyl Ester of 2,4-D. Transmittal of 3 studies.
40357702	Braden, G.; Feiler, W. (1987) Technical Isopropyl Ester of 2,4-D-- Product Chemistry Analysis. Unpublished study prepared by Amvac Chemical Corp. 12 p.
40442100	Hoechst Celanese Corp. (1987) Submission of Data in Support of Application for Registration of Tiller Herbicide. Transmittal of 12 studies.
40442101	Albrecht, Dr.; Hommel, K.; Martinez, J.; et al. (1987) Product Identity, Composition, and Analytical Methods for Active Ingredients in Tiller Herbicide (HOE-033171 PH EC49 A105). Unpublished study prepared by Hoechst AG. 25 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
40442102	Albrecht, Dr.; Rexer, K. (1987) Physical and Chemical Characteristics of Tiller Herbicide (HOE 033171 + 2,4-D + MCPA). Unpublished study prepared by Hoechst AG. 16 p.
40443300	Gilmore, Inc. (1987) Submission of Chemistry Data in Support of 2,4-D Isopropyl Ester. Transmittal of 1 study.
40443301	Collins, R. (1987) Product Chemistry: 2,4-D Isopropyl Ester: Laboratory Project ID: 2,4-D ISOPROPYL ESTER. Unpublished study prepared by Gilmore, Inc. 11 p.
40475000	Platte Chemical Company (1987) Submission of Chemistry Data on Clean Crop 2,4-D Butyl Ester (EPA Reg. No. 34704-77) in Support of Dioxin/Furan Data Call-In. Transmittal of 1 study.
40475001	Allen, L.; Mahlborg, W.; Pomeroy, T. (1987) Clean Crop 2,4-D Butyl Ester ...: Product Chemistry Data: Study Number 87-31A. Unpublished compilation. 57 p.
40475200	Platte Chemical Company (1987) Submission of Chemistry Data on Clean Crop Butyl 6 Ester Weed Killer (EPA Reg. No. 34704-127) in Support of Dioxin/Furan Data Call-In. Transmittal of 1 study.
40475201	Allen, L.; Mahlborg, W.; Pomeroy, T. (1987) Clean Crop Butyl 6 Ester Weed Killer ...: Product Chemistry Data: Study Number 87-22A. Unpublished compilation. 16 p.
40475300	Platte Chemical Company (1987) Submission of Chemistry Data on Clean Crop Low Vol 4 Ester Weed Killer (EPA Reg. No. 34704-124). Transmittal of 1 study.
40475301	Allen, L.; Mahlborg, W. (1987) Clean Crop Low Vol 4 Ester Weed Killer ...: Product Chemistry Data: Study Number 87-24A. Unpublished compilation. 19 p.
40475600	Platte Chemical Company (1987) Submission of Chemistry Data on Clean Crop 2,4-D Isooctyl Ester (EPA Reg. No. 34704-81) in Support of Dioxin/Furan Data Call-In. Transmittal of 1 study.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
40475601	Allen, L.; Mahlborg, W.; Pomeroy, T. (1987) Clean Crop 2,4-D Isooctyl Ester ...: Product Chemistry Data: Study Number 87-30A. Unpublished compilation. 53 p.
40475700	Platte Chemical Co. (1987) Submission of Chemistry Data in Support of Clean Crop Amine 4 2,4-D Weed Killer. Transmittal of 1 study.
40475701	Allen, W.; Mahlborg, W. (1987) Product Chemistry Data: Clean Crop Amine 4 2,4-D Weed Killer: Study No. 87-16A. Unpublished compilation prepared by Transbas, Inc. Laboratory in cooperation with Platte Chemical Co. 12 p.
40530700	Monsanto Agricultural Co. (1988) Submission of Chemistry and Toxicity Data To Support the Registration of Nomix Broadleaf Herbicide (MON-18744). Transmittal of 9 studies.
40530701	Berk, H. (1988) Volume 2: Product Chemistry to Support the Registration of Nomix Broadleaf Herbicide (MON-18744) (9.6% 2,4-D Iso-octyl Ester and 19.4% MCPP Iso-octyl Ester): Product Identity and Composition: Laboratory Project I.D. MSL-7518. Unpublished compilation prepared by Monsanto Co. 62 p.
40530702	Berk, H. (1988) Volume 3: Product Chemistry To Support the Registration of Nomix Broadleaf Herbicide (MON-18744) (9.6% 2,4-D Iso-octyl Ester and 19.4% MCPP Iso-octyl Ester): Analysis and Certification of Product Ingredients: Laboratory Project I.D. MSL-7519. Unpublished compilation prepared by Monsanto Co. 32
40530703	Berk, H. (1988) Volume 4: Product Chemistry To Support the Registration of Nomix Broadleaf Herbicide (MON-18744). (9.6% 2,4-D Iso-octyl Ester and 19.4% MCPP Iso-octyl Ester): Physical and Chemical Characteristics: Laboratory Project I.D. MSL-7520. Unpublished study prepared by Monsanto Co. 21 p.
40636600	Monsanto Agricultural Co. (1988) Submission of Product Chemistry Data To Support Nomix Registration. Transmittal of 1 study.
40636601	Armstrong, T. (1988) Application for Registration of Nomix Broadleaf Herbicide: Supplemental Submission: R.D. No. 868. Unpublished study prepared by Monsanto Agricultural Co. 38 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
40772100	Gilmore, Inc. (1988) Submission of Product Chemistry Data in Support of Registration of Ovlas. Transmittal of 1 study.
40772101	Fisher, R. (1988) Product Chemistry: Ovlas. Unpublished study prepared by Gilmore, Inc. 4 p.
40791200	PBI/Gordon Corp. (1988) Submission of Data To Support the Application for Registration of Trimec 937 Herbicide: Product Chemistry and Toxicology Data. Transmittal of 7 studies.
40791201	Cahoy, R. (1988) Trimec 937--Product Chemistry & Data. Unpublished study prepared by PBI/Gordon Corp., Formulation Laboratory. 7 p.
40911900	Dow Chemical U.S.A. (1988) Submission of Data in Response to 2,4-D/Dibenza-p-dioxins Data Call-In: Product Chemistry Data. Transmittal of 3 studies.
40911901	Gegel, B. (1987) 2,4-D Isooctyl (2-Ethylhexyl) Ester: Product Identity and Composition. Unpublished study prepared by Dow Chemical Co. 20 p.
40911902	Gegel, B. (1987) 2,4-D Isooctyl (2-Ethylhexyl) Ester: Product Identity and Composition. Unpublished study prepared by Dow Chemical Co. 20 p.
40911903	Gegel, B. (1987) 2,4,-D Butyl Esters: Product Identity and Composition. Unpublished study prepared by Dow Chemical Co. 20 p.
40998700	Rhone-Poulenc Ag Co. (1989) Submission of 2,4-D IOE Manufacturing Process Data. Transmittal o 1 study.
40998701	Snell, R. (1988) Technical 2,4-D Iso-octyl Ester Method of Manufacture. Unpublished study prepared by Rhone-Poulenc Ag Co. 6 p.
41015000	Amvac Chemical Corp. (1989) Submission of Product Chemistry Data in Support of the Technical Isopropyl Ester of 2,4-D Registration Standard. Transmittal of 3 studies.
41015001	Braden, G.; Feiler, W. (1989) Technical Isopropyl Ester of 2,4-D: Product Chemistry Ingredients Identification. Unpublished study prepared by Amvac Chemical Corporation. 39 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
41015002	Braden, G.; Feiler, W. (1989) Technical Isopropyl Ester of 2,4-D: Product Chemistry Analysis. Unpublished study prepared by Amvac Chemical Corp. 10 p.
41015003	Feiler, W.; Braden, G. (1989) Technical Isopropyl Ester of 2,4-D: Product Chemistry: Physical and Chemical Properties. Unpublished study prepared by Amvac Chemical Corp. 15 p.
41049700	Chas. H. Lilly Co. (1989) Submission of Data To Support Registration of Lilly/Miller Envy 2,4-D: Product Chemistry Data. Transmittal of 1 study.
41049701	Klettke, M. (1989) Product Chemistry Data: Pesticide Assessment (...): Lilly/Miller Envy 2,4-D. Unpublished study prepared by Chas. H. Lilly Co. 42 p.
41055800	Dow Chemical Co. (1989) Submission of Data To Support Registration of 2,4-D Acid: Product Chemistry Data. Transmittal of 20 studies.
41055806	Dow Chemical Co. (1989) 2,4-D Isooctyl (2-Ethylhexyl) Ester: Product Identity and Composition. Unpublished study. 26 p.
41055807	Dow Chemical Co. (1989) 2,4-D Isooctyl (2-Ethylhexyl) Ester: Analysis and Certification of Product Ingredients. Unpublished study. 35 p.
41055808	Dow Chemical Co. (1989) 2,4-D Isooctyl (2-Ethylhexyl) Ester: Physical and Chemical Characteristics. Unpublished study. 6 p.
41055818	Dow Chemical Co. (1989) 2,4-D Triisopropanolamine Salt-4: Product Identity and Composition. Unpublished study. 23 p.
41055819	Dow Chemical Co. (1989) 2,4-D Triisopropanolamine Salt-4: Analysis and Certification of Product Ingredients. Unpublished study. 22 p.
41055820	Dow Chemical Co. (1989) 2,4-D Triisopropanolamine Salt-4: Physical and Chemical Characteristics. Unpublished study. 6 p.
41206900	Agrolinz, Inc. (1989) Submission of Analytical Methods to Support Registration for 2,4-D Isopropyl Ester. Transmittal of 1 study.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
41206901	Fisher, J. (1989) Product Chemistry: Agrolinz Isopropyl 2,4-D Ester Technical: Analytical Methods. Unpublished study prepared by Agrolinz, Inc. 17 p.
41349000	Riverdale Chemical Co. (1990) Submission of Analytical Chemistry Data in Response to the Data Call-in Notice for Polyhalogenated Dibenzo-p-Dioxins/Dibenzofurans in 2,4-D Acid and Its Salts and Esters. Transmittal of 2 studies.
41349002	Fiene, J.; Mahlburg, W. (1989) Determination of Halogenated Dibenzo-p-Dioxins and Dibenzofurans in 2,4-D Isooctyl Ester Technical: Lab Project Number: 90/2. Unpublished study prepared by Chem-serve Industries Service Ges.m.b.H. 325 p.
41431200	DowElanco (1990) Submission of Vapor Pressure Data in Support of 2,4-D Registration Standard. Transmittal of 1 study.
41431201	Chakrabarti, A. (1990) Vapor Pressure of the Triisopropanol Amine Salt of 2,4-Dichlorophenoxy Acetic Acid Measured by the Knudsen-Effusion/Weight Loss Method: Lab Project Number: ML-AL 89-02023-4. Unpublished study prepared by Dow Chemical U.S.A. 11 p.
41431300	DowElanco (1990) Submission of Vapor Pressure Data in Support of 2,4-D Registration Standard. Transmittal of 1 study.
41431301	Chadrabarti, A. (1989) Vapor Pressure of the Butoxyethyl Ester of (2,4-Dichlorophenoxy) Acetic Acid Measured by the Knudsen-Effusion/Weight Loss Method: Lab Project Number: ML-AL-89-020197. Unpublished study prepared by Dow Chemical U.S.A. 12 p.
41572000	DowElanco (1990) Submission of Product Chemistry Data in Support of Formula 40 Herbicide Amended Registration for Revised Formulation. Transmittal of 1 study.
41572001	Schriber, C. (1990) Product Chemistry for Formula 40 Herbicide: Lab Project Number: XRM-5226. Unpublished study prepared by Dow-Elanco. 28 p.
41647000	DowElanco (1990) Submission of Chemistry Data in Support of 2,4-D Reregistration Standard. Transmittal of 1 study.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
41647001	Heimerl, J. (1990) Determination of the Octanol/Water Partition Coefficient of 2,4-D Butoxyethyl Ester (2,4-D BEE): Lab Project Number: ML-AL 90-080378. Unpublished study prepared by Dow Chemical USA. 22 p.
41669500	DowElanco (1990) Submission of Product Chemistry Data to Support the Reregistration of the 2,4-Dichlorophenoxyacetic acid, butoxyethyl ester. Transmittal of 1 Study.
41669501	Moore, R. (1990) 2,4-Dichlorophenoxyacetic acid, butoxyethyl ester: Aqueous Solubility: Lab Project Number: 9585/F/02. Unpublished study prepared by Midwest Research Institute. 17 p.
41695000	Rhone-Poulenc Ag Co. (1990) Submission of product chemistry and toxicity data to support the registration of Weedone LV-6 IOE Broadleaf Herbicide. Transmittal of 9 studies.
41695001	Scarborough, D. (1990) Weedone Brand LV-6 Herbicide Product Identity and Composition: Lab Project Number: AC-90-009. Unpublished study. 20 p.
41695002	Crownover, R. (1990) Product Chemistry: Weedone Brand LV-6 Herbicide--Analysis and Certification of Ingredients: Lab Project Number AC-90-10: 40830. Unpublished study. 66 p.
41695003	Crownover, R. (1990) Product Chemistry: Weedone Brand LV-6 Herbicide, Physical and Chemical Properties: Lab Project Number: AC-90-011: 40832. Unpublished study prepared by Rhone-Poulenc Ag Co. 36 p.
41697700	Rhone-Poulenc Ag Co. (1990) Submission of Physical and Chemical Characteristics Data. In Support Of Application for New Product Registration. Transmittal of 3 Studies.
41697701	Scarborough, D. (1990) Weedone Brand LV-4 Herbicide: Product Identity and Composition: Lab Project No: AC-90-006. Unpublished study prepared by Rhone-Poulenc Inc. 33 p.
41697702	Crownover, R. (1990) Weedone Brand LV-4 Herbicide: Analysis and Certification of Ingredients: Lab Project No: AC-90-007. Unpublished study prepared by Rhone-Poulenc Inc. 66 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
41697703	Crownover, R. (1990) Weedone Brand LV-4 Herbicide: Physical and Chemical Properties: Lab Project No: AC-90-008. Unpublished study prepared by Rhone-Poulenc Inc. 36 p.
41724200	Nufarm USA, Inc. (1990) Submission of product Chemistry Data in Response to the Data Call-in Notice for 2,4-D. Transmittal of 3 studies.
41724203	Landvoight, W.; Mahlborg, W. (1990) Determination of Halogenated Dibenzo-p-Dioxins and Dibenzofurans in 2,4-D Isooctyl Ester by Method of Analysis 50288: Lab Project Number: 90-5. Unpublished study prepared by Chemserve Industries Service Ges.m.b.H. 423 p.
41968300	DowElanco (1991) Submission of Data To Support 2,4-D Reregistration: Product Chemistry Studies. Transmittal of 3 studies.
41968302	Helmer, D. (1987) Determination of the Water Solubility of 2,4-dichlorophenoxy Acetic Acid, 2-ethylhexyl Ester: Lab Project No: ML-AL-87-70817. Unpublished study prepared by Dow Chemical USA. 13 p.
41968303	Schriber, C.; Tiszai, N. (1991) Chemical Stability of 2,4-D 2-Ethyl hexyl Ester: Lab Project Number: 90086. Unpublished study prepared by DowElanco. 17 p.
41968400	DowElanco (1991) Submission of product chemistry data in support of reregistration of 2,4-D. Transmittal of 3 studies.
41968402	Schriber, C.; Kraft, N. (1991) Solubility of 2,4-Dichlorophenoxyacetic Acid, Triisopropanolamine Salt in Water, pH Buffers and Various Organic Solvents: Lab Project Number: 90048. Unpublished study prepared by DowElanco. 17 p.
41968403	Schriber, C. (1991) Chemical Stability of 2,4-D Triisopropanolamine Salt Solution: Lab Project Number: 90091. Unpublished study prepared by DowElanco. 17 p.
42050600	A.H. Marks and Co., Ltd (1991) Submission of product chemistry data for 2,4-DB Acid in response to EPA's 1987 Dioxin/Furan data call-in for 2,4-D. Transmittal of 7 studies.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
42050601	Landvoigt, W. (1990) Analysis of DD/DF in 2,4-DB Acid for A.H. Marks: Lab Project Number: 2954379 S: 2954382 S: 2954381 S. Unpublished study prepared by Chemserv Industrie Service Ges.m.b.H. 76 p.
42050602	Landvoigt, W. (1990) Analysis of DD/DF in 2,4-DB Acid for A.H. Marks: Lab Project Number: 2954379. Unpublished study prepared by Chemserv Industrie Service Ges. m.b.H. 58 p.
42050603	Landvoigt, W. (1990) Analysis of DD/DF in 2,4-DB Acid for A.H. Marks: Lab Project Number: 2954380. Unpublished study prepared by Chemserv Industrie Service Ges. m.b.H. 62 p.
42050604	Landvoigt, W. (1990) Analysis of DD/DF in 2,4-DB Acid for A.H. Marks: Lab Project Number: 2954382. Unpublished study prepared by Chemserv Industrie Service Ges. m.b.H. 62 p.
42050605	Landvoigt, W. (1990) Analysis of DD/DF in 2,4-DB Acid for A.H. Marks: Lab Project Number: 2954383. Unpublished study prepared by Chemserv Industrie Service Ges. m.b.H. 63 p.
42050606	Landvoigt, W. (1990) Analysis of DD/DF in 2,4-DB Acid for A.H. Marks: Lab Project Number: 2954384. Unpublished study prepared by Chemserv Industrie Service Ges. m.b.H. 65 p.
42050607	Landvoigt, W. (1990) Analysis of DD/DF in 2,4-DB Acid for A. H. Marks: Lab Project Number: 2954385. Unpublished study prepared by Chemserv Industrie Service Ges. m.b.H. 65 p.
42116700	Amvac Chemical Corp. (1991) Submission of product chemistry data to support the reregistration of 2,4-D (Isopropyl Ester). Transmittal of 2 studies.
42116701	Fieler, W. (1991) Analysis and Certification of Product Ingredients for 2,4-D Isopropyl Ester. Unpublished study prepared by Amvac Chemical Corp. 7 p.
42116702	Feiler, W. (1991) Technical Isopropyl Ester of 2,4-D--Product Chemistry: Physical and Chemical Properties. Unpublished study prepared by Amvac Chemical Co. 4 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
42138500	PBI/Gordon (1991) Submission of product chemistry and toxicity data to support the registration of EH 1068 and EH 1073 Trimec Esters. Transmittal of 8 studies.
42138501	Armbruster, J. (1991) EH 1068 Trimec Ester: Product Identity, Composition and Certification of Limits. Unpublished study prepared PBI/Gordon Corp. 8 p.
42138502	Hart, J. (1991) EH 1068 Trimec Ester: Chemical and Physical Properties: Lab Project Number: PBG-01. Unpublished study prepared by DARTEC, Inc. 60 p.
42138600	PBI/Gordon Corp. (1991) Submission of product chemistry and toxicity data to support the registration of EH 1068 and EH 1073 Trimec Esters. Transmittal of 8 studies.
42138601	Armbruster, J. (1991) EH 1073 Trimec Ester Product Identity, Composition and Certification of Ingredient Limits. Unpublished study prepared by PBI/Gordon Corp. 7 p.
42138602	Hart, J. (1991) EH 1073 Trimec Ester Chemical and Physical Properties: Lab Project Number: PBG-02. Unpublished study prepared by DARTEC, Inc. 59 p.
42188600	Amvac Chemical Corp. (1992) Submission of product chemistry data in support of reregistration of 2,4-D Isopropyl Ester Technical. Transmittal of 1 study.
42188601	Feiler, W. (1991) Technical Isopropyl Ester of 2,4-D: Product Chemistry Ingredients Identification. Unpublished study prepared by Amvac Chemical Corp. 41 p.
42328500	DowElanco (1992) Submission of Product Chemistry data in support of reregistration for 2,4-D 2-EHE. Transmittal of 1 study.
42328501	Potter, R. (1990) 2,4-D Ethylhexyl Ester: Solubility in Industrial Water: Lab Project Number: ES-DR-0019-1208-8. Unpublished study prepared by Analytical Chemistry Laboratory, Dow Chemical Co. 16 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
42420700	PBI Gordon Corp. (1992) Submission of supplementary product chemistry data to support the registration of EH 1068 and 1073 Trimec Ester. Transmittal of 2 studies.
42420701	Savage, J. (1992) Supplemental Report: EH 1068 Trimec Ester: Lab Project Number: PBG-01. Unpublished study prepared by Dartec Labs, Inc. 39 p.
42420702	Savage, J. (1992) Supplemental Report: EH 1073 Trimec Ester: Lab Project Number: PBG-02. Unpublished study prepared by Dartec Labs, Inc. 39 p.
42448800	Rhone-Poulenc Ag Co. (1992) Submission of product chemistry and toxicity data in support of the registration of Weedone No-Sol 4 Broadleaf Herbicide. Transmittal of 9 studies.
42448801	Crownover, R. (1992) Weedone LV-4 EW: Product Identity and Composition: Lab Project Number: AC-92-004: 41192. Unpublished study prepared by Rhone-Poulenc Ag Co. 61 p.
42448802	Lowder, J. (1992) Weedone LV-4 EW: Product Chemistry: Series 62--Analysis and Certification of Product Ingredients: Lab Project Number: AC-91-020: 41196. Unpublished study prepared by Rhone-Poulenc Ag Co. 41 p.
42448803	Lowder, J. (1992) Weedone LV-4 EW: Product Chemistry: Series 63--Physical and Chemical Characteristics: Lab Project Number: AC-91-021: 41244. Unpublished study prepared by Rhone-Poulenc Ag Co. 22 p.
42468800	Platte Chemical Co. (1992) Submittal of product chemistry, irritation and toxicity data in support of Shotgun Flowable Herbicide reregistration. Transmittal of 10 studies.
42468801	Mahlburg, W. (1992) Product Chemistry Data for Shotgun Flowable Herbicide: Identity, Composition, Analysis and Certification of Ingredients: Lab Project Number: 92-73A. Unpublished study prepared by Platte Chemical Co. 38 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
42468802	Herold, A. (1990) Shotgun Flowable Herbicide Product Chemistry Data: \$Multiple Physical and Chemical Characteristics\$: Lab Project Number: PLT-31: 92-74A. Unpublished study prepared by Dartec Inc. 56 p.
42468803	Nunnally, M. (1992) Shotgun Flowable Herbicide Product Chemistry Data: \$Storage stability\$: Lab Project Number: PLT-31: 92-82A. Unpublished study prepared by Dartec Inc. 29 p.
42487900	DowElanco (1992) Submission of product chemistry data to support 2,4-D BEE registration standard. Transmittal of 1 study.
42487901	Schriber, C. (1992) Chemical Stability of 2, 4-Dichlorophenoxyacetic Acid, Butoxyethyl Ester Solution: Lab Project Number: 90090. Unpublished study prepared by DowElanco. 16 p.
42744200	Rhone-Poulenc AG Co. (1993) Submission of Product Chemistry and Toxicity Data in Support of Registration for 2,4-D 2-EHE Gel Broadleaf Herbicide. Transmittal of 6 Studies.
42744201	Siemann, L. (1993) 2,4-D 2-EHE Gel End-Use Product Chemistry: Lab Project Number: 3164. Unpublished study prepared by Midwest Research Institute. 77 p.
42796200	DowElanco (1993) Submission of product chemistry data in support of the registration standard for 2,4-D 2HE and 2,4-D BEE. Transmittal of 1 study.
42796201	Murphy, G. (1993) Response to Letter Written by Lois A. Rossi (10/5/92) Subject: Product Chemistry Review for Dow Technicals: 62719-24, 62719-25, 62719-26, 62719-33 for 2,4-D Acid, IOE and BEE: Lab Project Number: GM052893C. Unpublished study prepared by DowElanco. 9 p.
42798200	DowElanco (1993) Submission of product chemistry data to support the registration of 2,4-D TIPA. Transmittal of 1 study.
42798201	Murphy, G. (1993) Product Chemistry Review for DowElanco 2,4-D TIPA FI: Lab Project Number: GM052993A. Unpublished study prepared by DowElanco. 4 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 D PART 2

MRID	CITATION
42830900	DowElanco (1993) Submission of product chemistry data in support of registration for 2,4-D BEE. Transmittal of 1 study.
42830901	Murphy, G. (1993) Determination of Boiling Point and Solubility of 2,4-Dichlorophenoxyacetic Acid Butoxyethyl Ester (2,4-D BEE) Technical Grade Active Ingredient (TGAI): Lab Project Number: FOR93057. Unpublished study prepared by Formulation Science and Technology Lab. DowElanco. 17 p.
42831100	DowElanco (1993) Submission of product chemistry data in support of registration for 2,4-D 2-EHE. Transmittal of 1 study.
42831101	Murphy, G. (1993) Determination of Boiling Point and Solubility of 2,4-Dichlorophenoxyacetic Acid 2-Ethylhexyl Ester (2,4-D 2-EHE) Technical Grade of Active Ingredient (TGAI): Lab Project Number: FOR93055. Unpublished study prepared by Formulation Science and Technology Lab, DowElanco. 17 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DB

SEARCH TERMS:

CHEMICALS: 030801 OR 030804 OR 030819 OR 030853 OR 030856
OR 030863

AND

SUBJECT: PRODUCT CHEMISTRY

AND

SUBMITTER: ALL

AND

SUBMISSION DATE: ALL

AND

LAB-ID: ALL

AND

DOCUMENT TYPES: ALL SELECTED STUDIES
REGARDLESS OF DOCUMENT TYPE

AND

ENTRY DATE: ALL

NUMBER OF STUDIES: 106

MRID SEQUENCE BIBLIOGRAPHY -----	NUMBER OF COPIES:	1
AUTHOR SEQUENCE BIBLIOGRAPHY ----	NUMBER OF COPIES:	0
SUBMITTER SEQUENCE BIBLIOGRAPHY -	NUMBER OF COPIES:	0
GUIDELINE SEQUENCE BIBLIOGRAPHY		
SUMMARY FORMAT -----	NUMBER OF COPIES:	0
EXPANDED FORMAT -----	NUMBER OF COPIES:	0

PAPER SIZE: 8 1/2 BY 11 INCH PAPER

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DB

MRID	CITATION
00004725	Stanley, C.W. (1966) Derivatization of pesticide-related acids and phenols for gas chromatographic determination. Journal of Agricultural and Food Chemistry 14(3):321-323. (Also°In°unpublished submission received Sep 12, 1968 under 8F0676; submitted by Dow Chemical U.S.A., Midland, Mich.; CDL:092980-A2)
00004784	Chipman Chemical Company, Incorporated. (1967) Summary of Available Acute Toxicity Data on a Bromoxynil octanoate/MCPA Isoocty Ester Formulation as Compared with Bromoxynil and MCPA: SR/3/67. (Unpublished study received Mar 10, 1967 under 359-601; submitted by Rhone-Poulenc, Inc., Monmouth Junction, N.J.; CDL:023320-D)
00035914	Woolson, E.A.; Thomas, R.F.; Ensor, P.D.J. (1972) ¶Without title . Journal of Agricultural and Food Chemistry 20(2):351-354. (Also #°In°unpublished submission received Sep 24, 1970 under 1E1046; submitted by U.S. Dept. of the Army, Office of the Chief of Engineers, Washington, D.C.; CDL:096474-D)
00050542	Gannon, R.W. (1957) Letter sent to R.O. White dated Jan 2, 1957 ¶Toxicity of the gamma Bytyric acids . (Unpublished study received Jan 2, 1957 under 264-EX-7; prepared by American Chemical Paint Co., submitted by Union Carbide Agricultural Products Co., Ambler, Pa.; CDL:102682-A)
00078273	Ting, J.J.S. (1978) Letter sent to T.T. Rushing dated Dec 12, 1978: Compatibility study: Lorox-(R)¶ and Lorox-(R)¶ 4L with other herbicides and/or liquid fertilizers. (Unpublished study received Mar 27, 1979 under 352-391; submitted by E.I. du Pont de Nemours & Co., Wilmington, Del.; CDL:237890-C)
00078452	Marchio, J.L.; Spurlock, O.L. (1981) Letter sent to Stan Harrison dated Jan 20, 1981 ¶Analyses for nitrosamine . (Unpublished study, including letter dated Sep 18, 1980 from J. Kruzynski to S.L. Harrison, received Jun 24, 1981 under 264-47; submitted by Union Carbide Agricultural Products Co., Inc., Ambler, Pa.; CDL:245309-A)
00094409	Snow, E.A.; Bouw, R.M. (1974) Letter sent to E.E. Chambers dated Jun 28, 1974: Compatibility of tank mixed enide 50W with 2,4-DB. (Unpublished study received Aug 1, 1974 under 1023-23; submitted by Upjohn Co., Kalamazoo, Mich.; CDL:005407-B)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DB

MRID	CITATION
00105875	Rhodia, Inc. (1978) Results of N-Nitroso Contaminant Analysis. (Unpublished study received Jun 26, 1978 under 359-677; submitted by Rhone-Poulenc, Inc., Monmouth Junction, NJ; CDL: 237357-A)
00115130	Uniroyal Chemical (1982) Chemical Study: RESCUEI. (Compilation; unpublished study received Sep 15, 1982 under 400-166; CDL: 248367-A)
00124089	Union Carbide Agricultural Products Co., Inc. (1982) Chemical Study: Amine 2,4,5-TI. (Compilation; unpublished study received Dec 21, 1982 under 264-86; CDL:249117-A)
00125618	Rhodia, Inc. (1970) The Name, Chemical Identity, and Composition of the Pesticide Chemical: 2,4-DBI. (Compilation; unpublished study received Dec 16, 1970 under 1F1089; CDL:093401-B)
00151535	A.H. Marks and Co., Ltd. (1985) Marks Technical Butoxyethanol Ester of 2,4-DB: Butyoxo Ethyl-4-(2,4-dichlorophenoxy)Butyrate. Unpublished compilation. 14 p.
00153216	A. H. Marks & Co. Ltd. (1985) Marks 2,4-DB Technical Acid: 4-(2,4-Dichlorophenoxy) Butyric Acid: Information for EPA Registration:[Product Chemistry Data]. Unpublished compilation. 16 p
00156716	Aceto Chemical Co., Inc. (1982) Chemistry of Technical Grade 2,4 - DB: Aceto DB - 175. Unpublished compilation. 43 p.
00158916	Union Carbide Agricultural Products Co. (19??) Manufacturing Process for 2,4-DB Technical Acid. Unpublished compilation. 7 p.
00158917	Union Carbide Agricultural Products Co. (19??) Manufacturing Process for 2,4-DB Butoxy Ethanol Ester. Unpublished study. 4 p.
00158918	A. H. Marks (19??) Analysis and Certification of Product Ingredient: [2,4-DB Ester]. Unpublished study. 2 p.
00158919	A. H. Marks (19??) 2,4-DB Butoxy Ethanol Ester: Physical and Chemical Properties. Unpublished study. 1 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DB

MRID	CITATION
05003559	Collier, R.H.; Grimes, G.S. (1974) Determination of chlorophenoxy acids in formulations by gas-liquid chromatography of their trimethylsilyl derivatives. Journal of the Association of Official Analytical Chemists 57(4):781-784.
05005846	Zweig, G.; Sherma, J. (1972) 2,4-Dichlorophenoxyacetic acid. Pages 630-635, °In°Analytical Methods for Pesticides and Plant Growth Regulators. Vol. VI: Gas Chromatographic Analysis. New York: Academic Press.
40125500	PBI/Gordon Corp. (1987) Submission of Product Chemistry Data in Support of Application for Registration of Trimec 901. Transmittal of 2 studies.
40125501	Cahoy, R. (1987) Trimec 901--Product Chemmistry. Unpublished compilation prepared by PBI/Gordon Corp. Formulation Laboratory. 7 p.
40125502	Goff, U. (1987) Trimec 901 Liquid Weed & Feed 20-0-0: Formal Report of Analysis for N-Nitroso Compounds: Laboratory Project No. 5450-2631. Unpublished study prepared by Thermedics Inc. 16 p.
40295900	Union Carbide Agricultural Products Co., Inc. (1987) Submission of Chemistry Data in Support of 2,4-DB Technical Acid. Transmittal of 3 studies.
40295901	A.H. Marks and Co. (1987) A.H. Marks 2,4-DB Technical Acid: Product Identity and Composition: (Supplemental Data for May 1985 Report): Document No. 1. Unpublished compilation. 11 p.
40295902	A.H. Marks and Co. (1987) A.H. Marks 2,4-DB Technical Acid: Analysis and Certification of Product Ingredients: (Supplemental Data for May 1985 Report): Document No. 2. Unpublished study. 32 p.
40295903	A.H. Marks and Co. (1987) A.H. Marks 2,4-DB Technical Acid: Physical and Chemical Properties: (Supplemental Data for May 1985 Report): Document No. 3. Unpublished study. 3 p.
40709200	AH Marks & Co. Ltd. (1988) Submission of Chemistry Data in Support of Marks DB Technical Acid. Transmittal of 1 study.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DB

MRID	CITATION
40755600	Gilmore, Inc. (1988) Submission of Chemistry Data to Support the Registration for Buxatone 2E. Transmittal of 1 study.
40755601	Fisher, R. (1988) Product Chemistry of Buxatone 2E. Unpublished study prepared by Gilmore, Inc. 4 p.
40774100	H.R. McLane, Inc. (1988) Submission of Product Chemistry to Support the Registration for Turf Pride 10-10-10 Lawn Food with Triamine. Transmittal of 1 study.
40774101	McLane, H. (1988) Product Specific Data: Turf Prode 10-10-10 Lawn Food with Triamine. Unpublished study prepared by Howard Fertilizer Co. 4 p.
40817900	Aceto Chemical Co., Inc. (1988) Submission of Chemistry Data in Support of 4-(2,4-Dichlorophenoxy butyric acid) dimethylamine salt. Transmittal of 1 study.
40817901	Baldi, A. (1987) 2,4-DB 175 ...; 4-(2,4-Dichlorophenoxy butyric acid dimethylamine salt.: Product Chemistry. Unpublished study prepared by Laboratory of the Government Chemist. 46 p.
40977800	Cedar Chemical Corp. (1989) Submission of Chemistry Data in Support of 2,4-DB Reregistration Standard. Transmittal of 6 studies.
40977801	Bellet, E. (1989?) Product Chemistry for Butoxone 200: Typical Physical Properties. Unpublished study prepared by Cedar Chemical Corp. 6 p.
40977802	Bellet, E. (1989?) Product Chemistry for Butoxone Ester: Typical Physical Properties. Unpublished study prepared by Cedar Chemical Corp. 6 p.
40977803	Bellet, E. (1989?) Product Chemistry for Butoxone SB: Typical Physical Properties. Unpublished study prepared by Cedar Chemical Corp. 6 p.
40977804	Bellet, E. (1989?) Product Chemistry for 2,4-DB I.O.E. Technical: Typical Physical Properties. Unpublished study prepared by Cedar Chemical Corp. 6 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DB

MRID	CITATION
40977805	Bellet, E. (1989?) Product Chemistry for 2,4-DB Acid Technical: #Typical Physical Properties . Unpublished study prepared by Cedar Chemical Corp. 6 p.
40977806	Bellet, E. (1989?) Product Chemistry for Butoxone: #Typical Physical Properties . Unpublished study prepared by Cedar Chemical Corp. 6 p.
41148200	2,4-DB Task Force (1989) Submission of Product Chemistry Data in Support of 2,4-DB Registration Standard. Transmittal of 1 study.
41148201	Hardwick, F. (1988) Product Chemistry for Marks DB Technical Acid. Unpublished study prepared by A H Marks & Co. Limited. 24 p.
41337500	Aceto Agricultural Chemicals Corp. (1989) Submission of Data in Support of Data Call-in Notice for Analytical Chemistry Data on Polyhalogenated Dibenzo-p-dioxins/Dibenzofurans in 2,4-Dichlorophenoxybutyric Acid and Its Salts and Esters (2,4-DB). Transmittal of 1 study.
41337501	Baldi, A. (1989) Determination of Dioxins and Dibenzofurans in Chlorophenoxy Alkanoic Acids: Protocol and Preliminary Analysis. Unpublished study prepared by Aceto Agricultural Chemicals Corp. 13 p.
41374900	2,4-DB Task Force (1990) Submission of Chemistry Data in Support of 2,4-DB Registration Standard List A. Transmittal of 1 study.
41374901	Pesselman, R. (1989) Octanol/Water Partition Coefficient Determination of 2,4-DB Acid: Final Report: Lab Project Number: HLA 6001-397. Unpublished study prepared by Hazleton Laboratories America, Inc. 44 p.
41381400	2,4-DB Task Force (1990) Submission of Product Chemistry Data to Support the 2,4-DB Registration Standard. Transmittal of 1 study.
41381401	Hardwick, F. (1988) Product Chemistry for Marks DB Technical Acid. Unpublished study prepared by A.H. Marks & Co., Ltd. 24 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DB

MRID	CITATION
41402200	2,4-DB Task Force (1990) Submission of Product Chemistry Data in Support of the 2,4-DB Registration Standard. Transmittal of 16 studies.
41402201	Pesselman, R. (1989) Munsell Color Determination of 2,4-DB Acid: Lab Project Number: HLA 6001-391. Unpublished study prepared by Hazleton Laboratories America, Inc. 20 p.
41402202	Pesselman, R.; Semann, T. (1989) Physical State Determination of 2,4-DB Acid: Lab Project Number: HLA 6001-402. Unpublished study prepared by Hazleton Laboratories America, Inc. 19 p.
41402203	Pesselman, R. (1989) Odor Determination of 2,4-DB Acid: Lab Project Number: HLA 6001-392. Unpublished study prepared by Hazleton Laboratories America, Inc. 22 p.
41402204	Pesselman, R.; August, J. (1989) Melting Point/Melting Range Determination of 2,4-DB Acid: Lab Project Number: HLA 6001-394. Unpublished study prepared by Hazleton Laboratories America, Inc. 22 p.
41402205	Pesselman, R. (1989) Solubility Determination of 2,4-DB Acid: Lab Project Number: HLA 6001-396. Unpublished study prepared by Hazleton Laboratories America, Inc. 52 p.
41402206	Pesselman, R. (1989) Vapor Pressure Determination of 2,4-DB Acid: Lab Project Number: HLA 6001-406. Unpublished study prepared by Hazleton Laboratories America, Inc. 33 p.
41402207	Pesselman, R. (1989) Dissociation Constant Determination of 2,4-DB Acid: Lab Project Number: HLA 6001-408. Unpublished study prepared by Hazleton Laboratories America, Inc. 33 p.
41402208	Pesselman, R. ; Woosencraft, J. (1989) pH Value Determination of 2,4-DB Acid: Lab Project Number: HLA 6001-410. Unpublished study prepared by Hazleton Laboratories America, Inc. 23 p.
41402209	Pesselman, R. (1989) Stability Determination of 2,4-DB Acid: Lab Project Number: HLA 6001-404. Unpublished study prepared by Hazleton Laboratories America, Inc. 26 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DB

MRID	CITATION
41402210	Pesselman, R. (1989) Physical State Determination of 2,4-DB Dimethylamine Salt: Lab Project Number: HLA 6001-403. Unpublished study prepared by Hazleton Laboratories America, Inc. 20 p.
41402211	Pesselman, R. (1989) Odor Determination of 2,4-DB Dimethylamine Salt: Lab Project Number: HLA 6001-393. Unpublished study prepared by Hazleton Laboratories America, Inc. 22 p.
41402212	Pesselman, R.; August, J. (1989) Boiling Point/Boiling Range Determination of 2,4-DB Dimethylamine Salt: Lab Project Number: HLA 6001-395. Unpublished study prepared by Hazleton Laboratories America, Inc. 24 p.
41402213	Pesselman, R. (1989) Solubility Determination of 2,4-DB Dimethylamine Salt: Lab Project Number: HLA 6001-399. Unpublished study prepared by Hazleton Laboratories America, Inc. 41 p.
41402214	Woosencraft, J.; Pesselman, R. (1989) Dissociation Constant Determination of 2,4-DB Dimethylamine Salt: Lab Project Number: HLA 6001-409. Unpublished study prepared by Hazleton Laboratories America, Inc. 28 p.
41402215	Pesselman, R. (1989) pH Value Determination of 2,4-DB Dimethylamine Salt: Lab Project Number: HLA 6001-401. Unpublished study prepared by Hazleton Laboratories America, Inc. 25 p.
41402216	Pesselman, R. ; Woosencraft, J. (1989) Stability Determination of 2,4-DB Dimethylamine Salt: Lab Project Number: HLA 6001-405. Unpublished study prepared by Hazleton Laboratories America, Inc. 26 p.
41460400	2,4-DB Task Force (1990) Submission of Product Chemistry Data in Support of the 2,4-DB Registration Standard. Transmittal of 1 study.
41460401	Pesselman, R. (1989) Munsell Color Determination of 2,4-DB, Dimethylamine Salt: Lab Project Number: 6001-398. Unpublished study prepared by Hazleton Laboratories America, Inc. 20 p.
41479700	2,4-DB Task Force (1990) Submission of Product Chemistry and Photolysis Data to Support the Reregistration of 2,4-DB. Transmittal of 2 studies.

20444

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DB

MRID	CITATION
41479701	Pesselman, R. (1989) Octanol/Water Partition Coefficient Determination of 2,4-DB Acid: Final Report: Lab Project I.D.: HLA 6001-397. Unpublished study prepared by Hazleton Laboratories America, Inc. 44 p.
41517000	A.H. Marks (1990) Submission of Product Chemistry Data in Support of Registration of Marks DB Technical Acid. Transmittal of 4 studies.
41517001	Pesselman, R. (1989) Vapor Pesselman Determination of 2,4-DB Acid: Lab Project Number: 6001-406. Unpublished study prepared by Hazleton Laboratories America, Inc. 33 p.
41517002	Pesselman, R. (1989) Dissociation Constant Determination of 2,4-DB Acid: Lab Project Number: 6001-408. Unpublished study prepared by Hazleton Laboratories America, Inc. 26 p.
41517003	Pesselman, R. (1989) Octanol/Water Partition Coefficient Determination of 2,4-DB Acid: Lab Project Number: 6001-397. Unpublished study prepared by Hazleton Laboratories America, Inc. 44 p.
41517004	Pesselman, R. (1989) Stability Determination of 2,4-DB Acid: Lab Project Number: 6001-404. Unpublished study prepared by Hazleton Laboratories America, Inc. 26 p.
41582900	2,4-DB Task Force (1990) Submission of product chemistry data to support the registration standard for 2,4-DB. Transmittal of 2 studies.
41582901	Pesselman, R. (1990) Determination of Boiling Point/Boiling Range of 2,4-DB Acid: Lab Project Number: HLA 6001-488. Unpublished study prepared by Hazleton Labs America, Inc. 23 p.
41582902	Pesselman, R. (1990) Density/Specific Gravity Determination of 2,4-DB Acid: Lab Project Number: 6001-489. Unpublished study prepared by Hazleton Labs America, Inc. 23 p.
41765500	2,4-D, MCPA Task Force (1991) Submission of Chemistry Data in Support of 2,4-DB Acid Data Call-in. Transmittal of 1 study.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DB

MRID	CITATION
41765501	Landvoigt, W. (1990) Determination of Dioxins and Benzofurans in 2, 4-DB-Acid by GC/MS: Lab Project Number: AGRO USA0989. Unpublished study prepared by Chemserv Industrie Service Ges.m.b.H. 394 p.
42045500	Agrolinz, Inc. (1991) Submission of product chemsitry data in response to a data call-in notice for analytical data on poly-halogenated dibenzo-p-dioxins/dibenzofurans in 2,4-D acid and it's salts and esters. Transmittal of 1 study.
42045501	Landvoigt, W. (1990) Determination of Dioxins and Benzofurans in 2,4-D-Acid by GC/MS: Lab Project Number: AGRO USA0989. Unpublished study prepared by Chemserv Industrie Service Ges.m.b.H. 473 p.
2065300	A.H. Marks & Co., Ltd. (1991) Submission of Data in Response to Dioxin/Furan Data Call-in for 2,4-DB: Product Chemistry Studies. Transmittal of 8 studies.
42065301	Langvoigt, W. (1990) Calibration File Using TM1 to TM10: Product Chemistry: Lab Project Number: MARKS/0689. Unpublished study prepared by Chemserv Industrie Service Ges.m.b.H. 34 p.
42065302	Landvoigt, W. (1990) Analysis of DD/DF in 2,4-DB Acid for A. H. Marks &Product Chemistry : Lab Project Number: KNR/2954379/S: KNR/2954382/S: KNR/2954381/S. Unpublished study prepared by Chemserv Industrie Service Ges.m.b.H. 76 p.
42065303	Langvoigt, W. (1990) Analysis of DD/DF in 2,4-DB Acid for A.H. Marks &Product Chemistry : Lab Project Number: KNR. 2954379. Unpublished study prepared by Chemserv Industrie Service Ges.m.b.H. 58 p.
42065304	Landvoigt, W. (1990) Analysis of DD/DF in 2,4-DB Acid for A.H. Marks &Product Chemistry : Lab Project Number: KNR. 2954380. Unpublished study prepared by ChemServ Industrie Service Ges.m.b.H. 62 p.
42065305	Landvoigt, W. (1990) Analysis of DD/DF in 2,4-DB Acid for A.H. Marks &Product Chemistry : Lab Project Number: KNR. 2954382. Unpublished study prepared by Chemserv Industrie Service Ges.m.H. 62 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DB

MRID	CITATION
42065306	Landvoigt, W. (1990) Analysis of DD/DF in 2,4-DB Acid for A.H. Marks & Product Chemistry: Lab Project Number: KNR/2954383. Unpublished study prepared by Chemserv Industrie Service Ges.m.b.H. 63 p.
42065307	Landvoigt, W. (1990) Analysis of DD/DF in 2,4-DB Acid for A.H. Marks: Lab Project Number: KNR. 2954384. Unpublished study prepared by Chemserv Industrie Service Ges.m.b.H. 65 p.
42065308	Landvoigt, W. (1990) Analysis of DD/DF in 2,4-DB Acid for A.H. Marks & Product Chemistry: Lab Project Number: KNR. 2954385. Unpublished study prepared by Chemserv Industrie Service Ges.m.b.H. 65 p.
42120500	Cedar Chemical Corp. (1991) Submission of product chemistry data to support the me-too product registration for Butoxone 7450. Transmittal of 1 study.
42120501	Bernard, M. (1991) Manufacturing and Chemistry Data for Butoxone 7450. Unpublished study prepared by Cedar Chemical Corp. 8 p.
42558000	A H Marks & Co Ltd (1992) Submission of product chemistry data in support of registration standard for 2,4-DP. Transmittal of 1 study.
42558001	Varcoe, F. (1992) Analysis of Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans in R(+)-2-(2,4-dichlorophenoxy)propionic acid: Final Report: Lab Project Number: 21918R: Unpublished study prepared by Triangle Laboratories, Inc. 1171 p.
42569300	2,4-DB Task Force (1992) Submission of product chemistry to support registration standard of 2,4-DB. Transmittal of 4 studies.
42569301	McDaniel, R.; Weiler, D. (1987) Vapor Pressure Determination of 2,4-Dichlorophenoxybutyric Acid dimethylamine Salt: Lab Project Number: 8710006. Unpublished study prepared by Rhone-Poulenc Inc. 8 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DB

MRID	CITATION
42569302	McDaniel, R.; Weiler, D. (1987) Design and Validation of High Flow Apparatus for Vapor Pressure Determination: 2,4-Dichlorophenoxybutyric Acid dimethylamine Salt: Lab Project Number: 8710020. Unpublished study prepared by Rhone-Poulenc Inc. 20 p.
42569303	Helfant, L.; Lowder, J. (1987) Concentration of 2,4-Dichlorophenoxybutyric Acid dimethylamine Salt in Deionized Water: Lab Project Number: 87080. Unpublished study prepared by Rhone-Poulenc Inc. 9 p.
42569304	Rhone-Poulenc Inc. (1988) Mass Transfer Considerations in the Use of the Gas Saturation Method for Vapor Pressure Determination--2,4-Dichlorophenoxybutyric Acid dimethylamine Salt: the Attainment of Test Compound Saturation of the Carrier Gas at High Flow Rates. Unpublished study prepared by Rhone-Poulenc Inc. 22 p.
42626500	Cedar Chemical Corp. (1993) Submission of product chemistry data in support of the data call-in for 2,4-DB. Transmittal of 1 study.
42626501	Bernard, M. comp. (1989) Product Chemistry: Manufacturing and Analytical Data for 2,4-DB Isooctyl Ester. Unpublished compilation prepared by Cedar Chemical Corp. 12 p.
42626700	Cedar Chemical Corp. (1993) Submission of product chemistry data in support of the registration of 2,4-DB Amine Concentrate. Transmittal of 1 study.
42626701	Bernard, M. comp. (1992) Product Chemistry: Manufacturing and Analytical Data for 2,4-DB Amine Concentrate. Unpublished compilation prepared by Cedar Chemical Corp. 11 p.
42741500	2,4-DB Task Force (1993) Submission of Product Chemistry Data in Support of Registration Standard for 2,4-DB Dimethyl Amine Salt (DMAS). Transmittal of 1 Study.
42741501	Andrews, K. (1993) Dissociation of 2,4-DB Dimethyl Amine Salt (DMAS) in Water: Lab Project Number: SC920205. Unpublished study prepared by Battelle Columbus Operations. 60 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DP

SEARCH TERMS:

CHEMICALS: 031401 OR 031419 OR 031453 OR 031463

AND

SUBJECT: PRODUCT CHEMISTRY

AND

SUBMITTER: ALL

AND

SUBMISSION DATE: ALL

AND

LAB-ID: ALL

AND

DOCUMENT TYPES: ALL SELECTED STUDIES
REGARDLESS OF DOCUMENT TYPE

AND

ENTRY DATE: ALL

NUMBER OF STUDIES: 164

MRID SEQUENCE BIBLIOGRAPHY -----	NUMBER OF COPIES:	1
AUTHOR SEQUENCE BIBLIOGRAPHY ----	NUMBER OF COPIES:	0
SUBMITTER SEQUENCE BIBLIOGRAPHY -	NUMBER OF COPIES:	0
GUIDELINE SEQUENCE BIBLIOGRAPHY		
SUMMARY FORMAT -----	NUMBER OF COPIES:	0
EXPANDED FORMAT -----	NUMBER OF COPIES:	0

PAPER SIZE: 8 1/2 BY 11 INCH PAPER

20448A

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DP

MRID	CITATION
00029069	Bishop, J.R. (1980) Analysis of 2,4-DP. (Unpublished study received Jan 15, 1980 under 264-307; prepared in cooperation with Fallek-Lankro Corp., submitted by Union Carbide Agricultural Products Co., Ambler, Pa.; CDL:241869-A)
00029070	Jones, C. (1979) Determination of the 2,4-DP Specific Isomer Content in the Technical Acid and Formulations of 2,4-DP Salts and 2,4-DP Esters. Method no. F-10-11-79 dated Dec 10, 1979. (Unpublished study received Jan 15, 1980 under 264-307; prepared by Fallek-Lankro Corp., submitted by Union Carbide Agricultural Products Co., Ambler, Pa.; CDL:241869-B)
00029464	Union Carbide Agricultural Products Company, Incorporated (19??) 2,4-DP Product Specifications. (Unpublished study received Mar 10, 1980 under 264-231; CDL:241984-A)
00029465	Union Carbide Agricultural Products Company, Incorporated (1980) 2,4-DP Product Manufacture. (Unpublished study received Mar 10, 1980 under 264-231; CDL:241984-B)
00029466	Fallek-Lankro Corporation (1980) Typical Analysis: Product: 2,4-DP Butoxyethylester. (Unpublished study received Mar 10, 1980 under 264-231; submitted by Union Carbide Agricultural Products Co., Ambler, Pa.; CDL:241984-D)
00029467	Jones, C. (1979) Determination of the 2,4-DP Specific Isomer Content in the Technical Acid and Formulations of 2,4-DP Salts and 2,4-DP Esters. Method no. F-10-11-79 dated Dec 10, 1979. (Unpublished study received Mar 10, 1980 under 264-231; prepared by Fallek-Lankro Corp., submitted by Union Carbide Agricultural Products Co., Ambler, Pa.; CDL:241984-E)
00035914	Woolson, E.A.; Thomas, R.F.; Ensor, P.D.J. (1972) Without title. Journal of Agricultural and Food Chemistry 20(2):351-354. (Also In unpublished submission received Sep 24, 1970 under 1E1046; submitted by U.S. Dept. of the Army, Office of the Chief of Engineers, Washington, D.C.; CDL:096474-D)
00046185	U.S. Office of Science and Technology, Panel on Herbicides (1970) Report on 2,4-D. (Unpublished study; CDL:119429-A)

20449

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DP

MRID	CITATION
00047255	Dow Chemical U.S.A. (1976) General Chemistry Items Requested. (Unpublished study received Nov 22, 1976 under 464-530; CDL: 226965-A)
00047256	McLachlan, R.; McLaughlin, E.L., eds. (1976) Analytical Method: Dichlorprop, Butoxyethanol ester. Method no. 21001a dated Oct 5, 1976. (Unpublished study received Nov 22, 1976 under 464-530; submitted by Dow Chemical U.S.A., Midland, Mich.; CDL:226965-B)
00053746	Akzo Zout Chemie Nederland, B.V. (1973) Determination of Total Acid in Phenoxy acetic acid or Phenoxy propionic acid and Their Salts by Direct Potentiometric Titration. Method 248.1 dated Feb 12, 1973. (Unpublished study received Aug 15, 1977 under 38117-2; CDL:231352-B)
00053748	Akzo Zout Chemie Nederland, B.V. (1973) Spectrophotometric Determination of Chlorophenol in Phenoxy acetic acid or Phenoxy propionic acid and Their Salts with 4-Amino antipyrine. Method no. 259.3 dated Feb 12, 1973. (Unpublished study received Aug 15, 1977 under 38117-2; CDL:231352-D)
00067484	Vertac Chemical Corporation (19??) Sodium Chloride Content of the Phenoxy Acids. Undated method VJ-MS-4. (Unpublished study received Jan 7, 1981 under 39511-84; CDL:244051-D)
00067500	Vertac Chemical Corporation (19??) Chlorophenoxyalkanoic Acids-- Loss on Drying. Undated method VJ-MS-2. (Unpublished study received Jan 7, 1981 under 39511-84; CDL:244051-E)
00068008	Buser, H.R. (1976) Determination of 2,3,7,8-TCDD in TPH Samples; GC-MS Analysis of Fraction 2 of TPH Samples; prepared by Swiss Federal Research Station for Fruit Growing, Viticulture and Horticulture, Switzerland. Unpublished study; 10 p.
00082612	Allen, A. (1981) Formal Report of Analysis for N-Nitroso Compounds: Report No. 5450-2586. (Unpublished study received May 15, 1981 under 2217-648; prepared by Thermo Electron Corp., submitted by PBI-Gordon Corp., Kansas City, Kans.; CDL:245094-A)
00088574	PBI/Gordon Corporation (1981) Confidential Statement of Formula: Gordon's Brush Killer 801. (Unpublished study received Jul 15, 1981 under 2217-624; CDL:245537-M)

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DP

MRID	CITATION
00088575	PBI/Gordon Corporation (1981) Confidential Statement of Formula: Gordon's Brush Killer 800. (Unpublished study received Jul 15, 1981 under 2217-624; CDL:245537-2)
00102904	Union Carbide Agricultural Products Co., Inc. (1979) Assay Procedure for Weedone Super BK-32. (Unpublished study received Apr 24, 1979 under 264-307; CDL:238208-A)
00104673	Cantor, L. (1982) Formal Report of Analysis for N-Nitroso Compounds: Report No. 5450-3341. (Unpublished study received Feb 2, 1982 under 2217-662; prepared by Thermo Electron Corp., submitted by PBI-Gordon Corp., Kansas City, Kans.; CDL:246710-A)
00107931	Union Carbide Agricultural Products Co., Inc. (1979) Assay Procedure for Weedone 20 Weed and Feed. (Unpublished study received Apr 24, 1979 under 264-309; CDL:238210-A)
00109215	A.H. Marks & Co., Ltd. (19??) Chemistry of 2,4-DP/Butoxy Ethanol Ester . (Compilation; unpublished study received May 26, 1982; Mar 19, 1982 under 15440-6; CDL:247621-A)
00110435	PBI-Gordon Corp. (19??) Information in Respect of 2,4-DP Technical Acid Ester. (Unpublished study received Aug 17, 1982 under 2217-652; CDL:248119-A)
00116497	A.H. Marks & Co. Ltd. (19??) Chemistry Data on 2,4-DP Butoxy Ethanol Ester . (Compilation; unpublished study received May 26, 1982 under 15440-6; CDL:247621-A)
00119032	Helfant, L.; Oestreicher, S. (1982) Temperature Stability of AXF-1182: Weedone CB Woody Plant Herbicide: Project No. 858F60, File No. 30763. (Unpublished study received Nov 26, 1982 under 264-393; submitted by Union Carbide Agricultural Products Co., Inc., Research Triangle Park, NC; CDL:248956-B)
00123280	Dow Chemical U.S.A. (1978) Chemical Study: Picloram . (Compilation; unpublished study received Dec 9, 1982 under 464-502; CDL:248983-A)

20452

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DP

MRID	CITATION
00132990	Chemie Linz AG (1983) †Study--Chemistry: 2,4-Dichlorophenoxypropionic Acid . (Compilation; unpublished study received Dec 12, 1983 under 2217-652; submitted by PBI-Gordon Corp., Kansas City, MO; CDL:251948-A)
00145102	Kowite, W.; Helfant, L. (1984) Product Chemistry for Weedone CB Woody Plant Herbicide: Laboratory Project No. 856F10. Unpublished study prepared by Union Carbide Agriculture Products Co., Inc. 8 p.
00146263	Kowite, W. (1985) Letter sent to W. Davis dated Jun 4, 1985. Weedone DPC Amine Method of Manufacture. Prepared by Union Carbide Agricultural Products Co., Inc. 8 p.
00152164	Kemisk Vaerk Koge A/S (1985) [Product Chemistry Data for KVK Herbatox - DP ((+)-2-2,4-dichlorophenoxy)propionic acid] . Unpublished compilation. 47 p.
00153852	Riverdale Chemical Company (1985) [Product Chemistry Data with Reports of Analysis of Riverdale Triamine Weed and Feed 25-3-3]. Unpublished study. 43 p.
00153855	Hazleton Laboratories America, Inc. (1985) Report of Analysis: Dimethylamine salt of 2,4-D, 2,4-DP, MCPA, Weed & Feed 25-3-3. Unpublished study. 6 p.
00153856	Riverdale Chemical Company (1985) [Product Chemistry Data with Reports of Analyses of Riverdale 3-Way Weed and Feed]. Unpublished study. 45 p.
00158451	Riverdale Chemical Co. (1986) [Product Chemistry of Riverdale 1D + 1DP Low Voll. Unpublished compilation. 56 p.
00158500	Dow Chemical U.S.A. (1976) General Chemistry Items Requested [for Dichlorprop]. Unpublished compilation. 8 p.
00158501	A.H. Marks Co,Ltd. (19??) [Product Chemistry for 2-(2,4-Dichlorophenoxy) propionic Acid . Unpublished compilation. 8 p.
00158583	Riverdale Chemical Co. (1986) [Chemical Composition of Riverdale 1D + 1DP Low Voll. Unpublished compilation. 11 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DP

MRID	CITATION
00158774	Riverdale Chemical Co. (1986) [Product Chemistry Data for Riverdale Weedestroy Tri-Ester]. Unpublished compilation. 66 p.
00165544	A H Marks (19??) [Product Chemistry Data for 2,4-DP Technical Acid]. Unpublished compilation. 8 p.
05004844	Cessna, A.J.; Grover, R. (1978) Spectrophotometric determination of dissociation constants of selected acidic herbicides. Journal of Agricultural and Food Chemistry 26(1):289-292.
40008500	Riverdale Chemical Co. (1986) Package is submitted for pesticide registration: Data on chemistry and toxicology. Compilation of 8 studies.
40008501	Sawyer, R. (1986) Product Chemistry: Riverdale Triamine II Liquid Weed and Feed: Triple A Liquid Weed and Feed. Unpublished compilation prepared by Riverdale Chemical Co. 19 p.
40008508	Sawyer, R. (1986) Nitrosamine Analysis: Riverdale Triamine II Liquid Weed and Feed. Unpublished study prepared by Hazelton Laboratories America. 7 p.
40046300	Riverdale Chemical Co. (1986) Application for Pesticide Registration: Riverdale Weedestroy Tri-Ester II: Product Chemistry and Acute Toxicity Studies. Compilation of 7 studies.
40046301	Sawyer, R. (1986) Product Chemistry: Riverdale Weedestroy Tri-Ester II. Unpublished study prepared by Riverdale Chemical Co. 19 p.
40059200	Riverdale Chemical Co. (1987) Product Chemistry and Toxicological Data for Riverdale Weedestroy Triamine. Compilation of 7 studies.
40059201	Sawyer, R. (1986) Product Chemistry: Riverdale Weedestroy Triamine II. Unpublished study prepared by Riverdale Chemical Co. 19 p.
40077100	Riverdale Chemical Co. (1987) Product Chemistry of Weedestroy Triamine II. Compilation of 1 study.

20454

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DP

MRID	CITATION
40077101	Stevens, J. (1987) Nitrosamine Analysis: Weeddestroy Triamine II: Project No.: 5450-2556. Unpublished study prepared by Thermedics Inc. 13 p.
40095900	Riverdale Chemical Co. (1987) Application for Pesticide Registration on Riverdale Triamine Premium Liquid Weed and Feed. Transmittal of 1 study.
40095901	Sawyer, R. (1987) Product Chemistry [Data]: Riverdale Triamine Premium Liquid Weed and Feed. Unpublished study prepared by Riverdale Chemical Co. 19 p.
40129500	Riverdale Chemical Co. (1987) Submission of Product Chemistry Data in Support of Application for Registration of Riverdale Triamine 3-way Lawn Weed Killer. Transmittal of 1 study.
40129501	Sawyer, R. (1987) Product Chemistry: Triamine 3-way Lawn Weed Killer. Unpublished compilation prepared by Riverdale Chemical Co. 19 p.
40180300	Riverdale Chemical Co. (1987) Submission of Data To Support the Application for Riverdale Triamine II Premium Liquid Weed and Feed Registration: Product Chemistry Study. Transmittal of 1 study.
40180301	Sawyer, R. (1987) Product Chemistry [Data for]: Riverdale Triamine II Premium Liquid Weed and Feed. Unpublished study prepared by Riverdale Chemical Co. 19 p.
40201300	Riverdale Chemical Co. (1987) Submission of Data To Support the Application for Registration of Riverdale Triamine Premium 6666 Liquid Weed and Feed: Product Chemistry Study. Transmittal of 1 study.
40201301	Sawyer, R. (1987) Product Chemistry: Riverdale Triamine Premium 6666 Liquid Weed and Feed. Unpublished compilation prepared by Riverdale Chemical Co. 19 p.
40214800	Riverdale Chemical Co. (1987) Submission of Product Chemistry and Toxicity Data in Support of Application for Registration of Riverside Triamine II Lawn Weed Killer. Transmittal of 1 study.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DP

MRID	CITATION
40214801	Sawyer, R. (1987) Product Chemistry: Riverdale Triamine II Lawn Weed Killer. Unpublished compilation prepared by Riverdale Chemical Co. 19 p.
40218800	Riverdale Chemical Co. (1987) Submission of Product Chemistry Data To Support the Application for Pesticide Registration of Riverdale Triamine II Premium 75 Liquid Weed and Feed. Transmittal of 1 study.
40218801	Sawyer, R. (1987) Product Chemistry: Riverdale Triamine II Premium 75 Liquid Weed and Feed. Unpublished study prepared by Riverdale Chemical Co. 19 p.
40221200	Riverdale Chemical Co. (1987) Submission of Data To Support the Application for Pesticide Registration of Riverdale Sweet Sixteen Weed and Feed with Triamine II. Transmittal of 7 studies.
40221201	Sawyer, R. (1987) Product Chemistry: Riverdale Sweet Sixteen Weed and Feed with Triamine II. Unpublished compilation prepared by Riverdale Chemical Co. 19 p.
40228600	Riverdale Chemical Co. (1987) Submission of Chemistry Data in Support of Riverdale 2D + 2DP Amine. Transmittal of 2 studies.
40228601	Sawyer, R. (1986) Product Chemistry: Riverdale 2 D + 2 DP Amine. Unpublished study prepared by Riverdale Chemical Co. 19 p.
40228602	Feit, M. (1986) Nitrosamine Analysis: Riverdale 2 D + 2 DP Amine: Laboratory Project No. 61104023. Unpublished study prepared by Hazleton Laboratories America. 8 p.
40236400	Riverdale Chemical Co. (1987) Submission of Product Chemistry Data To Support the Registration of Riverdale Triamine II Premium Liquid Weed and Feed. Transmittal of 1 study.
40241300	Riverdale Chemical Co. (1987) Submission of Product Chemistry Data in Support of Application for Registration of Riverdale Triamine Granular Weed Killer. Transmittal of 1 study.
40241301	Sawyer, R. (1987) Product Chemistry: Riverdale Triamine Granular Weed Killer. Unpublished compilation prepared by Riverdale Chemical Co. 19 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DP

MRID	CITATION
40250800	Riverdale Chemical Co. (1987) Submission of Product Chemistry Data To Support the Application for the Registration of Riverdale Triamine II Weed and Feed. Transmittal of 1 study.
40250801	Sawyer, R. (1987) Product Chemistry: Riverdale Triamine II Weed and Feed. Unpublished compilation prepared by Riverdale Chemical Co. 18 p.
40305700	PBI/Gordon Corp. (1987) Submission of Product Chemistry & Toxicity Data To Support the Registration of DMDP 897. Transmittal of 8 studies.
40305701	Cahoy, R. (1987) DMDP 897--Product Chemistry [Data]. Unpublished study prepared by PBI/Gordon Corp. 7 p.
40305702	Goff, U. (1987) DMDP 897: Formal Report of Analysis for N-Nitroso Compounds: Laboratory Project ID: 5450-2712. Unpublished study prepared by Thermedics Inc. 16 p.
40307300	PBI/Gordon Corp. (1987) Submission of Toxicology Data to Support the Registration of DMDP 898 Liquid Weed & Feed. Transmittal of 8 studies.
40307301	Cahoy, R. (1987) DMDP 898 Liquid Weed & Feed - Product Chemistry. Unpublished study prepared by PBI/Gordon Corp. 7 p.
40394600	Riverdale Chemical Co. (1987) Submission of Product Chemistry Data To Support the Application for Registration of Riverdale 3-Way Weed and Feed with Triamine II. Transmittal of 1 study.
40394601	Sawyer, R. (1987) Product Chemistry: Riverdale 3-Way Weed and Feed with Triamine II. Unpublished compilation prepared by Riverdale Chemical Co. 18 p.
40481100	Riverdale Chemical Company (1988) Submission of Chemistry Data on Riverdale Triamine II Granular Weed Killer in Support of Registration Application. Transmittal of 1 study.
40481101	Sawyer, R. (1987) Product Chemistry: Riverdale Triamine II Granular Weed Killer: Laboratory Project ID Triamine II Granular Weed Killer. Unpublished study prepared by Riverdale Chemical Company. 18 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DP

MRID	CITATION
40655900	H.R. McLane, Inc. (1988) Submission of Product Chemistry Data to Support the Registration for New Products Containing Triamine. Transmittal of 1 study.
40655901	McLane, H. (1988) Product Specific Data: Turfic VII Weed & Feed with Triamine: Laboratory Project ID EPA/HRM/47056-2.PC1. Unpublished study prepared by H.R. McLane, Inc. 4 p.
40656000	H.R. McLane, Inc. (1988) Submission of Product Chemistry Data to Support the Registration of Turfic VI Weed & Feed with Triamine. Transmittal of 1 study.
40656001	McLane, H. (1988) Product Specific Data: Turfic VI Weed & Feed with Triamine: Laboratory Project ID EPA/HRM/47056/P/PC1. Unpublished study prepared by H.R. McLane, Inc. 4 p.
40656100	H.R. McLane, Inc. (1988) Submission of Product Chemistry Data to Support the Registration of Turfic V Weed & Feed with Triamine. Transmittal of 1 study.
40656101	McLane, H. (1988) Product Specific Data: Turfic V Weed & Feed with Triamine: Laboratory Project ID EPA/HRM/47056-0.PC1. Unpublished study prepared by H.R. McLane, Inc. 4 p.
40656200	H.R. McLane, Inc. (1988) Submission of Product Chemistry Data to Support the Registration of Turfic IV Weed & Feed with Triamine. Transmittal of 1 study.
40656201	McLane, H. (1988) Product Specific Data: Turfic IV Weed & Feed with Triamine: Laboratory Project ID EPA/HRM/47056-N.PC1. Unpublished study prepared by H.R. McLane, Inc. 4 p.
40656300	H.R. McLane, Inc. (1988) Submission of Chemistry Data to Support the New Registration for Turfic III Weed & Feed with Triamine. Transmittal of 1 study.
40656301	McLane, H. (1988) Product Specific Data: Turfic III Weed & Feed with Triamine. Unpublished study prepared by H. R. McLane, Inc. 4 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DP

MRID	CITATION
40656400	H.R. McLane, Inc. (1988) Submission of Chemistry Data to Support the New Registration for Turfic II Weed & Feed with Triamine. Transmittal of 1 study.
40656401	McLane, H. (1988) Product Specific Data: Turfic II Weed & Feed with Triamine. Unpublished study prepared by H. R. McLane, Inc. 4 p.
40755500	Gilmore, Inc. (1988) Submission of Product Chemistry to Support the Registration for Visko-Rhap LV 2D-1DP. Transmittal of 1 study.
40755501	Fisher, R. (1988) Product Chemistry of Visko-Rhap LV 2D-1DP. Unpublished study prepared by Gilmore, Inc. 4 p.
0791200	PBI/Gordon Corp. (1988) Submission of Data To Support the Application for Registration of Trimec 937 Herbicide: Product Chemistry and Toxicology Data. Transmittal of 7 studies.
40791201	Cahoy, R. (1988) Trimec 937--Product Chemistry Data. Unpublished study prepared by PBI/Gordon Corp., Formulation Laboratory. 7 p.
40955600	BASF Corp. (1988) Submission of Data To Support the Application for Registration of Dichlorprop-p: Toxicology Data. Transmittal of 9 studies.
40955601	Dattilo, D. (1988) Product Chemistry Data for Dichlorprop-p: Document No. BASF: 88/5108. Unpublished study prepared by BASF Ag. 46 p.
40956600	BASF Corp. (1988) Submission of Chemistry and Toxicity Data in Support of Dichlorprop. Transmittal of 7 studies.
40956601	Dattilo, D. (1988) Product Chemistry Data for Dichlorprop: Registration Document No. BASF: 88 5072. Unpublished compilation prepared by BASF Aktiengesellschaft. 88 p.
41058000	Chas. H. Lilly Co. (1989) Submission of Data To Support Registration of Lilly/Miller Ultragreen Weed & Feed with Trimec Herbicide: Product Chemistry Data. Transmittal of 1 study.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DP

MRID	CITATION
41058001	Klettke, M. (1989) Lilly/Miller Ultragreen Weed & Feed with Trimec Herbicide: Product Chemistry Data. Unpublished study prepared by Chas. H. Lilly Co. 37 p.
41065500	Master Nursery's Association (1989) Resubmission of Data To Support Registration of 49'er Weed Control and Lawn Fertilizer 25-5-3: Product Chemistry Data. Transmittal of 1 study.
41065501	Strong, L. (1989) Product Chemistry Data: 49'er Weed Control and Lawn Fertilizer 25-5-3. Unpublished study prepared by Master Nurserymen's Association. 56 p.
41079900	Rhone-Poulenc Ag Co. (1989) Submission of Data To Support Registration of 2,4-DP Technical: Product Chemistry Data. Transmittal of 1 study.
41079901	Buddle, G. (1988) Product Chemistry Data Requirements Under EPA Pesticide Assessment Guidelines Dated October 1982 2-(2,4-Dichlorophenoxy)propionic Acid 2,4-DP Technical Acid. Unpublished study prepared by May & Baker Ltd. 149 p.
41082300	BASF Corp. (1989) Submission of Product Chemistry Data to Support the Registration of 2,4-DP-P Acid Tech. Transmittal of 1 study.
41082301	Ohnsorge (1989) Analysis of Dichloroprop-P for Polychlorinated Dibenzo Dioxins (PCDD's) and Polychlorinated Dibenzofurans (PCDF's): Registration Document No. BASF 89/5039. Unpublished study prepared by BASF Aktiengesellschaft. 35 p.
41082302	Dattilo, D. (1989) Product Chemistry Data for Dichloroprop-P: Registration Document No. 89/5040. Unpublished study prepared by BASF Aktiengesellschaft. 10 p.
41088100	Rhone-Poulenc Ag Co. (1989) Submission of Manufacturing Process Data in Support of Technical 2,4-DP and Technical MCPA Registration Standard. Transmittal of 1 study.
41088101	Beale, R. (1989) Method of Manufacture for 2,4-DP IOE Technical and Process Flow Diagram for 2,4-DP and MCPA Acid Technical. Unpublished Study Prepared by Rhone-Poulenc Ltd. 7 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DP

MRID	CITATION
41140100	A.H. Marks and Co., Ltd. (1989) Submission of Data To Support Registration of Product Containing 2-(2,4-dichlorophenoxy) propionic Acid (2,4-DP): Product Chemistry Data. Transmittal of 1 study.
41140101	Hardwick, F. (1989) Product Chemistry for Marks 2,4DP Technical Acid. Unpublished study prepared by A. H. Marks & Co., Ltd. 26 p.
41318300	2,4-DP 1988 Task Force (1989) Submission of Chemistry Data in Support of 2,4-DP Registration Standard. Transmittal of 1 study.
41318301	Buddle, G.; Fitzmaurice, M.; Patel, P.; et al. (1989) Herbicides: Phenoxyalkanoic Acids: 2,4-DP: Analytical Examination of 5 Batches of 2,4-DP Technical, intended as components of the TPH Committee Composite Sample: Lab Project Number: ACD/GCB/SSK/5502. Unpublished study prepared by Rhone-Poulenc Ag. 51 p.
41478700	Riverdale Chemical Co. (1990) Submission of Product Chemistry and Toxicological Data to Support the Registration of Riverdale Dri-Tri Amine. Transmittal of 8 studies.
41478701	Sawyer, R. (1990) Product Chemistry: Riverdale Weeddestroy (R) Dri-Tri Amine. Unpublished study prepared by Riverdale Chemical Co. 20 p.
41478708	Stevens, J. (1990) Nitrosamine Analysis: Riverdale Dri-Tri Amine: Lab Project Number: 5450-6195. Unpublished study prepared by Thermedics, Inc. 17 p.
41527500	Rhone- Poulenc Ag Company (1990) Submission of product chemistry data in response to a dioxin/dibenzofuran data call-in. Transmittal of 1 study.
41527501	Scarborough, D. (1990) DPD-Amine Herbicide: Product Identity and Composition: Lab Project Number: 40781. Unpublished study prepared by Rhone-Poulenc Ag. Co. 64 p.
41560600	Howard Johnson's Enterprises, Inc. (1990) Submission of product chemistry data to support the registration of "...Weed and Feed" containing MCPA. Transmittal of 1 study.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DP

MRID	CITATION
41560601	Sawyer, R. (1990) Product Chemistry: Howard Johnson's Enterprises, Inc. All Seasons Sprayable Weed and Feed: Lab Project Number: 32802-45. Unpublished study prepared by Riverdale Chemical Co. 16 p.
41855700	Rhone-Poulenc Ag., Ltd. (1991) Submission of product chemistry data to support the registration standard for 2,4-D. Transmittal of 1 study.
41855701	Buddle, G.; Mills, E. (1991) 2,4-Dichlorophenoxyacetic Acid (2,4-D) Physical and Chemical Characteristics: Density and Stability (Supplement to MRID 41599401): Lab Project Number: P-91-016. Unpublished study prepared by Rhone-Poulenc Ag., Ltd. 27 p.
41960900	A.H. Marks and Co. (1991) Submission of product chemistry data in response to EPA's June 1987 dioxin/furan data call-in for 2,4-DP. Transmittal of 8 studies.
41960901	Landvoigt, W. (1990) Analysis of DD/DF in 2,4-DP Acid for A. H. Marks: Lab Project Number: KNR. 2954372 S: KNR. 2954375 S: KNR 29-5374 S. Unpublished study prepared by Chemserv Industrie Service Ges.m.b.H. 82 p.
41960902	Landvoigt, W. (1990) Analysis of DD/DF in 2,4-DP Acid for A. H. Marks: Lab Project Number: KNR. 2954372. Unpublished study prepared by Chemserv Industrie Service Ges.m.b.H. 58 p.
41960903	Landvoigt, W. (1990) Analysis of DD/DF in 2,4-DP Acid for A. H. Marks: Lab Project Number: KNR. 2954373. Unpublished study prepared by Chemserv Industrie Service Ges.m.b.H. 60 p.
41960904	Landvoigt, W. (1990) Analysis of DD/DF in 2,4-DP Acid for A. H. Marks: Lab Project Number: KNR. 29554374. Unpublished study prepared by Chemserv Industrie Service Ges.m.b.H. 55 p.
41960905	Landvoigt, W. (1990) Analysis of DD/DF in 2,4-DP Acid for A. H. Marks: Lab Project Number: KNR. 2954375. Unpublished study prepared by Chemserv Industrie Service Ges.m.b.H. 56 p.
41960906	Landvoigt, W. (1990) Analysis of DD/DF in 2,4-DP Acid for A. H. Marks: Lab Project Number: KNR. 2954376. Unpublished study prepared by Chemserv Industrie Service Ges.m.b.H. 53 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DP

MRID	CITATION
41960907	Landvoigt, W. (1990) Analysis of DD/DF in 2,4-DP Acid for A. H. Marks: Lab Project Number: KNR. 2954377. Unpublished study prepared by Chemserv Industrie Service Ges.m.b.H. 52 p.
41960908	Landvoigt, W. (1990) Analysis of DD/DF in 2,4-DP Acid for A. H. Marks: Lab Project Number: KNR. 2954378. Unpublished study prepared by Chemserv Industrie Service Ges.m.b.H. 56 p.
42105500	Riverdale Chemical Co. (1991) Submission of Data To Support Registration of Riverdale Dissolve: Product Chemistry. Transmittal of 1 study.
42105501	Sawyer, R. (1990) Product Chemistry: Riverdale Dissolve: Lab Project Number: DRI/TRI/TRIAMINE/W/S. Unpublished study prepared by Riverdale Chemical Co. 8 p.
42138500	PBI/Gordon (1991) Submission of product chemistry and toxicity data to support the registration of EH 1068 and EH 1073 Trimec Esters. Transmittal of 8 studies.
42138501	Armbruster, J. (1991) EH 1068 Trimec Ester: Product Identity, Composition and Certification of Limits. Unpublished study prepared PBI/Gordon Corp. 8 p.
42138502	Hart, J. (1991) EH 1068 Trimec Ester: Chemical and Physical Properties: Lab Project Number: PBG-01. Unpublished study prepared by DARTEC, Inc. 60 p.
42138600	PBI/Gordon Corp. (1991) Submission of product chemistry and toxicity data to support the registration of EH 1068 and EH 1073 Trimec Esters. Transmittal of 8 studies.
42138601	Armbruster, J. (1991) EH 1073 Trimec Ester Product Identity, Composition and Certification of Ingredient Limits. Unpublished study prepared by PBI/Gordon Corp. 7 p.
42138602	Hart, J. (1991) EH 1073 Trimec Ester Chemical and Physical Properties: Lab Project Number: PBG-02. Unpublished study prepared by DARTEC, Inc. 59 p.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DP

MRID	CITATION
42149600	Riverdale Chemical Co. (1992) Submission of product chemistry and toxicity data to support the registration of Triamine Premium Granular Weed Killer. Transmittal of 7 studies.
42149601	Sawyer, R. (1990) Product Chemistry: †Riverdale Triamine Premium Granular Weed Killer . Unpublished study prepared by Riverdale Chemical Co. 19 p.
42149607	Bresnahan, J. (1991) Nitrosamine Analysis: †Triamine Premium Weed and Feed : Lab Project Number: 5450-6985. Unpublished study prepared by Thermedics, Inc. 30 p.
42212100	Riverdale Chemical Co. (1992) Submission of product chemistry and toxicity data in support of registration of Riverdale Sweet Sixteen Weed and Feed with Dissolve. Transmittal of 6 study.
42212101	Sawyer, R. (1991) Riverdale Sweet Sixteen Weed and Feed with Dissolve: Product Chemistry: Lab Project Number: SWEET SIXTEEN WEED A. Unpublished study prepared by Riverdale Chemical Co. 14 p.
42240200	Riverdale Chemical Co. (1992) Submission of Data To Support Application for Registration of Riverdale Sweet Sixteen Weed and Feed with Dissolve: Product Chemistry Study. Transmittal of 1 study.
42240201	Bresnahan, J. (1992) Nitrosamine Analysis: Riverdale Sweet Sixteen Weed & Feed with Dissolve: Lab Project Number: 5450-7922. Unpublished study prepared by ThermedeTec Inc. 21 p.
42258800	Riverdale Chemical Co. (1992) Submission of Data To Support Application for Riverdale Dissolve Weed and Feed Registration: Product Chemistry Study. Transmittal of 1 study.
42258801	Sawyer, R. (1992) Product Chemistry: Riverdale Dissolve Weed and Feed. Unpublished study prepared by Riverdale Chemical Co. 15 p.
42264700	Riverdale Chemical Co. (1992) Submission of product chemistry and toxicity data in support of registration of Riverdale Dri D + DP Amine. Transmittal of 7 studies.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DP

MRID	CITATION
42264701	Sawyer, R. (1992) Product Chemistry: Riverdale Dri D + DP Amine: Lab Project Number: DRI D + DP AMINE. Unpublished study prepared by Riverdale Chemical Co. 18 p.
42264707	Stevens, J. (1990) Nitrosamine Analysis: Riverdale Dri-D + DP Amine: Lab Project Number: 5450-6298. Unpublished study prepared by Thermedics, Inc. 18 p.
42420700	PBI Gordon Corp. (1992) Submission of supplementary product chemistry data to support the registration of EH 1068 and 1073 Trimec Ester. Transmittal of 2 studies.
42420701	Savage, J. (1992) Supplemental Report: EH 1068 Trimec Ester: Lab Project Number: PBG-01. Unpublished study prepared by Dartec Labs, Inc. 39 p.
42420702	Savage, J. (1992) Supplemental Report: EH 1073 Trimec Ester: Lab Project Number: PBG-02. Unpublished study prepared by Dartec Labs, Inc. 39 p.
42454500	Riverdale Chemical Co. (1992) Submission of product chemistry data in support of the registration of Riverdale Sweet Sixteen Weed and Feed with CL/DAP. Transmittal of 1 study.
42454501	Sawyer, R. (1991) Riverdale Sweet Sixteen Weed and Feed with CL/DAP. Unpublished study prepared by Riverdale Chemical Co. 8 p.
42545000	Riverdale Chemical Company (1992) Submission of product chemistry data in support of the registration of Riverdale Sweet Sixteen Weed and Feed with Dissolve. Transmittal of 1 study.
42545001	Sawyer, R. (1992) Product Chemistry: Riverdale Sweet Sixteen Weed and Feed with Dissolve. Unpublished study prepared by Riverdale Chemical Co. 8 p.
42676800	Chevron Chemical (1993) Submission of product chemistry data in support of the Ortho Triamine Jet Weeder registration. Transmittal of 1 study.

ENVIRONMENTAL PROTECTION AGENCY
PROGRAM MANAGEMENT AND SUPPORT DIVISION
PESTICIDE DOCUMENT MANAGEMENT SYSTEM (PDMS)

MRID SEQUENCE BIBLIOGRAPHY

24 DP

MRID

CITATION

MRID	CITATION
42676801	Wong, D. (1992) Ortho Triamine Jet Weeder Product Chemistry: Lab Project Number: 92007. Unpublished study prepared by Chevron Chemical Co. 41 p.
42804300	Riverdale Chemical Co. (1993) Submission of product chemistry data in support of the registration for Riverdale Dissolve 4000 Weed and Feed. Transmittal of 1 study.
42804301	Sawyer, R. (1993) Product Chemistry: Riverdale Dissolve 4000 Weed and Feed: Lab Project Number: DISSOLVE 4000 WEED AND FEED. Unpublished study prepared by Riverdale Chemical Co. 8 p.

EPA

TSCA 8(D) AND 4(A) DOCKET INDEX

REFERENCES OF INTEREST

<u>PAGE</u>	<u>SUBJECT</u>
86	MARCH 4, 1986 public meeting on dioxins/furans; attendees included American Petroleum Institute. Transcript of proceedings. Subject: Proposed testing and reporting requirements.
93	April 20, 1988, Protocol Review Panel Teleconference; documents list A. Dupuy, R. Harless & D. Firestone, minutes of meeting May 4, 1988, Midwest Research Institute.
95	July 27, 1988, August 17, 1988 meetings of Protocol Review Panel meetings; attendees include Dow, FDA, Mobil, Ethyl.
98	March 1, 1989 Protocol Review Panel meeting; attendees include GE Plastics Company; Dow, FDA, Ethyl, NIOSH. Subject: Exposure issues and protocol reviews.
102	September 8, 1989; Protocol Review Panel teleconference; attendees: EPA, Midwest Research Institute; Lockheed; FDA; subject includes analytical problems with Chloranil.
113	Dow: Direct testimony of David T. Buzzelli in 2,4,5-T proceedings; Exhibit 810 in re: The Dow Chemical Co. et al; Docket Nos. 415 et al, September 30, 1980.
116	February 11, 1985 Formation of the Dioxins;Furan Work Group.
118	List of Workgroup members March 1985; April 12, 1985 meeting notice and agenda
119	Work group: Appendix A -- Chemicals contaminated, potentially contaminated, and/or precursors to contamination with chlorinated and brominated dibenzodioxins (DBDs) and dibenzofurans (DBFs) April 12, 1985
122	January 13, 1986 letter from NIEHS to D. Barnes re: the revised draft of the CDD and CDF position document.
129	January 15, 1987, letter from EDF, Ellen Silbergeld & R.

- Percival to J. Moore, EPA, re: settlement among Vulcan Materials, EPA, & Idacon, Inc., with respect to dioxin contamination of PCP.
- 130 June 26, 1987 letter from General Electric Company to EPA, re: request for clarification of final rule.
- 131 Monsanto (July 21, 1987); Kirkland & Ellis (July 29, 1987); American Paper Institute/NFPA (August 3, 1987) requests for clarification of final rule.
- 132 August 20, 1987 Rhone-Poulenc, Inc., test results on imported 2,4-dichlorophenol.
- 134 September 2, 1987, Dow Intent to conduct testing on 2,4-dichlorophenol.
- 135 September 2, 1987, Dow "Request for waiver from testing all compounds except 2,4-Dichlorophenol".
- 140 January 29, 1988, General Electric Company Summary of ongoing or proposed testing.
- 150 September 2, 1988, Dow Final protocol submission.
- 153 May 4, 1990, Triangle Labs., Inc. FOIA request with enclosure containing the EPA audit chronology.
- 163 April 3, 1986 Monsanto analysis of brominated diphenyl oxides for brominated dibenzofurans.
- 165-76 October 5, 1987 Dow Chemical submission of 41 studies (published & unpublished)
- 166 Dow cohort mortality study of chemical workers
- 167 Kociba June 10, 1986, Analysis of the animal toxicity studies of 2,3,7,8-TCDD used in derivation of lifetime exposure control limit recommendations for humans.
- 175 undated Analysis on 2,4-Dichlorophenol to determine HDD/HDF presence
- 176 Dow studies in progress, revised, October 5, 1987
- 181 December 23, 1987, General Electric Company, Pyrolytic formation of polybrominated dibenzodioxins and polybrominated dibenzofurans;
- Monsanto December 22, 1987, Dibenzofuran in diphenyl oxide and the relationship to brominated dibenzofurans

in brominated diphenyl oxide.

- 183 October 5, 1987, Rohm & Haas, Analysis of Dow and Rhodia 2,4-dichlorophenol (sanitized); Analysis of [] and 2,4-DCP for 1,3,6,8-TCDD and 2,3,7,8-TCDD and of 2,4-DCP for 2,4,6-TCP and 2,4,5-TCP (sanitized); Results of analyses for 2,7-dichlorodibenzo-p-dioxin (sanitized)
- Rhone-Poulenc, 2,4-Dichlorophenol test results
- 184 September 30, 1987 Standard Chlorine of Delaware, Inc. submission
- 185 September 1987 EPA Guidelines for the determination of halogenated dibenzo-p-dioxins and dibenzofurans in commercial products.
- 187-88 July 1, 1988 Dow submissions on sampling protocols
- 198 September 12, 1988 internal EPA action memorandum on Dow protocol on 2,4-dichlorophenol.
- 200 December 14, 1988 EPA Charter of the dioxin/furan protocol review panel
- 210 June 7, 1989 Dow, Final report of the determination of halogenated dibenzo-p-dioxins and dibenzofurans in 2,4-dichlorophenol.
- 224 February 10, 1989 Dow protocol for determination of halogenated dibenzo-p-dioxins and dibenzofurans in 2,4-dichlorophenol.
- 247 February 4, 1985 Dow Analysis of 2,4-Dichlorophenol for the presence of 2,3,7,8-TCDD.
- 257 February 6, 1989 EPA Draft panel recommendations for revision 1 of the Dow protocol submitted for 2,4-dichlorophenol under the EPA TSCA Section 4 Dioxin/Furan rule. Midwest Research Institute.
- 259 September 1, 1989, Internal EPA memo on the analytical data for 2,4-dichlorophenol submitted by the Dow Chemical Company, with enclosure, letter August 23, 1989 from A. Dupuy on the review of data for 2,4-dichlorophenol submitted by Dow.
- 292 Refers to same Dow analysis as p. 247
- 304 March 19, 1990 "Civil trial on allegations against Dow Chemical Company, Riverdale Chemical Co., Amvac Chemical

Corp., Vertac Chemical Corp., and Rhone-Poulenc, Inc."

- 327 July 16, 1991 Chemical Manufacturers Association letter to EPA on the analytical testing for dioxins in blood samples of certain workers.
- 362 June 10, 1991, Pfister Chemical, Incl, request exclusion from testing 3,4,5-tribromosalicylanilide (TBS)
- 404 EPA health and environmental effects profiles for chlorinated and brominated dioxins and furans (#s 31, 32, 33) 1985
- EPA Drinking Water Criteria Document for 2,3,7,8-TCDD, March 1985.
- 404 EPA 1985, List of chemicals contaminated or precursors to contamination with incidentally generated polychlorinated and polybrominated dibenzodioxins and dibenzofurnas.
- 411 Polybrominated dibenzofurans and dibenzodioxins from the pyrolysis of neat brominated diphenylethers, biphenyls, and plastic mixtures of these compounds. (#31)
- 412 November 4, 1986 letter from Dioxin Toxic Equivalency Methodology Subcommittee to Lee M. Thomas.
- 416 Fingerhut on STS 1984
- 417 Kimbrough 1974, The toxicity of polychlorinated polycyclic compounds and related chemicals.

[Most of the unreferenced pages refer to brominated fire retardants and Chloranil; a few to brominated salicylanilides.]

TABLE OF CONTENTS
POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCKET #83002

- Don't change format again - I expect it to be changed back to what it was*
- A₁ - Decisionmaking Federal Register Notices.
 - A_{1a} - Authentic Federal Register Documents.
 - A₂ - Federal Register Notices Related to the Rule.
 - B_{1a} - Support Documents for Docket #83002.
 - B_{1b} - Support Documents for Docket #83002B.
 - B_{1c} - Support Documents for Docket #83002C.
 - B₂ - Support References for Docket #83002.
 - B₃ - Support References for Docket #83002B.
 - B₄ - Support References for Docket #83002C.
 - C₁ - Public Comments for Docket #83002.
 - C₂ - Public Comments for Docket #83002B.
 - D_{1a} - Meetings for Docket #83002.
 - D_{1b} - Meetings for Docket #83002B.
 - D_{1c} - Meetings for Docket #83002C.
 - D_{1d} - Meetings Following Docket #83002C.
 - D_{2a} - Legal Proceedings for Docket #83002.
 - D_{2b} - Legal Proceedings for Docket #83002B.
 - D_{2c} - Legal Proceedings for Docket #83002C.
 - D_{3a} - Hearings for Docket #83002.
 - D_{3b} - Hearings for Docket #83002B.
 - D_{3c} - Hearings for Docket #83002C.
 - D_{3d} - Hearings Following Docket #83002C.
 - E_{1a} - Written Communications for Docket #83002.
 - E_{1b} - Written Communications for Docket #83002B.

E1c - Written Communications for Docket #83002C.

E1d - Written Communications Following Docket #83002C.

E2a - Telephone Communications for Docket #83002.

E2b - Telephone Communications for Docket #83002B.

E2c - Telephone Communications for Docket #83002C.

E2d - Telephone Communications Following Docket #83002C.

E3a - Petitions for Docket #83002.

E3b - Petitions for Docket #83002B.

F1 - Documents Received Following Decision of December 19, 1985; Docket #83002.

G1 - Documents Received Following Decision of October 23, 1986; Docket #83002B.

H1.0 - Documents Received Following Decision of June 5, 1987; Docket #83002C, for 1987 Only.

H1.1 - Documents Received Following Decision of June 5, 1987; Docket #83002C, for 1988 Only.

H1.2 - Documents Received Following Decision of June 5, 1987; Docket #83002C, for 1989 Only.

H1.3 - Documents Received Following Decision of June 5, 1987; Docket #83002C, for 1990 Only.

H1.4 - for 1991 only.
H1.5 H1a - Exclusion/Waiver Request and Response From Testing Requirements for Supelco, Inc.; Docket #83002D and #83002F.

H1b - Exclusion/Waiver Requests and Responses From Testing Requirements for Aldrich Chemical Co., Ameribrom, Inc. Atochem, Inc., Pfister Chemical, Inc., Sigma Chemical Corp., Great Lakes Chemical Corp. and Ethyl Corp.; Docket #83002E, #83002G and #83002H.

H1c - Exclusion/Waiver Request and Response From Testing Requirements for Rohm and Haas Co.; Docket #83002I.

H1d - Modification and Amendment Requests and Responses from October 1988 to October 1990; Docket #40020/83002J.

H2 - Receipt of Test Data; Docket #44544, December 21, 1989.

H1e - Modification and Amendment Requests and Responses from October 1990 to December January 1991; Docket #

H1e H1e - Exclusion/Waiver Requests and Responses From Testing Requirements for ICI American, Inc. Rohm - Pauline Inc. and Pfister Chemical, Inc.; Docket #83002K and #20472

see next page

H₃ - Receipt of Test Data; Docket #44546, February 1, 1990.

H₄ - Receipt of Test Data; Docket #44552, May 30, 1990.

Note: Files H_{1.0}, H_{1.1}, H_{1.2}, ~~and~~ ^{and H_{1.4}} H_{1.3} are Listed
Alphabetically.

after H_{1.6}

#,g - Modification and Amendment Requests and
Responses from January 1992 to January
1993; Docket #

Chemicals for the Dioxin/Furan Docket

CAS NO.	CHEMICAL NAME
-----	Alkylamine tetrachlorophenate
25327-89-3	Allyl ether of tetrabromobisphenol-A
37853-61-5	Bismethyl ether of tetrabromobisphenol-A
37853-59-1	1,2-Bis(tribromophenoxy)ethane
1940-42-7	4-Bromo-2,5-dichlorophenol
1163-19-5	Decabromodiphenyloxide
99-28-5	2,6-Dibromo-4-nitrophenol
615-58-7	2,4-Dibromophenol
2577-72-2	3,5-Dibromosalicylanilide
576-24-9	2,3-Dichlorophenol
120-83-2	2,4-Dichlorophenol
583-76-6	2,5-Dichlorophenol
87-65-0	2,6-Dichlorophenol
95-77-2	3,4-Dichlorophenol
120-36-5	2[2,4-(Dichlorophenoxy)]propionic acid
320-72-9	3,5-Dichlorosalicylic acid
32536-52-0	Octabromodiphenyloxide
32534-81-9	Pentabromodiphenyloxide
608-71-9	Pentabromophenol
3772-94-9	Pentachlorophenyl laurate
79-94-7	Tetrabromobisphenol A
21850-44-2	Tetrabromobisphenol-A-bis-2,3-dibromopropyl ether
4162-45-2	Tetrabromobisphenol-A-bisethoxylate
55205-38-4	Tetrabromobisphenol-A diacrylate
-----	Tetrabromobisphenol B
488-47-1	Tetrabromocatechol
79-95-8	Tetrachlorobisphenol A
87-10-5	3,4,5-Tribromosalicylanilide
118-75-2	2,3,5,6-Tetrachloro-2,5-cyclohexadiene-1,4-dione
118-79-6	2,4,6-Tribromophenol
95-95-4	2,4,5-Trichlorophenol
933-75-5	2,3,6-Trichlorophenol

LISTING OF CONFIDENTIAL BUSINESS
INFORMATION (CBI) DOCUMENTS

(1)	63-880000 ⁰ 93	EPA (S. Hassur)	Review of Testing Exclusion Request from Ameribrom, Inc.	02/05/86
(2)	63-8600 ⁰⁰ 141	Monsanto Company	Analysis of Bromi- nated Diphenyl Oxides for Bromi- nated Dibenzo- furans	04/03/86
(3)	63-880000097	Great Lakes Chemical Corporation	Response to EPA Questions	12/17/86
(4)	40-870000052	Ameribrom, Inc.	Response to EPA's Request for Additional Information	02/03/87
(5)	63-878000149	Ethyl Corporation	Request for Exclusion from Testing	09/01/87
(6)	63-878000146	Great Lakes Chemical Corporation	Request for Exclusion from Testing	09/03/87
(7)	63-878000147	Aldrich Chemical Company	Request for Exclusion and Waiver from Testing	09/03/87
(8)	63-870000104	Ameribrom, Inc.	Request for Exclusion from Testing	09/23/87
(9)	63-870000109	Pfister Chemical Company	_____	09/23/87
(10)	63-870000119	Aldrich Chemical Company	Exclusion/Waiver Support Information	09/28/87
(11)	63-870000117	Sigma Chemical Company	Request for Exclusion/Waiver From Testing	09/28/87

(12)	63-880000063	Midwest Research Institute	Ethyl Corporation	09/29/87
(13)	63-886000001	EPA (K. Wong)	Great Lakes Chemical Corp. and Ethyl Corp.	10/21/87
(14)	63-886000002	EPA (S. Hassur)	Great Lakes Chemical Corp. and Ethyl Corp.	10/21/87
(15)	-----	EPA (S. Hassur)	Recommended Disposition of Testing Exclusion Request (Ameribrom and Great Lakes)	11/12/87
(16)	-----	EPA (S. Hassur)	Recommended Disposition of Testing Exclusion Request (Pfister)	02/02/88
(17)	63-890000005			
(18)	63-900000000 ~~4~~ 9	Hoechst Celanese Corp.	8(a) Production Volume, Use, Import, Exposure, Environmental Release and Disposal Information	07/25/90
(19)	63-900000011	Chugai Boyeki (America) Corp.	8(a) Production Volume, Use, Import, Exposure, Environmental Release and Disposal Information	08/08/90

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DECISIONMAKING FEDERAL REGISTER NOTICES
A₁-FILE

Fiche #

40-8593005	50 FR 51794, USEPA	(1)	513651
	Polyhalogenated Dibenzo-p- Dioxins/Dibenzofurans; Testing and Reporting Requirements.		
	Action: Proposed Rule.		
	December 19, 1985	[83002]	
40-8693006	51 FR 37612, USEPA	(2)	513652
	Testing and Reporting Requirements for Polyhalogenated Dibenzo-p- Dioxins/Dibenzofurans; Addition of Chlorinated and Brominated Benzenes to List of Precursor Chemicals.		
	Action: Amendment to Proposed Rule.		
	October 23, 1986	[83002B]	
40-8793161	52 FR 21412, USEPA	(3)	513653
	Polyhalogenated Dibenzo-p- Dioxins/Dibenzofurans; Testing and Reporting Requirements.		
	Action: Final Rule.		
	June 5, 1987	[83002C] →	

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
AUTHENTIC FEDERAL REGISTER DOCUMENTS
A_{1a}-FILE

Fiche #

40-8693007	U.S. Environmental Protection Agency	(1)	513654
	<u>Polyhalogenated Dibenzo-p-Dioxins/ Dibenzofurans; Testing and Reporting Requirements; Open Meeting. Action: Notice of Open Meeting. OPTS-83002A; 40 CFR Part 766. April 3, 1986</u>		
40-8793203	U.S. Environmental Protection Agency	(2)	513655
	<u>Polyhalogenated Dibenzo-p-Dioxins/ Dibenzofurans; Testing and Reporting Requirements Action: Final Rule. OPTS-83002C. June 1987</u>		
40-8793185	U.S. Environmental Protection Agency	(3)	513656
	<u>Receipt of Request for Exclusion From/ Waiver of Testing of Ethyl Corporation and Great Lakes Chemical Corporation. Action: Notice of Receipt of Requests for Exclusion/Waiver of Testing Requirements. OPTS-83002E. September 27, 1987</u>		
40-8793221	U.S. Environmental Protection Agency	(4)	513657
	<u>Receipt of Request for Exclusion From/ Waiver of Testing of Certain Chemical Companies. Action: Notice of Receipt of Requests for Exclusion/Waiver of Testing Requirements. OPTS-83002G. October 23, 1987</u>		

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
AUTHENTIC FEDERAL REGISTER DOCUMENTS
A_{1a}-FILE

Fiche #

40-8893238 U.S. Environmental Protection Agency (5) 513658

Notice of Decision on Exclusion/Waiver
Applications of Seven Companies.

Action: Notice of Decision on ~~Exclusion~~/
~~Exclusion~~/Waiver Requests. OPTS-83002H.

→ 83002H,
February 2, 1988

40-8893239 U.S. Environmental Protection Agency (6) 513659

Receipt of Request for Waiver of ~~Testing~~
~~Testing~~ of Rohm and Haas Co. Action: ~~Notice of~~
~~Notice of~~ Receipt of Request for Waiver ~~of Testing~~
~~of Testing~~ Requirements. OPTS-83002I.
April 21, 1988

40-9093424 U.S. Environmental Protection Agency (7) 524800

TSCA Chemical Testing; Receipt of Test
Data. Action: Notice. OPTS-44546.
January 25, 1990

40-9093463 U.S. Environmental Protection Agency (8) 533311

TSCA Chemical Testing; Receipt of Test
Data. Action: Notice. OPTS-44552.
May 17, 1990

40-909352/ U.S. EPA (9) 533312
Technical Amendments to Test
Rules and Consent Orders.
Action: Final Rule. OPTS-40020/83002J.
May 14, 1991

A_{1a}-2

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
AUTHENTIC FEDERAL REGISTER DOCUMENTS
A_{1a}-FILE

40-919356/ U.S. EPA

(10) Fiche #
533313

Receipt & Requests for
Exclusion from Testing
from Three Chemical
Companies . Action:
Nature of Receipt . OPTS-

83002K.

June 14, 1991

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
FEDERAL REGISTER NOTICES RELATED TO THE RULE
A₂-FILE

Fiche #

40-8393008	48 FR 48434, USEPA 2,4,5-T and Silvex Products; Intent to Cancel Registrations ~~tions~~ of Pesticide Products Containing 2,4,5-T and <i>Levex</i> ; ~~Silvex~~ , Revocation of Notices ~~of~~ Intent to Hold a Hearing <i>to</i> ~~to~~ Determine Whether Certain <i>Uses</i> ~~Uses~~ of 2,4,5-T or Silvex <i>should be</i> ~~Should Be~~ Cancelled. Action: Notice of Intent to Cancel Registrations; Revocation of Notices of Intent to Hold a Hearing. October 18, 1983 [OPP-66103] →	(1)	513660
40-8493009	49 FR 5831, USEPA Water Quality Criteria; Availability of Document. Action: Notice of Final Ambient Water Quality Criteria Document. February 15, 1984 [OW-FRL-2522-2] →	<i>Exposed</i> (2)	513661

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
FEDERAL REGISTER NOTICES RELATED TO THE RULE
A₂-FILE

Fiche #

40-8493010 49 FR 28666, USEPA

(3) 513662

Creosote, Pentachlorophenol,
and Inorganic Arsenicals;
Intent to Cancel Registrations
~~tions~~ of Pesticide Products
Containing Creosote,
Pentachlorophenol (Including
its Salts) and the Inorganic
Arsenicals; Determination
Concluding the Rebuttable
Presumption Against
Registration of the Wood
Preservative Uses of ~~Pesticide~~ *Pesticide*
~~Pesticide~~ Products; *Availability*
Availability of Position ~~Document~~ *Document*
~~Document~~.

Action: Notice of Intent to
Cancel, Notice of Determination;
~~tion~~, Notice of Availability
~~of~~ Position Document.

July 13, 1984

[OPP-30000/28F; }
PH-FRL 2630-4] →

40-8593011 50 FR 1978, USEPA

Supra
(4)

513663

Hazardous Waste Management
System; Dioxin-Containing
Wastes.

Action: Final Rule.

January 14, 1985

[SWN-FRL 2701-3] →

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
FEDERAL REGISTER NOTICES RELATED TO THE RULE
A₂-FILE

Fiche #

40-8693012 51 FR 2736, USEPA (5) 513664

Polyhalogenated Dibenzo-p-
Dioxins/Dibenzofurans; *Testing*
~~Testing~~ and Reporting
Requirements.

Correction.

January 21, 1986

[83002] *is apas*

40-8693013 51 FR 12344, USEPA (6) 513665

toxic and open
Toxic Substances; Polyhaloge-
nated Dibenzo-p-~~dioxins~~
Dibenzofurans; Testing ~~and~~
Reporting Requirements; ~~Open~~
Meeting.

Action: Notice of Open
Meeting.

April 10, 1986

[83002A] *[scribble]*

40-8793205 52 FR 30430, USEPA (7) 513666

Receipt of Request for Waiver
of Testing of Supelco, Inc.

Action: Notice of Receipt of
Request for Waiver of Testing
Requirements.

August 14, 1987

[83002D]

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
FEDERAL REGISTER NOTICES RELATED TO THE RULE
A₂-FILE

Fiche #

40-8793230 52 FR 37009, USEPA

(8) 513667

*Excluded
Testing
Great*
Receipt of Request for ~~Exclusion~~
From/Waiver of ~~Testing~~
of Ethyl Corp. and ~~Green~~
Lakes Chemical Corp.

Action: Notice of Receipt of
Requests for Exclusion/Waiver
of Testing Requirements.

October 2, 1987

[83002E]

40-8793235 52 FR 39703, USEPA

(9) 513668

Decision on Waiver *Application*
~~Application~~ of Supelco, Inc.

Action: Decision on Waiver
Request.

October 23, 1987

[83002F]

40-8793222 52 FR 43250, USEPA

(10) 513669

Receipt of Request for
Exclusion From/Waiver of
Testing of Certain Chemical
Companies.

Action: Notice of Receipt of
Requests for Exclusion/Waiver
of Testing Requirements.

November 10, 1987

[83002G]

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
FEDERAL REGISTER NOTICES RELATED TO THE RULE
A₂-FILE

Fiche #

40-8893231	53 FR 3938, USEPA	(11)	513670
	Toxic and Hazardous <i>Substances</i> ~~Substances~~ Control; Decision <i>on</i> ~~on~~ Exclusion/Waiver <i>Applications</i> ~~Applications~~ of Seven <i>Companies</i>; <i>Aldrich</i> ~~Companies~~; <i>Aldrich Chemical</i> Co. et al. Action: Notice of Decision on Exclusion/Waiver Requests. February 10, 1988 [83002H]		
40-8893232	53 FR 15282, USEPA	(12)	513671
	Receipt of Request for Waiver of Testing of Rohm and Haas Co. Action: Notice of Receipt of Request for Waiver of Testing Requirements. April 28, 1988 [83002I]		
40-9390420	54 FR 52449, USEPA	(13)	524801
	TSCA Chemical Testing; Receipt of Test Data. Action: Notice. December 21, 1989 [44544]→		

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
FEDERAL REGISTER NOTICES RELATED TO THE RULE
A₂-FILE

Fiche #

40-9390419

55 FR 3482, USEPA

(14)

524802

TSCA Chemical Testing;
Receipt of Test Data.

Action: Notice.

February 1, 1990

[44546]

40-9093464

55 FR 21934, USEPA

(15)

533314

TSCA Chemical Testing;
Receipt of Test Data.

Action: Notice.

May 30, 1990

[44552]

Just 16 →

40-9193536

56 FR 32208, USEPA

(16)

533316

*Receipt of Request for
Exclusion from Testing
from Three Chemical
Companies.*

Action: Notice of Receipt.

July 15, 1991

[83002K]

(17)

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
~~DECISIONMAKING FEDERAL REGISTER NOTICES~~
A₂-FILE

(16)
~~17~~

Fiche

40-9193522 56FR 23228, USEPA

533315

Technical Amendments
to Test Rules and Consent
Orders.

Action: Final Rule.

May 31, 1991 [40020/830025]

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT DOCUMENTS FOR DOCKET #83002
B_{1a}-FILE

Fiche #

40-8593014	U.S. Environmental Protection Agency <u>Health Assessment Document for Poly</u> ~~chlorinated~~ ^{chlorinated} <u>Dibenzo-p-Dioxins.</u> (Final) September 1985	(1)	513672
40-8593015	U.S. Environmental Protection Agency <u>Economic Analysis for Requirement Under TSCA Section 8(d) for Submission of Unpublished Health and Safety Studies for Chemicals Potentially Contaminated with Polyhalogenated Dibenzo-p-Dioxins and Polyhalogenated Dibenzofurans.</u> October 1985	(2)	513673
40-8593016	U.S. Environmental Protection Agency <u>Economic Analysis of Proposed Call-In Under TSCA Section 8(c) of Allegations of Significant Adverse Reactions for Chemicals Potentially Contaminated with Polyhalogenated Dibenzo-p-Dioxins and Polyhalogenated Dibenzofurans.</u> October 1985	(3)	513674
40-8593017	U.S. Environmental Protection Agency <u>Economic Analysis of Proposed Section 8(a) Reporting Rule for Chemicals Potentially Contaminated with Polyhalogenated Polyhalogenated Dibenzo-p-Dioxins and Polyhalogenated Dibenzofurans.</u> October 1985	(4)	513675

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT DOCUMENTS FOR DOCKET #83002
B_{1a}-FILE

Fiche #

40-8593018 U.S. Environmental Protection Agency (5) 513676

Economic Analysis of Proposed Section 4
Testing Rule for Chemicals Potentially
Contaminated with Polyhalogenated
Dibenzo-p-Dioxins and Polyhalogenated
Dibenzofurans.
October 1985

B_{1a}-2

20489. 19

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT DOCUMENTS FOR DOCKET #83002C
B_{1c}-FILE

Fiche #

40-8593014	U.S. Environmental Protection Agency <u>Health Assessment Document for <i>Polychloro-</i> <i>Polychlorinated</i> Dibenzo-p-Dioxins. (<i>Final</i>)</u> <i>(Final)</i> September 1985 [Crossreferenced to B _{1a} (1)]	(1)	513672
40-8693157	U.S. Environmental Protection Agency <u>Economic Analysis of Final Section 8(a) Reporting Rule for Chemicals <i>Potentially</i> <i>Potentially</i> Contaminated With <i>Polyhalogenated</i> Dibenzo-p-Dioxins and <i>Polyhalogenated</i> Dibenzofurans.</u> December 1986	(2)	513678
40-8693158	U.S. Environmental Protection Agency <u>Economic Analysis for Requirement Under TSCA Section 8(d) for Submission of Unpublished Health and Safety Studies for Chemicals Potentially Contaminated with Poly-halogenated Dibenzo-p-Dioxins and Polyhalogenated Dibenzofurans.</u> December 1986	(3)	513679
40-8693159	U.S. Environmental Protection Agency <u>Economic Analysis of Final Call-In <i>Under</i> <i>Under</i> TSCA Section 8(c) of Allegations <i>of Sig -</i> <i>of Significant</i> Adverse Reactions for <i>Chemicals</i> <i>Chemicals</i> Potentially Contaminated With <i>Polyhaloge -</i> <i>Polyhalogenated</i> Dibenzo-p-Dioxins and <i>Polyhaloge -</i> <i>Polyhalogenated</i> Dibenzofurans.</u> December 1986	(4)	513680

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT DOCUMENTS FOR DOCKET #83002C
B_{1c}-FILE

Fiche #

40-8793160 U.S. Environmental Protection Agency (5) 513681

Economic Analysis of Final Section 4
Testing Rule for Chemicals Potentially
Contaminated With Polyhalogenated
Dibenzo-p-Dioxins and Polyhalogenated
Dibenzofurans. (Third Draft)

January 1987

40-8793204 U.S. Environmental Protection Agency (6) 513677

Economic Analysis of Final Section 4
Testing Rule for Chemicals Potentially
Contaminated with Polyhalogenated
Dibenzo-p-Dioxins and Polyhalogenated
Dibenzofurans. (Final) (Sanitized)
Mathtech, Inc.
January 1987

B_{1c}-2

20491 21

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

		<u>Fiche #</u>
40-8593019	Agent Orange Work Group ~~on~~ (Cabinet ~~work~~ on Human Resources) Report given to the Domestic Council of the President's Cabinet. October 1985	(1) 513682
40-7993020	Albro, P.W., Luster, M.I., Chae, K., Chaudhary, S.K., Clark, G., Lawson, L.D., Corbett, J.T. and McKinney, J.D. (U.S. Department of Health and Human Services, National Institute of Environmental Health Safety, Research Triangle Park, NC) <u>A Radioimmunoassay for Chlorinated Dibenzo-p-Dioxins.</u> Toxicology and Applied Pharmacology; 50:137-146. 1979	(2) 513683
40-8493021	Bandiera, S., Sawyer, T., Romkes, M., Zmudzka, B., Safe, L., Mason, G., Keys, B. and Safe, S. (Texas A&M University, College of Veterinary Medicine) <u>Polychlorinated Dibenzofurans (PCDFs): Effects of Structure on Binding to the 2,3,7,8-TCDD Cytosolic Receptor Protein.</u> <u>AHH Induction and Toxicity.</u> <u>Toxicology</u> 32:131-144. 1984	(3) 513685
40-8493002	Bellin, J.S. and Barnes, D.G. <u>Health Hazard Assessment for Chlorinated (dated) Dioxins and Dibenzofurans Other Than 2,3,7,8-TCDD.</u> Presented at a <u>Symposium</u> in Cincinnati, Ohio. October 25, 1984	(3a)

[Document Not Provided to Docket]

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

Fiche #

40-7993022	Bradlaw, J.A. and Casterline, J.L. (U.S. Department of Health, Education and Welfare, Food and Drug Administration) <u>Induction of Enzyme Activity in Cell Culture: A Rapid Screen for Detection of Planner Polychlorinated Organic Compounds.</u> J. Assoc. Off. Anal. Chem.; 62(4):904-916. 1979	(4)	513687
40-8593023	Canada Agriculture, Food Production and Inspection Branch Letter from Y.Y. Wigfield to S. Rudzinski, EPA July 15, 1985 Enclosure: (1) <u>Answers to Questions/Issue on the Dioxin/Furan List and Methodology.</u>	(5)	513688
40-8593024	Canada Agriculture, Food Production <i>and</i> ~~and~~ Inspection Branch Letter from Y.Y. Wigfield to S. Rudzinski, EPA, correcting an error in the July 15, 1985 comment letter. July 29, 1985	(6)	513689
40-8593025	Canada Environmental Protection Cover letter from M.J. Boddington to D. Barnes, EPA August 28, 1985 Enclosure: (1) <u>Interim Risk Assessment</u> <i>PCDDs/PCPFs</i> ~~PCDDs/PCPFs~~ Review Comments.	(7)	513690

Fiche #

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

Fiche #

40-8293028 Coggan, D. and Acheson, E.D. (University of Southampton, England) (10) 513693

Occupational Health: Do Phenoxy Herbicides Cause Cancer in Man? *Herbi - Lincet;*
The Lancet, 1(8280):1057-1059.
May 8, 1982

40-8493029 Czuczwa, J.M. and Hites, R.A. (Indiana University) (11) 513695

Environmental Fate of Combustion-Generated Polychlorinated Dioxins and Furans. Environ. Sci. Technol.; 18(6): 1876-1884
June 1984

40-8593030 Dow Chemical USA (12) 513696

Letter from W. Crummett to S. Rudzinski, S. Rudzinski, EPA, commenting on the list of chemicals proposed for testing.
July 15, 1985

Enclosures:

(1) Table I: Parts per Trillion Concentration in Unspiked Human Adipose Tissue.

(2) Table II: Unacceptable Data Points Taken in Human Adipose Tissue Study. *Paints Tissue Study*

40-8593031 Dow Chemical USA (13) 513697

Letter from R.J. Kociba to D. Barnes, EPA, commenting on the "Interim Risk Assessment Procedures for Mixtures of Chlorinated Dibenzodioxins and Dibenzofurans."
August 27, 1985

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

Fiche #

40-8493033 Environmental Defense Fund (14) 513700

Letter from E. Silbergeld to D. Barnes and J. Bellin, EPA, reviewing the draft report "Health Hazard Assessment for CDDs and CDFs Other Than 2,3,7,8-TCDD." September 20, 1984

40-8593035 Environmental Defense Fund (15) 513701

Letter from E. Silbergeld to S. Rudzinski, EPA, commenting on the list of chemicals and the methods for analyzing chemicals.
July 26, 1985

Enclosures:

(1) Letter from D. Sundin, NIOSH, to L. Loy, EDF
July 17, 1985

(a) List of trade name products containing one or more *Silber* ~~Diben~~zofurans/Dibenzodioxins. National Occupational Hazard Survey.

(2) Sachstande Dioxine (Report on Dioxins). (German)
May 1985

[See B₄(12) for Translation]

40-8593036 Environmental Defense Fund (16) 513702

Letter commenting on the latest *Interim* ~~Interim~~ Risk Assessment Procedures for *Mixtures* ~~Mixtures~~ of CDDs and CDFs" (dated July *24, 1985* ~~24, 1985~~) from E. Silbergeld to D. Barnes, EPA.
October 17, 1985

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

Fiche #

40-8393038 Fingerhut, M.A., Halperin, W.E., Honchar, (17) 513704
P.A., Smith, A.B., Groth, D.H. (U.S. Department of Health and Human Services, National Institute for Occupational Safety and Health) and Russell, W.O., (North Ridge General Hospital and Cancer Foundation, Fort Lauderdale, Florida)

Review of Exposure and Pathology Data for Seven Cases Reported as Soft Tissue Sarcoma Among Persons Occupationally Exposed to Dioxin-Contaminated Herbicides. From "Public Health Risks of the Dioxins," proceedings of a symposium held October 19-20, 1983, in N.Y. City; pages 187-203. October 1983

40-8393039 Fingerhut, M.A., Marlow, D.A., Honchar, (17a) 513705
P.A. and Halperin, W.E. (U.S. Department of Health and Human Services, National Institute for Occupational Safety and Health)

The NIOSH Occupational Dioxin Registry. From "Public Health Risks of the Dioxins," proceedings from the symposium held October 19-20, 1983 in N.Y. City; pages 362-366. October 1983

40-8493040 Gierthy, J.F., Crane, D. and Frenkel, (18) 513706
G.D. (N.Y. State Department of Health, Wadsworth Center for Laboratories and Research)

Application of an In Vitro Keratinization Assay to Extracts of Soot From a Fire in a Polychlorinated Biphenyl-Containing Transformer. Fundamental and Applied Toxicology; 4:1036-1041. 1984

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

Fiche #

40-8393041	Hajdu, S.I. (Memorial Sloan-Kettering Cancer Center)	(19)	513708
	<u>Classification and Pathological Diagnosis of Soft Tissue Sarcomas.</u> From "Public Health Risks of the Dioxins," proceedings from the symposium held October 19-20, 1983 in N.Y. City; pages 173-186. October 1983		
40-8593042	Helder, T.H. and Seinen, W. (State University of Utrecht, The Netherlands)	(20)	513710
	<u>Standardization and Application of an E.L.S.-Bioassay for PCDDs and PCDFs.</u> Chemosphere; 14(2):183-193. 1985		
40-8193043	Honchar, P.A. and Halperin, W.E. (U.S. Department of Health and Human ~~Services~~ <i>Services</i> , National Institute for ~~Occupational~~ <i>Occupational</i> Safety and Health)	(21)	513712
	<u>2,4,5-T, Trichlorophenol, and Soft Tissue Sarcoma.</u> The Lancet; 1(8214): 268-269. January 31, 1981		
40-8193044	Hutzinger, O., Olie, K., Lustenhouwer, J.W.A. (University of Amsterdam, The Netherlands) Okey, A.B. (Hospital for Sick Children, Ontario, Canada), Bardiera, S. and Safe, S. (University of Guelph, Canada)	(22)	513713
	<u>Polychlorinated Dibenzo-p-Dioxins and Dibenzofurans: A Bioanalytical Approach.</u> Chemosphere; 10:19-25. 1981		

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

Fiche #

- | | | | |
|------------|---|-------|--------|
| 40-8593045 | <p>Indiana University, School of Public and Environmental Affairs (R.A. Hites)</p> <p>Letter from R. Hites to S. Rudzinski, EPA, in response to EPA's letter of June 20, 1985 requesting a review of the preliminary list of chemicals to be tested and the rationale and analytical standards involved.
July 1, 1985</p> | (22a) | 513711 |
| 40-8593037 | <p>JRC, ISPRA, Italy (S. Facchetti)</p> <p>Response to EPA's request to review the preliminary list of chemicals to be tested for Dioxin/Furan contamination from S. Facchetti to S. Rudinski, EPA. (Telegram)
July 24, 1985</p> | (23) | 513703 |
| 40-7493047 | <p>Kimbrough, R.D. (U.S. Department of Health and Human Services, Center for Disease Control)</p> <p><u>The Toxicity of Polychlorinated Polycyclic Compounds and Related Chemicals.</u> CRC Critical Reviews in Toxicology; pages 445-498.
January 1974</p> | (24) | 513714 |
| 40-8093048 | <p>Knutson, J.C. and Poland, A. (University of Wisconsin)</p> <p><u>Keratinization of Mouse Teratoma Cell Line XB Produced by 2,3,7,8-Tetrachloro-Tetrachlorodibenzo-p-dioxin: An In Vitro Model of Vitro Model of Toxicity.</u> Cell; 22:27-36.
36.
November 1980</p> | (25) | 513716 |

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

Fiche #

40-8293051	McKinney, J., Albro, P., Luster, M. Corbett, B., Schroeder, J. and Lawson, L. (U.S. Department of Health and Human Services, National Institute of Environmental Health Sciences, Research Triangle Park, NC) <u>Development and Reliability of a Radio- immunoassay for 2,3,7,8-Tetrachloro- dibenzo-p-dioxin.</u> From "Chlorinated Dioxins and Related Compounds; Impact on the Environment," proceedings held in Rome, Italy, October 22-24, 1980. 1982	(26)	513718
40-8593053	Monsanto Company Cover letter from F. Hileman to S. Rudzinski, EPA, in response to EPA's request for comments on the preliminary risk of chemicals to be tested and the methodology and analytical standards used. July 18, 1985 Enclosure: (1) <u>Specific Comments on the Documents Sent for Review.</u>	(27)	513720
40-8593054	Natural Resources Defense Council, Inc. Letter from R. Michaels to S. Rudzinski, EPA, responding to EPA's <i>request for</i> ~~request for~~ comments on the preliminary <i>list of</i> ~~list of~~ chemicals chosen to be tested <i>and the</i> ~~and the~~ methodology and analytical <i>standards</i> ~~standards~~ used. July 11, 1985	(28)	513721

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

Fiche #

40-8593055 New York State Office of Public Health (28a) 513707
 (J.F. Gierthy)

Letter from J. Gierthy, to D. Barnes,
EPA, reviewing the document "Interim
Risk Assessment Procedures for Mixtures
of Chlorinated Dibenzodioxins and
Dibenzofurans."
August 28, 1985

40-8593056 New York State Department of Health (28b) 513709
 (J.K. Hawley)

Comment letter on the revised Position
Document of the CDWG concerning the ^{sub}
~~risk~~ assessment procedures from J.K. ^{Hawley}
Hawley to EPA.
August 30, 1985

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

Fiche #

40-8593057

Ontario Environment

(29)

513723

Letter from B. Birmingham to D. Barnes
reviewing the "Interim Risk Assessment
Procedures . . ."
September 3, 1985

Enclosures:

- (1) Report on Combustion Testing *Pro-*
Program at the SWARU Plant, Hamilton-
Hamilton-Wentworth for the Ontario *Ministry*
Ministry of the Environment Air *Resources*
Resources Branch. Envirocon Ltd.
January 1984
- (2) Determination of Chlorinated
Dibenzo-p-Dioxins, Chlorinated
Dibenzofurans, Chlorinated
Biphenyls, Chlorobenzenes and
Chlorophenols in Air Emissions and
Other Process Streams at SWARU in
Hamilton. V. Ozvacic, G. Wong, H.
Al Tosine, R.E. Clement, J. Osborne
J. Osborne and S. Thorndyke.
1984
- (3) Emissions of Chlorinated Organics
From Two Municipal Incinerators in
Ontario. Presented at the 77th
Annual Air Pollution Control *Assoc.*
Assoc. Meeting, June 24-29, 1984 in San
in San Francisco.
June 1984
- (4) Interim Risk Assessment Procedures
for Mixtures of Chlorinated
Dibenzodioxins and Dibenzofurans
(CDDs and CDFs). Chlorinated
Dioxins Workgroup Position *Docu-*
Document. (Updated)
April 1985

[Enclosures (1), (2) and (3) Not *Provided*
Provided to Docket] *v*

B₂-11

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

Fiche #

40-8293058	Poland, A. and Knutson, J.C. (McArdle Laboratory for Cancer Research, University of Wisconsin) <u>2,3,7,8-Tetrachlorodibenzo-p-Dioxin and Related Halogenated Aromatic Hydrocarbons: Examination of the Mechanism of Toxicity.</u> Ann. Rev. Pharmacol. Toxicol.; 22:517-554. 1982	(30)	513725
40-8493059	Safe, S., Sawyer, T., Bandiera, S., Safe, L., Zmudzka, B., Mason, G., (College of Veterinary Medicine, Texas A&M University), Romkes, M., Denomme, M.A. (University of Guelph, Ontario) and Fujita, T. (Kyoto University Japan) <u>Binding to the 2,3,7,8-TCDD Receptor and AHH/EROD Induction: In Vitro OSAR.</u> "Banbury Report 18: Biological Mechanisms of Dioxin Action"; 33:135-149. 1984	(31)	513728
40-8393289	Safety, Health and Environmental Affairs <u>Survey for Health Effects of Potential Exposure to 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (TCDD).</u> (Sanitized) October 14, 1983	(31a)	513729
40-8393060	Sawyer, T., Bandiera, S. and Safe, S. (Texas A&M, College of Veterinary Medicine), Hutzinger, O. and Olie, K. (University of Amsterdam, The Netherlands) <u>Bioanalysis of Polychlorinated Dibenzofuran and Dibenzo-p-Dioxin Mixtures in Fly Ash.</u> Chemosphere; 12(4/5):529-535. 1983	(31b)	513730

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

Fiche #

- | | | | |
|------------|--|-------|--------|
| 40-8293061 | <p>Sawyer, T. (University of Guelph, Ontario) and Safe, S. (Texas A&M, College of Veterinary Medicine)</p> <p><u>PCB Isomers and Congeners: Induction of Aryl Hydrocarbon Hydroxylase and ~~Ethoxyresorufin o~~-Deethylase Enzyme Activities in Rat Hepatoma Cells.</u> <i>Topicalogy</i> ~~Toxicology~~ Letters; 13:87-94. 1982</p> | (32) | 513731 |
| 40-8593062 | <p>Sawyer, T.W. and Safe, S. (College of Veterinary Medicine, Texas A&M University)</p> <p><u>In Vitro AHH Induction by Polychlorinated Biphenyl and Dibenzofuran Mixtures: Additive Effects.</u> Chemosphere; 14(1):79-84. 1985</p> | (33) | 513732 |
| 40-8593065 | <p>Texas A&M University, College of Veterinary Medicine</p> <p>Letter from S. Safe to S. Rudzinski, EPA, responding to EPA's request for comments on the preliminary list of chemicals to be tested and the ~~Methodology~~ <i>Methodology</i> and analytical standards ~~used.~~ <i>used.</i></p> <p>July 12, 1985</p> | (33a) | 513726 |
| 40-8593066 | <p>Texas A&M University, College of Veterinary Medicine</p> <p>Comment letter on the Chlorinated ~~Dioxin~~ <i>Dioxin</i> "Interim Risk Assessment ~~Procedures~~ <i>Procedures</i> . . ." from S. Safe to D.G. Barnes, EPA. August 5, 1985</p> | (33b) | 513727 |

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

Fiche #

40-8593067	U.S. Air Force, School of Aerospace Medicine (Brooks Air Force Base, Texas) <u>Project Ranch Hand II: An</u> <u>Epidemiologic Investigation of Health</u> <u>Effects in Air Force Personnel</u> <u>Following Exposure to Herbicides:</u> <u>Mortality Update - 1985.</u> November 29, 1985	(34)	513735
40-8593068	U.S. Department of Health and Human Services, National Institute of Environmental Health Sciences Letter from P. Albro to S. Rudzinski, EPA in response to EPA's request for comments on the preliminary list of chemicals to be tested and the methodo- logy and analytical standards used. July 15, 1985	(34a)	513684
40-8593069	U.S. Department of Health and Human Services, National Institute for Occupational Safety and Health Letter commenting on the Dioxin <i>Work-</i> <i>Group's</i> position document <i>"The Interim</i> <i>"The Interim Risk Assessment Procedures . . ."</i> <i>from</i> <i>L. Birnbaum to D. Barnes, EPA!</i> -Barnes, EPA. August 12, 1985	(34b)	513686
40-8593070	U.S. Department of Health and Human Services, Center for Disease Control Letter from R. Kimbrough to D. Barnes, EPA, reviewing the document "Interim Risk Assessment Procedures. . ." August 15, 1985	(34c)	513715

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

			<u>Fiche #</u>
40-0093071	U.S. Environmental Protection Agency <u>Dioxin Emissions From Stacks of Poorly and Well Operated MWCs.</u> (Chart) Undated	(35)	513736
40-0093072	U.S. Environmental Protection Agency <u>Dioxin Data From Sweden.</u> (Chart) Undated	(36)	513737
40-8093046	U.S. Environmental Protection Agency, Industrial Environmental Research Lab. (Cincinnati, Ohio) <u>Dioxins.</u> PEDCO Environmental, Inc., Contract No. 68-03-2577; Wright State Univ., Contract No. 68-03-2659; and Walk, Haydel and Assoc., Inc., Contract No. 68-03-2579. November 1980	(37)	513724
40-8393073	U.S. Environmental Protection Agency, Office of Water Regulations and Standards, Office of Solid Waste and Emergency Response and the Dioxin Task Force <u>Dioxin Strategy.</u> November 28, 1983	(38)	513738
40-8493074	U.S. Environmental Protection Agency, Office of Water Regulations and Standards <u>Ambient Water Quality Criteria for 2,3,7,8-Tetrachlorodibenzo-p-Dioxin.</u> February 1984	(39)	513739

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

Fiche #

40-8493075 U.S. Environmental Protection Agency, (40) 513740
Office of Solid Waste and Emergency
Response

Health and Environmental Effects Profile
Profile for Tetra-, Penta- and Hexachlorodibenzo-p-Dioxins. (Final Draft) - EPA's
Draft) EPA's Environmental Criteria and Assessment
Assessment Office, Cincinnati, Ohio.
August 1984

40-8493063 U.S. Environmental Protection Agency (40a) 513733

Cover letter from K.E. McCaleb, *Stanford*
Stanford Research Institute *International to P.*
~~International to P.~~ Tobin, EPA
December 21, 1984

Enclosure:

- (1) Hexachlorobenzene: Chemistry of
Formation and Identified Sources.
(Draft) SRI Contract No. 68-02-
3976; Tech. Directive #2.
December 21, 1984

40-8593076 U.S. Environmental Protection Agency (41) 513723

Interim Risk Assessment Procedures for
Mixtures of Chlorinated Dibenzodioxins
and Dibenzofurans. Position Document
of the Chlorinated Dioxin Work Group
(CDWG).
1985

[See Enclosure (4) to B₂(29)]

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

			<u>Fiche #</u>
40-8593077	U.S. Environmental Protection Agency, Office of Drinking Water <u>Drinking Water Criteria Document for 2,3,7,8-Tetrachlorodibenzo-p-Dioxin.</u> (Final Draft) EPA's Environmental Criteria and Assessment Office, Cincinnati, Ohio. March 1985	(42)	513741
40-8593078	U.S. Environmental Protection Agency Memorandum to M. Cook, Dioxin <u>Management</u> Task Force, from D. Barnes, <i>Chlorinated</i> <u>Chlorinated</u> Dioxins Workgroup, <i>↑</i> <u>regarding the health hazard assessment</u> <u>for mixtures of CDDs and CDFs.</u> April 22, 1985	(43)	513742
40-8593079	U.S. Environmental Protection Agency Internal EPA memorandum from A. Mittelman to D. Barnes commenting on the Interim Risk Assessment Procedures document. May 10, 1985	(43a)	513722
40-8593080	U.S. Environmental Protection Agency <u>Summary of Comments (and Responses) at TEF Work Group.</u> May 14, 1985	(44)	513743

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

Fiche #

- 40-8593081 U.S. Environmental Protection Agency (45) 513744
- Internal EPA memorandum from J. Stara,
Environmental Criteria and Assessment
Office (Cincinnati, Ohio), to H. ~~Spitzer~~ *Spitzer* and D. Barnes, Dioxins Work ~~Group~~ *Group*,
~~Group~~ reviewing the Chlorinated ~~Dioxins~~ *Dioxins* Work
~~Dioxins Work Groups' proposal on the~~ *Work*
~~risk assessment of Chlorinated Dioxins~~ *and Dibenzofurans*
~~and Dibenzofurans.~~
May 17, 1985
- 40-8593082 U.S. Environmental Protection Agency (46) 513745
- Press Advisory: Production of Dacthal
Containing Dioxin Traces.
June 10, 1985
- 40-8593083 U.S. Environmental Protection Agency (47) 513746
- Letter from S. Rudzinski to E.
Silbergeld (and other addressees listed
on attached list) requesting a review
of documents attached.
June 20, 1985
- Enclosures:
- (1) List of addresses.
 - (2) Questions/Issues on the Dioxin/
Furan List and Methodology (EPA).
 - (3) Guidance for a Sequential Approach
to the Sampling of Dibenzodioxins
and Dibenzofurans. (Draft)
 - (4) Guidance for Sampling Brominated
and Chlorinated Dibenzofurans and
Dibenzodioxins. (Draft)

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

Fiche #

40-8593083 (continued)

- (5) Quality Assurance Plan for Measurement of Brominated and Chlorinated Dibenzofurans and Dibenzodioxins. (Draft) *Measured*
- (6) Development of the List of Chemicals to be Proposed for Testing. *Chemicals*
- (7) Summary of Current Commercial Status and Use.

40-8593084

U.S. Environmental Protection Agency

(48)

513747

Letter from S. Lee to P.W. Albro, USDHHS, NIEHS (RTP, NC) and addresses listed on attachment, requesting a review of the preliminary list of chemicals to be tested, the rationale for selection of chemicals and the analytical guidelines for testing. June 20, 1985

Enclosures:

- (1) Questions/Issues on the Dioxin/Furan List and Methodology. (EPA)
- (2) List of addresses.
- (3) List of chemicals to be tested.
- (4) Rationale for selection of chemicals.
- (5) Analytical guidelines for testing.

[See B₂(47) for Enclosures (3) (4) and (5)]

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

Fiche #

40-8593052	U.S. Environmental Protection Agency	(48a)	513719
	<u>Guidelines for the Determination of Polyhalogenated Dibenzo-p-Dioxins and Dibenzofurans in Commercial Products.</u> (Draft Final Report) Midwest Research Institute; Contract No. 68-02-3938. June 27, 1985		
40-8593050	U.S. Environmental Protection Agency	(48b)	513717
	<u>Survey of Dioxin Testing Laboratories.</u> (Draft) Mathtech, Inc.; Contract No. 68-01-6630. July 3, 1985		
40-8593085	U.S. Environmental Protection Agency	(49)	513748
	Internal EPA memorandum from R. Harless to S. Rudzinski reviewing the five documents enclosed. July 11, 1985		
	Enclosures:		
	(1) <u>Development of the List of ~~Chemicals~~ ^{Chemicals} to be Proposed for ~~Testing~~ ^{Testing}.</u>		
	(2) <u>Summary of Current Commercial Status and Use.</u>		
	(3) <u>Guidance for Sequential Approach to the Sampling of Dibenzodioxins and Dibenzofurans.</u>		
	(4) <u>Guidelines for the Determination in Commercial Products.</u> Midwest Research Institute. June 3, 1985		

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

Fiche #

40-8593085 (continued)

- (5) Questions/Issues on the Dioxin/
Furan List and Methodology.

[See B₂(47) for all Enclosures]

40-8593086 U.S. Environmental Protection Agency, (49a) 513698
Environmental Chemistry Laboratory, MS

EPA letter from A. Dupuy to S. ¹
Rudzinski reviewing the list of ²
chemicals to be tested for Dioxin/Furan contamination
contamination and the method to be used.
used.
July 24, 1985

40-8593187 U.S. Environmental Protection Agency (50) 513749

Letter from J. Bellin and D. Barnes to
E. Silbergeld, Environmental Defense
Fund, in response to EDF's reaction to
EPA's assessment of hazards for Chloro-
chlorinated Dioxins and Dibenzofurans.
July 24, 1985

40-8593087 U.S. Environmental Protection Agency, (51) 513750
Office of Solid Waste and Emergency
Response

^{10 Kher}
Health and Environmental Effects Profile
Profile for Brominated Dibenzo-p-dioxins: ¹¹
Dioxins (Final Draft) EPA's Environmental
Environmental Criteria and Assessment Office,
Office, Cincinnati, Ohio.
August 1985

B₂-21

20512

42

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

Fiche #

40-8593064 U.S. Environmental Protection Agency (51a) 513734

Dioxin/Furan Screening: Production and Process Identification of Subject *Chemicals -*
~~Chemicals.~~ (Revised Draft) Stanford *Research*
~~Research~~ Institute International; *Contract No.*
~~Contract No.~~ 68-02-3976, Tech. *Directive No. 17.*
~~Directive No. 17.~~
August 1985

40-8593032 U.S. Environmental Protection Agency (51b) 513699

Market Study of Selected Chemical Products Possibly Contaminated with Dioxins and Dibenzofurans. Dynamac Corp.; Contract No. 68-02-3952.
August 19, 1985

40-8593088 U.S. Environmental Protection Agency, (51c)
Chlorinated Dioxin Workgroup

Interim Risk Assessment Procedures for Mixtures of Chlorinated Dibenzodioxins and Dibenzofurans. Revised Position Document.
October 1985

[Document Not Provided to Docket]

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-~~p~~-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

Fiche #

40-8593089 U.S. Environmental Protection Agency (52) 513751

Internal memorandum from I. Baumel to
J. Bellin reviewing the CDWG's Position
Document on the "Interim Risk ~~Assessment~~ *Assessment*
~~Assessment~~ Procedures for Mixtures of *Chlorinated*
~~Chlorinated~~ Dibenzodioxins and
Dibenzofurans." *Chlorinated*
October 24, 1985

Enclosures:

- (1) Comments.
- (2) Genetically Mediated Induction of
Aryl Hydrocarbon Hydroxylase
Activity in Human Lymphoblastoid
Cells by Polychlorinated Dibenzo-
furan Isomers and 2,3,7,8-Tetra-
chlorodibenzo-p-Dioxin. J.
Nagayama, C. Kiyohara, Y. Masuda,
M. Kuratsune. Arch. Toxicol.; 56:
230-235.
1985

40-8593092 U.S. Environmental Protection Agency (53) 513754

List of Chemicals Contaminated or
Precursors to Contamination with
Incidentally Generated Polychlorinated
and Polybrominated Dibenzodioxins and
Dibenzofurans. Versar, Inc.; Contract
No. 68-02-3968.
October 30, 1985

40-8593090 U.S. Environmental Protection Agency (54) 513752

Internal memorandum from R. Morgan to
D. Barnes regarding OWPE comments on
the CDWG Position Document: "Interim
Risk Assessment Procedures for Mixtures
of Chlorinated Dibenzodioxins and
Dibenzofurans (CDDs and CDFs)."
October 31, 1985

B₂-23

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002
B₂-FILE

Fiche #

40-8593049	U.S. Environmental Protection Agency	(55)	513755
	<u>Cost Analysis for the Determination of Polyhalogenated Dioxins and Dibenzofurans in Commercial Products.</u> Martin Marietta Data Systems, Mathtech Div. Contractor; Versar Inc. subcontractor. November 25, 1985		
40-8593091	Versar, Inc.	(56)	513753
	Internal Versar memorandum on the <u>In Vitro</u> testing of Dioxins from B. Gregg and D. Dixon to B. Boethling. May 21, 1985		

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002B
B₃-FILE

Fiche #

40-8693093 Chemical Industry Institute of Toxicology (1) 513756

Letter from R. Neal to V. Kim reviewing
the revised procedures for estimating
risk exposures.

January 24, 1986

Enclosure:

- (1) Data from C. Boreiko's (CIIT) ^{study}
~~study~~ with TCDD, 2,7-DCDD, 1,2,3,7,8,9-
1,2,3,7,8,9-~~HCDD~~ and 1,2,3,6,7,8-~~HCDD~~.
~~HCDD~~.
- (2) 2,3,7,8-Tetrachlorodibenzo-p-dioxin
Dioxin (TCDD Promotes the
transformation) of C3H/10T1/2, Cells. D.J.
Cells, D.J. Abernathy, W.F.
Greenlee, J.C. Huband, and C.J. Boreiko.
Boreiko. Carcinogenesis;
6(4):651-653.
1985

40-8693094 Environmental Defense Fund (2) 513757

Cover letter from E. Silbergeld to S.
Rudzinski, EPA
June 12, 1986

Enclosures:

- (1) Automated Apparatus for the
Extraction and Enrichment of 2,3,7,8-
2,3,7,8-Tetrachlorodibenzo-p-Dioxin in
Human Adipose Tissue. C.R. ~~Lapeza~~,
~~Lapeza~~, Jr., D.G. Patterson, Jr. and J.A.
and J.A. Liddle (U.S. Department
of HHS, Center for Disease ^{2 HHS,}
Control). Analytical Chemistry; 52(4): 713-
52(4):713-716.
April 1986

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002B
B₃-FILE

Fiche #

40-8693094 (continued)

- (2) High-Resolution Gas Chromatographic/High-Resolution Mass Spectrometric Analysis of Human Adipose Tissue for 2,3,7,8-Tetrachlorodibenzo-p-Dioxin. D.G: Patterson, J.S. Holler, C.R. Lapeza, Jr., L.R. Alexander, D.F. Groce, R.C. O'Connor, S.J. Smith, J.A. Liddle and L.L. Needham (USDHHS, Center for Disease Control). Analytical Chemistry; 58(4):705-713.
April 1986

40-8693095

Great Lakes Chemical Corporation

(3) 513758

Cover letter from C. O'Connor of McKenna, Conner and Cuneo to S. Rudzinski, EPA
June 9, 1986

Enclosure:

- (1) Comments on Recent Publications Relating to the Determination of Halogenated Dibenzodioxins and Dibenzofurans in Commercial Products. Great Lakes Chemical Corporation.
June 2, 1986

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002B
B₃-FILE

Fiche #

40-8693097	U.S. Environmental Protection Agency	(4)	513761
	Internal EPA memorandum from P. Tong to S. Lee and K. McCormack responding to a Manufacturer's comments on the health effects of Tetrabromobisphenol A. August 21, 1986		
40-8593096	U.S. State Department of Health	(5)	513759
	Letter from J. Hawley to D. Barnes, EPA, commenting on the October 1985 version of the CDWG Position Document. December 27, 1985		
	Enclosure:		
	(1) Reasoning for wording change from "root mean square" to "geometric mean" on page 8, Section 4 of the "CDWG Position Document on Risk Assessment Procedures for Mixtures of CDDs and CDFs."		
40-8693098	Wisconsin, University of, McArdle Laboratory for Cancer Research	(6)	513760
	Letter from A. Poland to D. Barnes, ~~EPA~~ , <i>EPA</i> , commenting on the revised interim ~~risk~~ <i>sub</i> assessment procedures for ~~Chlorinated~~ <i>Chlorinated</i> Dibenzo- <u>p</u> -Dioxins. January 6, 1986		

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002C
B₄-FILE

Fiche #

40-7993020 Albro, P.W., Luster, M.I., Chae, K., (1) 513683
Chaudhary, S.K., Clark, G., Lawson,
L.D., Corbett, J.T. and McKinney, J.D.
(U.S. Department of Health and Human
Services, National Institute of
Environmental Health Sciences, Research
Triangle Park, NC)

A Radioimmunoassay for Chlorinated
Dibenzo-p-Dioxins. Toxicology and
Applied Pharmacology; 50:137-146.
1979

[Crossreferenced to B₂(2)]

two small

40-8393162 Bandiera, S. (University of Guelph, (2) 513762
Ontario Canada), Sawyer, T.W. (Texas A&M
A&M University), Campbell, M.A. (*University*
~~(University of Guelph, Ontario, Canada)~~, *Fujita, T.*
~~Canada)~~ Fujita, T. (Kyoto University,
~~Japan~~) and Safe, S. (Texas A&M
University)

Competitive Binding to the Cytosolic
2,3,7,8-Tetrachlorodibenzo-p-Dioxin
Receptor. Effects of Structure on the
Affinities of Substituted Halogenated
Biphenyls-A Osar Analysis. Biochemical
Pharmacology; 32(24):3803-3813.
1983

40-8493021 Bandiera, S., Sawyer, T., Romkes, M., (3) 513685
Zmudzka, B., Safe, L., Mason, G., Keys,
B. and Safe, S. (Texas A&M University,
College of Veterinary Medicine)

Polychlorinated Dibenzofurans (PCDFs):
Effects of Structure on Binding to the
2,3,7,8-TCDD Cytosolic Receptor Protein,
Protein, AHH Induction and Toxicity. *Toxicology;*
~~Toxicology~~ 32:131-144.
1984

[Crossreferenced to B₂(3)]

B₄-1

49

20519

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002C
B₄-FILE

Fiche #

40-8493002 Bellin, J.S. and Barnes, D.G. (4)

Health Hazard Assessment for
Chlorinated Dioxins and Dibenzofurans
Other Than 2,3,7,8-TCDD. Presented at *a symposium*
~~a symposium~~ in Cincinnati, Ohio.
October 25, 1984

[Crossreferenced to B₂(3a) - Document
Not Provided to Docket]

40-7993022 Bradlaw, J.A. and Casterline, J.L. (U.S. (5) 513687
Department of Health, Education, and
Welfare, Food and Drug Administration)

Induction of Enzyme Activity in Cell
Culture: A Rapid Screen for Detection
of Planar Polychlorinated Organic Com-
pounds. J. Assoc. Off. Anal. Chem.;
62(4):904-916.
1979

[Crossreferenced to B₂(4)]

Continue here

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002C
B₄-FILE

Fiche #

40-8693184

Cambridge Isotope Laboratories

(5a)

513763

Cover letter from J. Bradley to M.
Dreyfus, EPA
July 8, 1986

Enclosures:

- [Handwritten: OK]*
- (1) Summary of 6/18/86 Phone Conversation Between Mark Dreyfus, USEPA, and Dr. Joel Bradley, CIL.
 - (2) Quality Standards From Cambridge Isotope Labs. and Radian Corp.
 - (3) Proposed Rule Stock Status of Standards.
 - (4) Form letter from Dr. J. Bradley, CIL, to "Participating Labs" regarding the proposed inter-laboratory testing program.

40-8593025

Canada Environmental Protection

(6)

513690

Letter from M. Boddington to D. Barnes,
EPA
August 28, 1985

Enclosure:

- (1) Interim Risk Assessment
PCDDs/PCPFs Review Comments.

← [Crossreferenced to B₂(7)]

B₄-3

51

20521

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002C
B₄-FILE

Fiche #

40-8493163 Cull, M.R., Dobbs, A.J. (Princes (7) 513764
Risborough Lab., Buckinghamshire United
Kingdom), Goudot, M. (Rhone-Poulenc, Le
Pont de Claix, France) and Schultz, N.
(Dynamit Nobel AG, Federal Republic of
Germany)

Polychlorodibenzo-*p*-Dioxins and Diben-
zofurans in Technical Pentachlorophenol
A Results of a Collaborative Analytical
Exercise. Chemosphere; 13(10):1157-1165.
1165.
1984

40-8493164 Czuczwa, J.M. and Hites, R.A. (Indiana (8) 513765
University)

Environmental Fate of Combustion-
Generated Polychlorinated Dioxins and
Furans. Envir. Sci. Technol; 18(6):
18(6):444-450.
1984

40-8593165 Czuczwa, J.M., McVeety, B.D. and Hites, (9) 513766
R.A. (Indiana University)

Polychlorinated Dibenzodioxins and
Dibenzofurans in Sediments from
Siskiwit Lake, Isle Royale. *Siskiwit*
Chemosphere;
Chemosphere; 14(6/7):623-626.
1985

40-8593001 Dow Chemical USA (10) 513786

Review and Trends in the Analysis for
PCDD/PCDF. Dow Chemical USA.
1985

[See C₁(3) Enclosure (2a)]

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002C
B₄-FILE

Fiche #

40-8493034 Environmental Defense Fund (11) 513902

Cover Letter from R. Percival to W.D.
Ruckelshaus, EPA
October 22, 1984

Enclosure:

- (1) Petition of the Environmental
Defense Fund and the National *Wild-*
Wildlife Federation for Rulemakings to
Prevent and to Reduce Environmental
Contamination by Dioxins and Diben-
zofurans. E. Silbergeld, R.
Van Putten and L.K. Silbert (National Wildlife
Federation).
October 22, 1984

[Crossreferenced to E_{3a}(1)]

40-8493167 Germany (Federal Republic of), Federal (12) 513768
Health Office

Report on Dioxins (Sachstand Dioxine) -
Update to November 1984. (German *Trans-*
lation)
1984

B₄-5

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002C
B₄-FILE

Fiche #

40-8493040 Gierthy, J.F., Crane, D. and Frenkel, (13) 513706
G.D. (N.Y. State Department of Health,
Wadsworth Center for Laboratories and
Research)

Application of an In Vitro Keratiniza-
tion Assay to Extracts of Soot From a
Fire in a Polychlorinated Biphenyl-
Containing Transformer. Fundamental
and Applied Toxicology; 4:1036-1041.
1984

[Crossreferenced to B₂(18)]

40-8593042 Helder, Th. and Seinen, W. (State (14) 513710
University of Utrecht, The Netherlands)

Standardization and Application of an
E.L.S.-Bioassay for PCDDs and PCDFs.
Chemosphere; 14(2):183-193.
1985

[Crossreferenced to B₂(20)]

40-8693168 Hoar, S.K., Blair, A. National Cancer (15) 513769
Institute Holmes, F.F., Boysen, C.D.
(University of Kansas Medical Center),
Robel, R.J. (Kansas State University),
Hoover, R. and Fraumeni, J.F. (National
Cancer Institute)

Agricultural Herbicide Use and Risk of
Lymphoma and Soft-Tissue Sarcoma. *JAMA*;
~~JAMA~~, 256(9):1141-1147.
September 5, 1986

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002C
B₄-FILE

Fiche #

40-8193044 Hutzinger, O., Olie, K., Lustenhouwer, (16) 513713
J.W.A. (University of Amsterdam, The
Netherlands) Okey, A.B. (Hospital for
Sick Children, Ontario, Canada),
Bardiera, S. and Safe, S. (University
of Guelph, Canada)

Polychlorinated Dibenzo-p-Dioxins and
Dibenzofurans: A Bioanalytical *Approach*
Approach Chemosphere; 10:19-25.
1981

[Crossreferenced to B₂(22)]

40-8093048 Knutson, J.C. and Poland, A. (University (17) 513716
of Wisconsin)

Keratinization of Mouse Teratoma Cell
Line XB Produced by 2,3,7,8-Tetrachlo-
rodibenzo-p-Dioxin: An In Vitro Model
of Toxicity. Cell; 22:27-36.
November 1980

[Crossreferenced to B₂(25)]

40-8593169 Mason, G., Sawyer, T., Keys, B., (18) 513770
Bandiera, S., Romkes, M., Piskorska-
Pliszczyńska, J., Zmudzka, B. and Safe,
S. (Texas A&M University)

Polychlorinated Dibenzofurans (PCDFs):
Correlation Between In Vivo and In
Vitro Structure-Activity Relationships.
Toxicology; 37:1-12.
1985

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002C
B₄-FILE

Fiche #

- | | | | |
|------------|---|------|--------|
| 40-8293051 | <p>McKinney, J., Albro, P., Luster, M.
Corbett, B., Schroeder, J. and Lawson,
L. (U.S. Department of Health and Human
Services, National Institute of
Environmental Health Sciences, Research
Triangle Park, NC)</p> <p><u>Development and Reliability of a Radio-
immunoassay for 2,3,7,8-Tetrachloro-
dibenzo-p-Dioxin.</u> From "Chlorinated
Dioxins and Related Compounds; Impact
on the Environment". Proceedings held
in Rome, Italy, October 22-24, 1980.
1982</p> <p>[Crossreferenced to B₂(26)]</p> | (19) | 513718 |
| | | | |
| 40-8293004 | <p>McKinney, J. and McConnell, E.</p> <p><u>Structural Specificity and the Dioxin
Receptor.</u> From "Chlorinated Dioxins
and Related Compounds: Impact on the
Environment"; pages 367-381.
1982</p> | (20) | 513771 |
| | | | |
| 40-7993170 | <p>Moore, J.A., McConnell, E.E. (National
Institute of Environmental Health
Safety, Research Triangle Park, NC),
Dalgard, D.W. (Hazleton Res. Labs. of
America, Inc.) and Harris, M.W.
(National Institute of Environmental
Health Sciences, Research Triangle
Park, NC)</p> <p><u>Comparative Toxicity of Three Halo-
genated Dibenzofurans in Guinea Pigs,
Mice, and Rhesus Monkeys.</u> Annals New
York Academy of Sciences; 320:151-163.
1979</p> | (21) | 513772 |

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002C
B₄-FILE

Fiche #

- | | | | |
|------------|--|------|--------|
| 40-8693171 | <p>Patterson, D.G., Jr., Hoffman, R.E.,
Needham, L.L. (Centers for Disease
Control), Roberts, D.W., Bagby, J.R.
(Missouri Department of Health), <i>Pirkle,</i>
~~Pirkle~~, J.L., Falk, H., Sampson, E.J. <i>and Houk,</i>
~~and Houk~~, V.N. (Centers for Disease <i>Control</i>)
~~Control~~)</p> <p><u>2,3,7,8-Tetrachlorodibenzo-p-Dioxin</u>
<u>Levels in Adipose Tissue of Exposed and</u>
<u>Control Persons in Missouri.</u> JAMA;
256(19):2683-2686.
November 21, 1986</p> | (22) | 513773 |
| | | | |
| 40-8693098 | <p>Wisconsin, University of, McArdle
Laboratory for Cancer Research</p> <p>Letter from A. Poland to D. Barnes,
EPA, commenting on the revised interim
risk assessment of Dibenzo-p-Dioxins
and Dibenzofurans.
January 6, 1986</p> <p>[Crossreferenced to B₃(6)]</p> | (23) | 513760 |
| | | | |
| 40-8293058 | <p>Poland, A. and Knutson, J.C. (McArdle
Lab. for Cancer Research, University of
Wisconsin)</p> <p><u>2,3,7,8-Tetrachlorodibenzo-p-Dioxin and</u>
<u>Related Halogenated Aromatic Hydro-</u>
<u>carbons: Examination of the Mechanism</u>
<u>of Toxicity.</u> Ann. Rev. Pharmacol.
Toxicol.; 22:517-554.
1982</p> <p>[Crossreferenced to B₂(30)]</p> | (24) | 513725 |

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002C
B₄-FILE

Fiche #

- 40-8493059 Safe, S., Sawyer, T., Bandiera, S., (25) 513728
Safe, L., Zmudzka, B., Mason, G.,
(College of Veterinary Medicine, Texas
A&M University), Romkes, M., Denomme,
M.A. (University of Guelph, Ontario)
and Fujita, T. (Kyoto University,
Japan)
- Binding to the 2,3,7,8-TCDD Receptor
and AHH/EROD Induction: In Vitro OSAR.
"Banbury Report 18: Biological *Mecha-*
mechanisms of Dioxin Action"; 33:135-149.
~~149~~
1984
- [Crossreferenced to B₂(31)]
- 40-7393172 Schwetz, B.A., Norris, J.M., Sparschu, (26) 513774
G.L., Rowe, V.K., Gehring, P.J.,
Emerson, J.L. and Gerbig, C.G. (The Dow
Chemical Company)
- Toxicology of Chlorinated Dibenzo-p-
Dioxins. Environmental Health *Review*
Perspectives; 5:87-89.
September 1973
- 40-8693173 Thoma, H., Rist, S., Hauschulz, G. and (27) 513775
Hutzingner, O. (University of Bayreuth,
Federal Republic of Germany)
- Polybrominated Dibenzodioxins and *Furans*
Furans from the Pyrolysis of Some Flame *Retar-*
Retardants. Chemosphere; 15(5):649-652.
~~652~~
1986

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002C
B₄-FILE

Fiche #

- 40-8793003 Thoma, H. et al. (28)
- Polybrominated Dibenzofurans (PBDF) and
Dibenzodioxins (PBDD) from the *Pyrolysis*
Pyrolysis of Neat Brominated
Diphenylethers, Biphenyls and Plastic
Mixtures of These Compounds *reference*
Chemosphere. (In Press)
1987
- [Document Not Provided to Docket]
- 40-8093046 U.S. Environmental Protection Agency (29) 513724
- Dioxins. PEDCO Environmental, Inc.,
Contract No. 68-03-2577; Wright State
Univ., Contract No. 68-03-2659; and
Haydel and Associates Inc., Contract
No. 68-03-2579.
November 1980
- [Crossreferenced to B₂(37)]
- 40-8293166 U.S. Environmental Protection Agency (29a) 513767
- Pre-Regulatory Analysis of Flame *Retardant*
Retardants. Dynamac Corp.; Contract
No. 68-01-6239.
May 7, 1982
- 40-8393073 U.S. Environmental Protection Agency, (30) 513738
Office of Water Regulations Standards,
Office of Solid Waste and Emergency
Response and the Dioxin Task Force
- Dioxin Strategy.
November 28, 1983
- [Crossreferenced to B₂(38)]

B₄-11

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002C
B₄-FILE

Fiche #

40-8493074 U.S. Environmental Protection Agency, (31) 513739
Office of Water Regulations and
Standards

Ambient Water Quality Criteria for
2,3,7,8-Tetrachlorodibenzo-Dioxin.
February 1984

[Crossreferenced to B₂(39)]

40-8493063 U.S. Environmental Protection Agency (31a) 513733

Cover letter from K.E. McCaleb, *Stanford*
~~Stanford~~ Research Institute to P. *91*
Tobin, EPA
December 21, 1984

Enclosure:

- (1) Hexachlorobenzene: Chemistry of
Formation and Identified Sources.
(Draft) Stanford Research Institute; Contract No. 68-02-3976,
Tech. Directive #2.
December 21, 1984

[Crossreferenced to B₂(40a)]

Continue

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002C
B₄-FILE

Fiche #

40-8593052 U.S. Environmental Protection Agency (31b) 513719

Guidelines for the Determination of Polyhalogenated Dibenzo-p-Dioxins and Dibenzofurans in Commercial Products.
(Draft Final Report) Midwest Research Institute; Contract No. 68-02-3938.
June 27, 1985

[Crossreferenced to B₂(48a)]

40-8593187 U.S. Environmental Protection Agency (31c) 513749

Letter from J. Bellin and D. Barnes to E. Silbergeld, Environmental Defense Fund, in response to EDF's reaction to EPA's assessment of hazard for Chlorinated Dioxins and Dibenzofurans.
July 24, 1985

[Crossreferenced to B₂(50)]

40-8593092 U.S. Environmental Protection Agency (31d) 513754

List of Chemicals Contaminated or Precursors to Contamination With Incidentally Generated Polychlorinated and Polybrominated Dibenzodioxins and ~~Dibenzofurans~~ *2,3,7,8-Substituted Dibenzofurans*. Versar, Inc.; Contract *No. 68-02-3968*.
No. 68-02-3968.
October 30, 1985

[Crossreferenced to B₂(53)]

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-~~p~~-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002C
B₄-FILE

Fiche #

40-8693174	U.S. Environmental Protection Agency, Science Advisory Board <u>Report of the Science Advisory Board's Dioxin Toxic Equivalency Methodology Subcommittee Following its Evaluation of EPA's Toxic Equivalency Factor Methodology for CDDs and CDFs.</u> 1986	(32)	513776
40-8693193	U.S. Environmental Protection Agency Internal memorandum from J. Smith to M. Dreyfus on the analytical standards for Polybrominated Dibenzofurans and Polybrominated Dibenzodioxins. August 4, 1986	(32a)	513777
40-8693176	U.S. Environmental Protection Agency Letter from L. Thomas to N. Nelson, Science Advisory Board December 19, 1986 Enclosure: (1) <u>Response to SAB Comments on the "Interim Procedures for Estimating Risks Associated With Exposures to Mixtures of Chlorinated Dibenzo-~~p~~- ~~p~~Dioxins and Dibenzofurans (CDDs/ ~~CDDs~~ CDFs)." <u>(CDDs/</u></u>	(32b)	513778
40-8793194	U.S. Environmental Protection Agency <u>Interim Procedures for Estimating Risks Associated With Exposures to Mixtures ~~of~~ Chlorinated Dibenzo-~~p~~-Dioxins and <u>Diben-</u> <u>Dibenzofurans (CDDs and CDFs).</u></u> March 1987	(33)	513779

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002C
B₄-FILE

Fiche #

40-8793190 U.S. Environmental Protection Agency (34) 513780

Internal EPA memorandum from D. Keehner to the Dioxin/Furan rulemaking record on the exposure assessment to support target limits of quantitation.
May 6, 1987

40-8793191 Versar, Inc. (35) 513781

Internal Versar memorandum from C. Carpenter to B. Boethling on the documentation for the November 4, 1986 memo concerning the organic chemical dermal exposure estimates to DBDs/DBFs.
April 10, 1987

40-8793189 Versar, Inc. (36) 513782

Internal Versar memorandum from D. *Dixon*
Dixon to L. Bryan on the dermal
exposure to inadvertently produced
Dioxins in chemical plants.
April 29, 1987

Enclosures:

(1) Internal Versar memorandum from D. Dixon to B. Boethling on the revised estimates of worker dermal exposure to DBDs/DBFs during organic chemical synthesis.
November 4, 1986

(a) Table 1. Worker Dermal Expo-
sure to DBDs/DBFs During
Organic Chemical Synthesis and
Use Estimated by Method 1.
Q

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
SUPPORT REFERENCES FOR DOCKET #83002C
B₄-FILE

Fiche #

40-8793189 (continued)

(b) Table 2. Worker Dermal Exposure to DBDs/DBFs During Organic Chemical Synthesis and Use Estimated by Method 2.

(c) Table 26. Worker Dermal ~~Exposure~~ Exposure to DBDs/DBFs During Organic Chemical Synthesis and Use.

40-8793192

Versar, Inc.

(37)

513783

Internal Versar memorandum from D. *Dixon*
~~Dixon~~ to L. Bryon
April 30, 1987

Enclosure:

(1) Resumes for C. Carpenter, D. *Dixon*,
~~Dixon~~, E. Rissmann and K.
Hergenrader.

B₄-16

64
20534

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
PUBLIC COMMENTS FOR DOCKET #83002
C₁-FILE

Fiche #

40-8693099	Ameribrom, Inc.	(1)	513784
	<u>Comments of Ameribrom, Inc. on EPA's Proposed Testing and Reporting Rules for Polyhalogenated Dibenzodioxins and Dibenzofurans. A. Tillman.</u> February 18, 1986		
40-8693100	Cambridge Isotope Laboratories	(2)	513785
	Comment letter from J. Bradley to EPA. February 14, 1986		
40-8693101	Chemical Manufacturers Association	(3)	513786
	Comment letter from G. Cox to M. Halper, EPA February 18, 1986		

Enclosures:

- (1) Letter from R. Fensterheim, CMA, to J. Moore submitting the comments and requesting a meeting with EPA.
February 18, 1986
 - (a) Comments on EPA's Proposed Testing and Reporting Rules for Polyhalogenated Dibenzodioxins and Dibenzofurans.
 - 1. Appendix A - Letter from G. Cox, CMA, to S. Rudzinsky, EPA, commenting on the preliminary list of chemicals.
July 19, 1985

C₁-1

20535⁶⁵

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
PUBLIC COMMENTS FOR DOCKET #83002
C₁-FILE

Fiche #

40-8693101 (continued)

- a. Attachment I:
Response of the
Chemical Manufac-
turers Association
Dibenzofurans/Diben-
zodioxins Program
Panel to EPA's *Ques-*
Over Questions Concerning *Its*
Vts Proposed Candidate
data List and Analytical
tical Methodology.
 - b. Attachment II:
Principles of Envi-
ronmental Analysis.
American Chemical
Society.
 - c. Attachment III:
EPA's Soil Screening
Survey at Four Mid-
western Sites Quali-
ty Control Summary.
USEPA Region V,
Central Regional
Laboratory.
May 1985
- 2a. Appendix B: Review and
Trends in the Analysis
for PCDD/PCDF. Dow
Chemical USA - W.B.
Crummett, L.L. Lamparski
and T.J. ~~Ne~~ Nestrick.
1985

C₁-2

20536 66

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
PUBLIC COMMENTS FOR DOCKET #83002
C₁-FILE

Fiche #

40-8693101 (continued)

2b. Polychlorinated Dibenzo-
dioxins and Dibenzo-
furans in Sediments from
Siskiyou Lake, Isle
Royale. J.M. Czuczwa,
B. McVeety and R. Hites
(Indiana University). *OK as is*
Chemosphere; 14(6/7):
623-626.
1985

2c. Environmental Fate of
Combustion-Generated
Polychlorinated Dioxins
and Furans. J.M. Czuczwa
and R. Hites (Indiana
University). Environ.
Sci. Tech.; 18(6):444-
450.
1984

2d. An Evaluation of Reports
of Dioxin Exposure and
Soft Tissue Sarcoma
Pathology in U.S. *OK as is*
Chemical Workers. M.A.
Fingerhut, W.E. Halperin,
P.A. Honchar, A.B. Smith,
D.H. Groth, (USDHHS,
NIOSH) and W.O. Russell
(North Ridge General
Hospital and Cancer
Foundation). Banbury
Report; 18:461-470.
1984

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
PUBLIC COMMENTS FOR DOCKET #83002
C₁-FILE

Fiche #

40-8693101 (continued)

- 2e. Chlorocarbons in Adipose Tissue from a Missouri Population. M. Graham, F. Hileman, R.G. Orth, J.M. Wendling and J.D. Wilson (St. Louis Univ. School of Medicine and Monsanto Co.). Chemosphere (in press). 1986
- 2f. Health Implications of 2,3,7,8-Tetrachlorodibenzo-~~dioxin~~ ^{dioxin} (TCDD) Contamination of Residential Soil. R. Kimbrough, H. Falk, P. Stehr (USDHHS, Center for Environmental Health Centers for Disease) and G. Pines (U.S. Dept. of Agriculture). J. Toxicol. and Environ. Health; 14(1): 47-93. 1984
- 2g. Scientific Criteria Document for Standard Development. No. 4-84 Polychlorinated Dibenzo-*p*-Dioxins (PCDDS) and Polychlorinated Dibenzo-furans (PCDFs). Ontario Ministry of the Environment. Pages 1-1 to 1-56, 3-130 to 3-147. September 1985

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
PUBLIC COMMENTS FOR DOCKET #83002
C₁-FILE

Fiche #

40-8693101 (continued)

- 2h. A Critical Examination of Assessments of the Health Risks Associated with 2,3,7,8-TCDD in Soil.
D.J. Paustenbach and F.J. Murray (Syntex (USA) Inc.). Chemosphere (In Press).
1986
- 2i. Update on Soft Tissue Sarcoma and Phenoxyherbicides in New Zealand.
A.H. Smith (Univ. of Calif.) and N.E. Pearce (Univ. of North ~~Carolina~~ ^{Caroli-} ~~Carolina~~). From "Dioxin 85"; the Fifth International Symposium on Chlorinated Dioxins and Related Compounds, September 21, 1985 in Mitwitz, FRG. Chemosphere (in Press).
1986

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
PUBLIC COMMENTS FOR DOCKET #83002
C₁-FILE

Fiche #

40-8693109 2,4-D Task Force

(3a) 513795

Cover letter from J.D. Conner of
McKenna, Conner and Cuneo to Document
Control Officer, EPA
February 14, 1986

Enclosures:

- (1) Comments on Proposed Testing and Reporting Rules Under the Toxic Substances Control Act for Polyhalogenated Dibenzodioxins and Dibenzofurans.
February 14, 1986
- (2) Letter from J. Conner, Jr.,
McKenna, Conner and Cuneo, to E.
Johnson, EPA, concerning
unregistered 2,4-D Acid being
imported and sold into the United
States.
June 16, 1983
 - (a) Weedone 138. Label for
herbicide containing 2,4-D
Acid. Union Carbide Corp.
1982
- (3) Letter from E. Johnson, EPA, to
J. Conner, Jr., McKenna, Conner and
Cuneo, responding to his letter of
June 16, 1983.
August 31, 1983

C₁-6

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
PUBLIC COMMENTS FOR DOCKET #83002
C₁-FILE

Fiche #

40-8693102 (The) Dow Chemical Company

(4) 513787

Cover letter from P. Brown to Document
Control Officer, EPA
February 17, 1986

Enclosures:

- (1) Comments of the Dow Chemical Company on EPA's Proposed Testing and Reporting Rules for Polyhalogenated Dibenzodioxins and Dibenzofurans.
February 17, 1986
- (2) Cost Analysis for the Determination of Polyhalogenated Dioxins and Dibenzofurans in Commercial Products.
Martin Marietta Data Systems;
Versar, Inc.
1985
- (3) Summaries of Completed Toxicology Studies by the Industry Task Force on 2,4-D Research Data.
- (4a) Pharmacokinetics of 2,4-Dichlorophenoxy Acetic Acid (2,4-D) in Fischer 344 Rats. F.A. Smith, K.J. Nolan, E.A. Herman and W.E. Braun (The Dow Chemical Co.)
(Abstract) Abstracts of Papers No. 180 Society of Toxicology, Inc.; 19th Annual Meeting, Wash., D.C., March 9-13, 1980.
March 1980

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
PUBLIC COMMENTS FOR DOCKET #83002
C₁-FILE

Fiche #

40-8693102 (continued)

- (4b) 2,4-D ((2,4-Dichlorophenoxy) Acetic Acid): Results of a 13-Week Feeding Study in CDF Fischer 344 Rats.
S.J. Gorzinski, R.J. Kociba, C.E. Wade, D.C. Morden, P.G. Keyes and B.A. Schwetz (Dow Chemical USA).
(Abstract) The Toxicologist;
1(1):216.
March 1981
- (4c-1) Neurotoxicologic Assessment of Rats Dermally Exposed to 2,4-D Amine.
J.L. Mattsson, R.R. Albee and K.A. Johnson (Dow Chemical USA).
(Abstract) The Toxicologist; 4(1).
March 1984
- (4c-2) A Teratology Study in Fischer 344 Rats With 2, 4-Dichlorophenoxy-acetic Acid. D.E. Rodwell, R.D. Wilson, M.D. Nemec and E.J. Tasker (WIL Res. Labs., Inc.). (Abstract) The Toxicologist; 4(1).
March 1984
- (4c-3) A Teratology Study in Fischer 344 Rats with 2,4-Dichlorophenol. D.E. Rodwell, R.D. Wilson, M.D. Nemec and M.D. Merciera (WIL Res. Labs., Inc.). (Abstract) The Toxicologist; 4(1).
March 1984

40-4 *huc*

C₁-8

72
20542

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
PUBLIC COMMENTS FOR DOCKET #83002
C₁-FILE

Fiche #

40-8693102 (continued)

- (4c-4) Oral Administration of the 2-Ethyl -
Hexyl (Isooctyl) Ester of 2,4-D to
Fischer 344 Rats. S.W. Frantz,
Frantz, B.E. Kropscott,
(Dow Chemical USA). (Abstract).
The Toxicologist; 5(1).
March 1985
- (5) NTP Technical Report on the Toxi-
cology and Carcinogenesis Studies
of Decabromodiphenyl Oxide in
F344/N Rats and B6C3F₁ Mice (Feed
Studies). (Draft) USDHHS, NTP.
August 1985
- (6) Analysis for Brominated Dibenzo-
dioxin and Dibenzofuran Impurities
in Two Decabromodiphenyl Oxide
Samples. USDHHS, NIEHS.
June 20, 1985
- (7) Results of a 2-Year Dietary Feeding
Study with Decabromodiphenyl Oxide
(DBDPO) in Rats. R.L. Kociba, L.O.
Frauson, C.G. Humiston, J.M.
Norris, C.E. Wade, R.W. Lisowe,
J.F. Quast, G.C. Jersey and G.L.
Jewett (Dow Chemical USA). J.
Combustion Toxicology; 2:267-285.
November 1975

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
PUBLIC COMMENTS FOR DOCKET #83002
C₁-FILE

Fiche #

40-8693102 (continued)

- (8) Toxicological and Environmental Factors Involved in the Selection of Decabromodiphenyl Oxide as a Fire Retardant Chemical. J.M. Norris, J.W. Ehrmantraut, C.L. Gibbons, R.J. Kociba, B.A. Schwetz, J.Q. Rose, C.G. Humiston, G.L. Jewett, W.B. Crummett, P.J. Gehring, J.B. Tirsell and J.S. Brosier (Dow Chemical Co.). Applied Polymer Symposia No. 22: ~~22~~ 195-219. 1973
- (9) Toxicology of Octabromobiphenyl and Decabromodiphenyl Oxide. J.M. Norris, R.J. Kociba, B.A. Schwetz, J.Q. Rose, C.G. Humiston, G.L. Jewett, P.J. Gehring and J.B. Mailhes (Dow Chemical USA). *Envir - Environmental Health Perspectives; 11: 153-161.* June 1975
- (10) Letter from R. Griesemer and N. Nelson, EPA's Science Advisory Board, to L.M. Thomas, EPA April 26, 1985
- (a) Technical Report of the ~~Environmental~~ *Envir* Health Committee ~~of EPA's Science Advisory Board~~ *Board* Regarding a Draft Health ~~Assessment~~ *Assess -* Document for Polychlorinated Dibenzo-p-Dioxins.

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
PUBLIC COMMENTS FOR DOCKET #83002
C₁-FILE

Fiche #

40-8693103 Eastman Kodak Company (5) 513788

Comment letter from R. Brothers to
Document Control Officer, EPA.
February 12, 1986

40-8693104 Environmental Defense Fund (6) 513789

Comment letter from E. Silbergeld to E.
Klein, EPA, requesting an opportunity
for oral comment.
February 3, 1986

40-8693105 Environmental Defense Fund (7) 513790

Cover letter from E. Silbergeld to
Document Control Officer, EPA
February 18, 1986

Enclosures:

(1) Comments of the Environmental
Defense Fund on EPA's Proposed
Testing and Reporting Requirements
for Polyhalogenated Dibenzo-p-
Dioxins/Dibenzofurans.
February 18, 1986

(a) Appendix A - Label for Lysol
Disinfectant.

(b) Appendix B - Memorandum of
Points and Authorities in
Support of Plaintiff's Motion
for Partial Summary Judgment.
R. Percival, EDF and M. Van
Putten, NWF. Civil Action No.
85-0973; EDF and NWF vs. L.M.
Thomas, EPA.
December 16, 1985

C₁-11

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
PUBLIC COMMENTS FOR DOCKET #83002
C₁-FILE

Fiche #

40-8693105 (continued)

- (c) Appendix C - Memorandum of Points and Authorities in Opposition to Defendants' Motion to Dismiss and to Defendants' and Defendant-Intervenor's Motions for Partial Summary Judgment and in Reply to Defendants' and Defendant-Intervenor's Opposition to Plaintiffs' Motion for Partial Summary Judgment.

Civil Action No. 85-973; EDF and NWF vs. L. Thomas, EPA.
February 11, 1986

- (d) Appendix D - Supplemental Declaration of Ellen K. Silbergeld. Civil Action No. 85-973; of EDF and NWF vs. L. Thomas, EPA.
February 10, 1986

1. List of 98 chemicals likely to be contaminated *that* ~~dated~~ by PHDDs and PHDFs *that* ~~that~~ are not included in *that* EPA's proposed testing *and* ~~and~~ reporting rule.

40-8693106 Ethyl Corporation

(8) 513791

Comment letter from G.L. Ter Haar to Document Control Officer, EPA.
February 18, 1986

C₁-12

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-P-DIOXINS/DIBENZOFURANS
PUBLIC COMMENTS FOR DOCKET #83002
C₁-FILE

Fiche #

40-8693108 Great Lakes Chemical Corporation (9) 513792

Comment letter from C. O'Connor of McKenna, Conner, and Cuneo to Document Control Officer, EPA.
February 3, 1986

40-8693110 Great Lakes Chemical Corporation (10) 513793

Cover letter from C. O'Connor of McKenna, Conner and Cuneo to Document Control Officer, EPA
February 19, 1986

Enclosures:

- (1) Comments on Proposed Testing and Reporting Rules Under the Toxic Substances Control Act for Polyhalogenated Dibenzodioxins and Dibenzofurans. (Sanitized) Great Lakes Chemical Corp.
February 19, 1986
- (2) Technical Comments on Proposed Testing and Reporting Rules Under the Toxic Substances Control Act for Polyhalogenated Dibenzodioxins and Dibenzofurans. Great Lakes Chemical Corp. (Sanitized)
February 18, 1986
- (3) Appendix A: Curriculum Vitae for three Great Lakes Chem^{all} Corp. employees.
- (4a) Appendix B: Review and Trends in the Analysis for PCDD/PCDF. W.B. Crummett, L.L. Lamparski and T.J. Nestrick (Dow Chemical USA).

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
PUBLIC COMMENTS FOR DOCKET #83002
C₁-FILE

Fiche #

40-8693110 (continued)

- (4b) Letter from D. Rodwell, WIL Res. Labs., Inc., to D. McFadden, Great Lakes Chemical Corp. (Sanitized) June 7, 1985
- (4c) Acute and Chronic Toxicity Testing of 1,3,6,8-Tetra-chlorodibenzo-p-Dioxin (1,3,6,8-TCDD). (Japanese Translation) K. Kawamura, R. Sato and M. Kashima. Oyo Yakuri; *25(5)*; ~~25(5)~~ 703-711. 1983
- (5a) Summaries of Toxicity Data for Pentabromodiphenyl Oxide. (*Sanitized*) Great Lakes Chemical Corp. *Corp.* November 1984
- (5b) Summaries of Toxicity Data for Octabromodiphenyl Oxide. Great Lakes Chemical Corp.
- (5c) Summaries of Toxicity Data for Decabromodiphenyl Oxide. Great Lakes Chemical Corp. May 5, 1977
- (5d) Summaries of Toxicity Data for Tetrabromobisphenol A. Great Lakes Chemical Corp. December 1979
- (5e) Summaries of Toxicity Data for Tetrabromobisphenol A Bis(2-Hydroxyethyl Ether). Great Lakes Chemical Corp. March 21, 1979

C₁-14

20548

78

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
PUBLIC COMMENTS FOR DOCKET #83002
C₁-FILE

Fiche #

40-8693110 (continued)

- (5f) Summaries of Toxicity Data for
Bis(Allyl Ether) of Tetrabromobis-
phenol A. Great Lakes Chemical
Corp.
May 19, 1981
- (5g) Summaries of Toxicity Data for
Bis(2,3-Dibromopropyl Ether) of
TBBPA.
- (5h) Summaries of Toxicity Data for
2,4,6-Tribromophenol. Great Lakes
Chemical Corp.
March 31, 1982
- (5i) Summaries of Toxicity Data for 1,2-
Bis(Tribromophenoxy) Ethane. Great
Lakes Chemical Corp.
November 1981

40-8593107	Imperial, Inc.	(11)	513794
	Comment letter from G. Currie to ~~Docu~~ <i>Docu</i> ment Control Officer, EPA. December 31, 1985		
40-8693111	Platte Chemical Company	(12)	513796
	Comment letter from D. Burchett to Document Control Officer, EPA. January 17, 1986		
40-8693112	Vulcan Materials Company	(13)	513797
	Comment letter from T.A. Robinson to Document Control Officer, EPA. February 18, 1986		

C₁-15

20549 79

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
PUBLIC COMMENTS FOR DOCKET #83002
C₁-FILE

Fiche #

40-8693113 Workers' Institute for Safety and Health (14) 513798

Docu Comment letter from M. Gillen to *per*
ment Control Officer, EPA.
February 26, 1986

C₁-16

20550 80

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
PUBLIC COMMENTS FOR DOCKET #83002B
C₂-FILE

Fiche #

40-8693179	Eastman Kodak Company	(1)	513799
	Comment letter from R. Brothers to Document Control Officer, EPA. November 21, 1986		
40-8693180	Environmental Defense Fund	(2)	513800
	Cover letter from R. Percival to Document Control Officer, EPA November 21, 1986		
	Enclosure:		
	(1) <u>Comments of the Environmental Defense Fund on EPA's Proposed Addition of Certain Chlorinated and Brominated Benzenes to List of Precursor Chemicals in Proposed Testing and Reporting Rule for Polyhalogenated Dibenzo-p-Dioxins/Dibenzofurans.</u> November 21, 1986		
40-8693181	Great Lakes Chemical Corporation	(3)	513801
	<u>Comments on the Proposed Addition of 18 Chlorinated and Brominated Benzenes to the List of Precursor Chemicals.</u> (Sanitized) November 24, 1986		

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
PUBLIC COMMENTS FOR DOCKET #83002B
C₂-FILE

Fiche #

40-8693182 Uniroyal Chemical Company, Inc. (4) 513802

Comment letter from R.A. Cardona to
Document Control Officer, EPA
November 21, 1986

Enclosures:

- (1) Letter from R.A. Cardona, *Uniroyal*,
~~Uniroyal~~ to J.W. Akerman, EPA, *regarding*
~~regarding~~ PCWB Data-Call-in Notice *of May 5,*
~~of May 8,~~ 1985.
May 5, 1986
- (2) Letter from J.D.L. Salcedo, *Chemi-*
~~Chemical~~ Org. of Mexico, to R. *Cardona,*
~~Cardona~~ Uniroyal, authorizing *Uniroyal to*
~~Uniroyal to~~ rely on data from *Chemical Org. of*
~~Chemical Org. of~~ Mexico.
April 28, 1986
- (3) Letter from EPA to R. Cardona,
Uniroyal, giving the status of
submitted studies.
March 31, 1986
 - (a) Letter from G. Werdig, EPA,
to Chemical Group, Uniroyal
Inc., providing the EPA
accession number for data
submitted.
September 23, 1985

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOR DOCKET #83002
D_{1a}-FILE

Fiche #

40-8593116 EDF/NWF Meeting (1) 513803

Attendees:

Environmental Protection Agency
Environmental Defense Fund
National Wildlife Federation

Date: January 31, 1985

Subject: EPA's response to Section 21
 petition.

Enclosure:

(1) Meeting summary.
 February 8, 1985

40-8593117 EPA Dioxin/Furan Work Group Meeting (2) 513804

Date: June 11, 1985

Subject: Review of the MRI Report.

Documents:

(1) Meeting summary.

D_{1a}-1

83

20553

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOR DOCKET #83002
D_{1a}-FILE

Fiche #

40-8593118 EPA Dioxin/Furan Work Group Meeting (3) 513805

Date: July 22, 1985

Subject: Levels of quantification and
 action levels.

Documents:

- (1) Meeting summary.
- (2) List of attendees.
- (3) Options for Dioxin Work Group.
- (4) Schedule for Dioxin/Furan Rule Development.

40-8593120 EPA Dioxin/Furan Work Group (4) 513806

Date: August 5, 1985

Subject: Direction of the proposed
 rule.

Documents:

- (1) Meeting summary.
 August 13, 1985

D_{1a}-2

84
20554

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOR DOCKET #83002
D_{1a}-FILE

Fiche #

40-8593119 Chemical Manufacturers Association Meeting (5) 513807

Attendees:

Chemical Manufacturers Association
Environmental Protection Agency

Date: August 12, 1985

Subject: Technical aspects of the
 rule.

Documents:

- (1) Meeting summary.
 August 14, 1985
- (2) List of attendees.

D_{1a}-3

85
20555

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOR DOCKET #83002B
D_{1b}-FILE

Fiche #

40-8693114

Public Meeting on Dibenzo-p-Dioxins/
Dibenzofurans

(1)

513808

Attendees:

Environmental Protection Agency
McKenna, Conner and Cuneo
Kirkland and Ellis
Pesticide and Toxic Chemical News
Chemical Manufacturers Association
Ethyl Corporation
National Wildlife Federation
American Petroleum Institute
Monsanto Company
The Dow Chemical Company
Environmental Defense Fund
Ameribrom, Inc.
Great Lakes Chemical Corporation
~~E.S.~~ Bureau of National Affairs

Date: March 4, 1986

Subject: Proposed testing and
reporting requirements.

Documents:

- (1) List of attendees.
- (2) Transcript of Proceedings.

D_{1b}-1

86

20556

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOR DOCKET #83002B
D_{1b}-FILE

Fiche #

40-8693121 Great Lakes Chemical Corporation (2) 513809
Meeting

Attendees:

Environmental Protection Agency
McKenna, Connor and Cuneo
Great Lakes Chemical Corporation

Date: March 4, 1986

Subject: CBI and comments to the
 proposed rule from the Great
 Lakes Chemical Corp.

Documents:

(1) Transcript of private
 meeting. (Sanitized)

40-8693115 Public Meeting on Dioxins and Furans (3) 513810

Attendees:

Environmental Protection Agency
NCAMP
Standard Chlorine of Delaware, Inc.
The Dow Chemical Company
Harvard School of Public Health
Pesticide and Toxic Chemical News
Kirkland and Ellis
Bureau of National Affairs
Great Lakes Chemical Corporation
Piper and Marbury
Vulcan Chemicals Company
Ethyl Corporation
Environmental Defense Fund
Chemical Manufacturers Association

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOR DOCKET #83002B
D1b-FILE

Fiche #

40-8693115 (continued)

Date: April 22, 1986

Subject: Proposed testing and
reporting requirements.

Documents:

- (1) Attendees list.
- (2) Transcript of Proceedings.

40-8693122 EPA Dioxin/Furan Work Group Meeting (4) 513811

Date: April 23, 1986

Subject: Summary of the public meeting
and discussion of issues.

Documents:

- (1) Meeting summary.
- (2) List of attendees.

40-8693123 EPA Dioxin/Furan Work Group Meeting (5) 513812

Date: May 7, 1986

Subject: Testing recommendations.

Documents:

- (1) Meeting summary.
May 15, 1986

D1b-3

88

20558

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOR DOCKET #83002B
D1b-FILE

Fiche #

40-8693124 EPA Dioxin/Furan Work Group Meeting (6) 513813

Date: May 21, 1986

Subject: Testing recommendations.

Documents:

- (1) Meeting summary.
June 10, 1986
- (2) Attendance sign-in sheet.

D1b-4

89
20559

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOR DOCKET #83002C
D_{1c}-FILE

Fiche #

40-8693201 Dioxin Update Conference

(1) 513814

Attendees:

(Not listed)

Date: July 1-2, 1986

Subject: Scientific issues associated
 with Dioxins.

Documents:

- (1) Introduction to the Report.
- (2) Conclusions of the Dioxin
Update Committee.
- (3) Review of the Epidemiologic
Data Regarding Dioxin and
Cancer. A. Blair; National
 Cancer Institute.
- (4) Immunotoxicity of the
Chlorinated Dibenzodioxins
and Dibenzofurans. J. Dean
 and R. Kimbrough, CIIT and
 CDC.
- (5) Bioavailability of Dioxins
from Complex Mixture. M.
 Gallo.
 June 19, 1986
- (6) Mechanism of Action. A.
 ~~By~~ Poland.
- (7) Risk Assessment. ↗
 D. Hoel.

D_{1c}-1

90
20560

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOR DOCKET #83002C
D_{1c}-FILE

Fiche #

40-8693201 (continued)

- (8) Teratology and Reproduction
Studies with TCDD. R.
R Kimbrough.
- (9) "Dioxin Update" Participants.

40-8793202 EPA Workgroup Closure Meeting (2) 513815

Date: February 18, 1987

Subject: Test rule and data submission
 requirements.

Documents:

- (1) Meeting summary.
February 20, 1987
- (2) Attendees list.

Antoine M. [Signature]

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOLLOWING DOCKET #83002C
D_{1d}-FILE

Fiche #

40-8793220 EPA Dioxin/Furan Workgroup Meeting (1) 513816

Date: July 2, 1987

Subject: System for handling exclusion
 and waiver applications.

Documents:

(1) Meeting summary.

40-8893233 Dioxin Panel Meeting (2) 513817

Attendees:

Midwest Research Institute
Environmental Protection Agency

Date: February 29, 1988

Subject: Protocol review.

Documents:

- (1) Meeting summary from Midwest
Research Institute.
March 15, 1988
- (2) List of attendees.
- (3) Dioxin/Furan Rule Company
Compliance Status.
- (4) Protocol Review Process.
- (5) Charter of the Dioxin/Furan
Protocol Review Panel.

D_{1d}-1

92
20562

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOLLOWING DOCKET #83002C
D1d-FILE

Fiche #

40-8893293 Protocol Review Panel Teleconference (3) 524803

Attendees:

Midwest Research Institute
Environmental Protection Agency

Date: April 20, 1988

Subject: Protocol review.

Documents:

- (1) Cover letter from D. Steele,
Midwest Research Institute,
to R. Mitchum, EPA (Also
identical letters to W.
Bontoyan, A. Dupuy, R.
Harless and D. Firestone,
EPA).
May 4, 1988
- (a) Minutes of meeting from
Midwest Research
Institute.
May 4, 1988
- (b) Participants at meeting.

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOLLOWING DOCKET #83002C
D1d-FILE

Fiche #

40-8893294 Protocol Review Panel Teleconference (4) 524804

Attendees:

Environmental Protection Agency
U.S. Food and Drug Administration
Midwest Research Institute

Date: May 18, 1988

Subject: Protocol review.

Documents:

- (1) Cover letter from D. Steele,
Midwest Research Institute to
W. Bontoyan, EPA.
May 24, 1988
- (a) Minutes of the meeting
from Midwest Research
Institute.
May 24, 1988

40-8893295 Protocol Review Panel Teleconference (5) 524805

Attendees:

Environmental Protection Agency
U.S. Food and Drug Administration
Midwest Research Institute

Date: June 15, 1988

Subject: Protocol review.

Documents:

- (1) Minutes of the teleconference
from Midwest Research
Institute.
June 16, 1988

D1d-3

20564

94

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOLLOWING DOCKET #83002C
D1d-FILE

Fiche #

40-8893300 Protocol Review Panel Meeting (6) 524806

Attendees:

Environmental Protection Agency
Lockheed Environmental Services
Midwest Research Institute
Great Lakes Chemical Corporation
Dead Sea Bromine Company
Hoechst-Celanese Corporation
U.S. Food and Drug Administration
Ethyl Corporation
Triangle Laboratories, Inc.
Latham and Watkins
The Dow Chemical Company
Borg-Warner Corporation
GE Plastics Corporation
Mobil Chemical Company

Date: July 27, 1988

Subject: Review of protocols.

Documents:

- (1) Minutes of July TSCA Section
4 Dioxin/Furan Protocol
Review Panel Meeting.
Midwest Research Institute.
August 17, 1988
- (2) List of attendees.

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOLLOWING DOCKET #83002C
D1d-FILE

Fiche #

40-8893301 Protocol Review Panel Teleconference (7) 524807

Attendees:

Environmental Protection Agency
Midwest Research Institute

Date: August 16, 1988

Subject: Review of protocols.

Documents:

- (1) Minutes of August EPA TSCA
 Section 4 Dioxin/Furan Proto-
 col Review Panel Telecon-
 ference. Midwest Research
 Institute.
 August 18, 1988

40-8893317 Protocol Review Panel Meeting (8) 524808

Attendees:

Environmental Protection Agency
U.S. Food and Drug Administration
Midwest Research Institute

Date: September 20, 1988

Subject: Review of protocols.

Documents:

- (1) Minutes of September EPA TSCA
 Section 4 Dioxin/Furan
 Protocol Review Panel
 Meeting.

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOLLOWING DOCKET #83002C
D_{1d}-FILE

Fiche #

40-8893328 Protocol Review Panel Teleconference (9) 524809

Attendees:

Environmental Protection Agency
Midwest Research Institute

Date: December 14, 1988

Subject: Status of the protocol
 reviews.

Documents:

- (1) Minutes of the December EPA
TSCA Section 4 Dioxin/Furan
Protocol Review Panel Tele-
conference.

40-8893329 Protocol Review Panel Teleconference (10) 524810

Attendees:

Environmental Protection Agency
Midwest Research Institute

Date: January 25, 1989

Subject: Review of Revision 1 of the
 Dow Chemical Analytical
 Protocol.

Documents:

- (1) Minutes of the January EPA
TSCA Section 4 Dioxin/Furan
Protocol Review Panel
Teleconference.

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOLLOWING DOCKET #83002C
Dld-FILE

Fiche #

40-8993361 Dioxin/Furan Protocol Review Panel Meeting (11) 524811

Attendees:

Environmental Protection Agency
Great Lakes Chemical Corporation
GE Plastics Company
Lockheed Environmental Services
The Dow Chemical Company
Hoechst-Celanese Corporation
U.S. Food and Drug Administration
Ethyl Corporation
Triangle Laboratories, Inc.
National Institute for
Occupational Safety and Health,
USDHHS
Borg-Warner Corporation
Midwest Research Institute
Latham and Watkins
Ameribrom, Inc.

Date: March 1, 1989

Subject: Exposure issues and protocol
 reviews..

Documents:

- (1) Minutes of March TSCA Section
4 Dioxin/Furan Protocol
Review Panel Meeting.
- (2) List of attendees.

Dld-7

20568 98

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOLLOWING DOCKET #83002C
D1d-FILE

Fiche #

40-8993362 Protocol Review Panel Teleconference (12) 524812

Attendees:

Environmental Protection Agency
Midwest Research Institute

Date: March 23, 1989

Subject: Panel recommendations and
 comments on the protocols.

Documents:

(1) Letters from D. Steele of
 Midwest Research Institute to
 W. Sovocool, W. Bontoyan, R.
 Harless and A. Dupuy of EPA
 and D. Firestone of FDA.
 March 28, 1989

(a) Minutes of March 23 EPA
 TSCA Section 4 Dioxin/
 Furan Protocol Review
 Panel Teleconference.

(b) Status of TSCA Section 4
 Dioxin/Furan Protocols.
 March 2, 1989

D1d-8

20569 99

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOLLOWING DOCKET #83002C
D1d-FILE

Fiche #

40-8993363 Panel Review Teleconference (13) 524813

Attendees:

Environmental Protection Agency
Midwest Research Institute

Date: May 17, 1989

Subject: Protocol reviews.

Documents:

- (1) Minutes of May EPA TSCA
 Section 4 Dioxin/Furan
 Protocol Review Panel
 Teleconference.

40-8993364 Protocol Review Panel Teleconference (14) 524814

Attendees:

U.S. Food and Drug Administration
Environmental Protection Agency
Midwest Research Institute

Date: June 14, 1989

Subject: Protocol review.

Documents:

- (1) Minutes of June EPA TSCA
 Section 4 Dioxin/Furan
 Protocol Review Panel
 Teleconference.

D1d-9

20570 100

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOLLOWING DOCKET #83002C
D_{1d}-FILE

Fiche #

40-8993396 Protocol Review Panel Meeting

(15) 524898

Attendees:

Environmental Protection Agency
U.S. Food and Drug Administration
Midwest Research Institute

Date: August 23-24, 1989

Subject: Triangle Labs. audit; *Classi-*
~~0122~~ *fication of the protocols for Chlo-*
~~protocols~~ *for chloranil; Protocols pending and*
pending and received; Review *of sampling*
~~of sampling~~ and analytical *protocols 006*
~~protocols 000~~ to 020 for the *Brominated*
~~Brominated~~ Compounds.

Documents:

- (1) Minutes of EPA TSCA Section 4
Dioxin/Furan Protocol Review
Panel Teleconference.

[See H_{1.2}(30a) for Summary]

D_{1d}-10

20571 101

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOLLOWING DOCKET #83002C
D_{1d}-FILE

Fiche #

40-8993397 Protocol Review Panel Teleconference (16) 524898

Attendees:

Environmental Protection Agency
Midwest Research Institute
Lockheed Engineering and Sciences
Company
U.S. Food and Drug Administration

Date: September 8, 1989

Subject: Storage conditions for
 Brominated Compounds;
 Analytical problems with
 Chloranil; Approval of
 Protocols 002 to 005.

Documents:

- (1) Minutes of EPA TSCA Section 4
Dioxin/Furan Protocol Review
Panel Teleconference.

[See H_{1.2}(30a) for Document]

D_{1d}-11

102

20572

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOLLOWING DOCKET #83002C
D_{1d}-FILE

Fiche #

40-8993398 Protocol Review Panel Teleconference (17) 524898

Attendees:

Environmental Protection Agency
Midwest Research Institute
Lockheed Engineering and Sciences
Company
U.S. Food and Drug Administration

Date: September 29, 1989

Subject: Chloranil analysis; Review of
 protocol 006 to 020.

Documents:

- (1) Minutes of EPA TSCA Section 4
Dioxin/Furan Protocol Review
Panel Teleconference.

[See H_{1.2}(30a) for Document]

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOLLOWING DOCKET #83002C
D_{1d}-FILE

Fiche #

40-8993399

Protocol Review Panel Teleconference

(18)

524898

Attendees:

Environmental Protection Agency
Midwest Research Institute
Lockheed Engineering and Sciences
Company
U.S. Food and Drug Administration

Date: October 25, 1989

Subject: Chloranil analysis; BFRIR
protocols; and Pfester
protocol No. 021.

Documents:

- (1) Minutes of EPA TSCA Section 4
Dioxin/Furan Protocol Review
Panel Teleconference.

[See H_{1.2}(30a) for Document]

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOLLOWING DOCKET #83002C
D1d-FILE

Fiche #

40-9093400 Protocol Review Panel Teleconference (19) 524815

Attendees:

Environmental Protection Agency
Lockheed Engineering and Sciences
Company
U.S. Food and Drug Administration
Midwest Research Institute

Date: January 10, 1990

Subject: BFRIP testing extension
 request; Data from Hoechst
 Celanese; Data from Chugai.

Documents:

- (1) Minutes of January EPA TSCA
Section 4 Dioxin/Furan *Proto* -
~~Protocol~~ Review Panel *Teleconfe* -
~~Teleconference~~.

40-9093450 Protocol Review Panel Teleconference (20) 524816

Attendees:

Environmental Protection Agency
Midwest Research Institute
U.S. Food and Drug Administration
Lockheed Engineering and Sciences
Company

Date: February 21, 1990

Subject: Update on protocol review.

Documents:

- (1) Minutes of February EPA TSCA
Section 4 Dioxin/Furan *Proto* -
~~Protocol~~ Review Panel *Teleconfe* -
~~Teleconference~~.

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOLLOWING DOCKET #83002C
D1d-FILE

Fiche #

40-9093460 Review Panel Meeting (21) 524817

Attendees:

Environmental Protection Agency
Lockheed Engineering and Sciences
Company
U.S. Food and Drug Administration
Midwest Research Institute

Date: March 14, 1990

Subject: Protocol reviews.

Documents:

- (1) TSCA Section 4 Dioxin/Furan
Protocol Review Panel
Meeting.

too much space here

- (2) Exhibit I: EPA memo from D.
McDaniel (Miss.) to A. Dupuy,
Jr. Description of samples *and*
~~and~~ methods used in the *analysis*
~~analysis~~ of Tetrabromo
bisphenol A.
March 12, 1990

- (3) Exhibit II: EPA memo from R.
Harless (RTP, NC) to T. *Murray*
~~Murray~~ on the analysis for *dibenzop-*
~~dibenzo~~p-Dioxins and *dibenzofurans*
~~Dibenzofurans~~ in
Tetrabromobisphenol A.
March 13, 1990

D1d-15

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
MEETINGS FOLLOWING DOCKET #83002C
D1d-FILE

Fiche #

40-9093461 Review Panel Meeting

(22) 524818

Attendees:

Environmental Protection Agency
Lockheed Engineering and Sciences
Company
U.S. Food and Drug Administration
Midwest Research Institute
Great Lakes Chemical Corporation
Arnold and Porter
Ethyl Corporation
Triangle Laboratories
Chemical Manufacturers Association
Ameribrom, Inc.
Brominated Flame Retardant
Industry Panel

Date: March 14, 1990

Subject: Analytical methods
 development.

Documents:

- (1) TSCA Section 4 Protocol
 Review Panel/BFRIP Meeting.
- (1a) TSCA Section 4 Protocol
 Review Panel/BFRIP Meeting.
 (Revised)
- (2) Exhibit I: Letter from D.
 Steele, Midwest Research
 Institute to C. Mazac of
 Great Lakes Chemical Corp. on
 the Panel questions of BFRIP
 protocols.
 March 8, 1990

D1d-16

107
20577

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOLLOWING DOCKET #83002C
D1d-FILE

Fiche #

40-9093461 (continued)

- (3) Exhibit II: EPA memo from D. McDaniel (Miss.) to A. Dupuy on the description of samples and methods used in the ~~analysis~~ *analy-* ~~analysis~~ of Tetrabromobisphenol A. *March 12, 1990*
- (4) Exhibit III: EPA memo from R. Harless (RTP, NC) to T. Murray on the analysis for Dibenzo-p-Dioxins and *Dibenzo-* ~~Dibenzofurans in~~ Tetrabromobisphenol A. *March 13, 1990*
- (5) Exhibit IV: Telefax from C. Mazac of Great Lakes Chemical Corporation to Chemsyn *Science* ~~Science~~ Labs. requesting the *synthesis* ~~synthesis~~ of additional *brominated* ~~brominated~~ standards. *November 6, 1989*
- (6) Exhibit V: Letter from J. Kreuzberger of Chemsyn *Science* ~~Science~~ Labs. to C. Mazac of *Great* ~~Great~~ Lakes Chemical Corp. in response to their request of November 6, 1989. *December 13, 1989*
- (7) Exhibit VI: Internal Great Lakes Chemical Corp. memo *from* ~~from~~ A.S. Klemene to D.W. *Abbott on* ~~Abbott on~~ the structural determination of *Heptabromodibenzofuran.* *March 9, 1990*
- (8) Exhibit VII: Single Laboratory Method Evaluation for TBBPA. *March 7, 1990*

D1d-17

108

20578

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOLLOWING DOCKET #83002C
D1d-FILE

Fiche #

40-9093461 (continued)

- (9) Exhibit VIII: Single Laboratory Method Evaluation for PH-73.

March 7, 1990

(10) Addendum.

40-9093462 Review Panel Teleconference

(23) 524819

Attendees:

Environmental Protection Agency
Midwest Research Institute
U.S. Food and Drug Administration

Date: May 9, 1990

Subject: Compliance complaints and
protocol reviews.

Documents:

- (1) TSCA Section 4 Dioxin/Furan
Protocol Review Panel
Teleconference.
May 9, 1990

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOLLOWING DOCKET #83002C
D1d-FILE

Fiche #

40-9093486 Review Panel Teleconference

(24) 53331/

Attendees:

Environmental Protection Agency
Midwest Research Institute
U.S. Food and Drug Administration

Date: June 27, 1990

Subject: Enforcement actions, protocol
status and Chloronil
analysis. *a*

Documents:

- (1) *Minutes*
Meeting of June EPA TSCA
Section 4 Dioxin/Furan
Protocol Review Panel
Teleconference.
July 24, 1990

40-9093487 BFRIP Teleconference

(25) 533310

Attendees:

Environmental Protection Agency
Triangle Laboratories, Inc.
Midwest Research Institute
Indust Great Lakes Chemical Corporation
(Brominated Flame Retardant
Industry Panel)

Date: July 12, 1990

Subject: Clarification of points
raised as a result of
analytical protocols prepared
by Triangle Labs and
submitted by BFRIP.

Documents:

- (1) Minutes of Teleconference.

July 24, 1990

D1d-19

20580 110

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOLLOWING DOCKET #83002C
D_{1d}-FILE

Fiche #

40-9093488 Review Panel Meeting

(26) 5333 19

Attendees:

Environmental Protection Agency
Lockheed Engineering and Sciences
Company
U.S. Food and Drug Administration
Midwest Research Institute

Date: August 14, 1990

Subject: Chloranil testing.

Documents:

- (1) Minutes of August EPA Section 4 Dioxin/Furan Protocol Review Panel Meeting.
- (2) Revised Minutes of August EPA TSCA Section 4 Dioxin/Furan Protocol Review Panel Meeting.

August 28, 1990
September 5, 1990

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
MEETINGS FOLLOWING DOCKET #83002C
D_{1d}-FILE

Fiche #

40-9093489 Review Panel Teleconference

(27) 533320

Attendees:

Environmental Protection Agency
Lockheed Engineering and Sciences
Company
U.S. Food and Drug Administration
Midwest Research Institute

Date: August 23, 1990

Subject: Review of the Panel's
 responses to the second
 revision of the analytical
 protocols.

Documents:

- (1) Minutes of August 23rd, 1990
 EPA TSCA Section 4 Dioxins/
 Furan Protocol Review Panel
 Teleconference.

August 27, 1990

40-9093507 Review Panel Teleconference

(28) 533321

Attendees:

Environmental Protection Agency
Lockheed Engineering and Sciences
Company
U.S. Food and Drug Administration
Midwest Research Institute

Date: October 4, 1990

Subject: Status on the protocol
 reviews.

Documents:

- (1) Minutes of the October EPA
 TSCA Section 4 Dioxin/Furan
 Protocol Review Panel
 Teleconference.

October 9, 1990
D_{1d}-21

20582 112

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
LEGAL PROCEEDINGS FOR DOCKET #83002
D_{2a}-FILE

Fiche #

40-8093125 The Dow Chemical Company et al. (1) 513818

Direct testimony of David T. Buzzelli
regarding 2,4,5-T and Silvex before the
Environmental Protection Agency of the
United States of America. Exhibit 810
in regards to The Dow Chemical Co. et
al.; Docket Nos. 415 et al.
September 30, 1980

D_{2a}-1

20583 113

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
LEGAL PROCEEDINGS FOR DOCKET #83002C
D_{2C}-FILE

Fiche #

40-8093125

The Dow Chemical Company et al.

(1)

513818

Direct testimony of David T. Buzzelli
regarding 2,4,5-T and Silvex before the
Environmental Protection Agency of the
United States of America. Exhibit 810
in regard to The Dow Chemical Co. et
al.; Docket Nos. 415 et al.
September 30, 1980

[Crossreferenced to D_{2a}(1)]

D_{2C}-1

20584 114

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKETS #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
HEARING FOLLOWING DOCKET #83002C
D_{3d}-FILE

Fiche #

40-9093454

~~U.S.~~ EPA vs. Chugai Boyeki (America)
Corporation

(1)

524820

Attendees:

Chugai Boyeki (America)
Corporation
Sandoz Chemicals Corporation
Hoechst-Celanese Corporation
Triangle Laboratories, Inc.

Date: June 1, 1990

Subject: Submission of study conducted
in violation of Section 4 of
TSCA.

Documents:

- (1) Complaint and Notice of
Opportunity for Hearing Under
Section 16(a) of the Toxic
Substances Control Act.
Docket No. TSCA 90-H-11.

D_{3d}-1

20585

115

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOR DOCKET #83002
E_{1a}-FILE

			<u>Fiche #</u>
40-8593126	From: Environmental Protection Agency D. Keehner	(1)	513819
	To: Environmental Protection Agency M. Callahan		
	Date: February 11, 1985		
	Subject: Formation of the Dioxins/Furan Work Group.		
40-8593127	From: Environmental Protection Agency D. Keehner	(2)	513820
	To: Environmental Protection Agency A. Carpien		
	Date: February 11, 1985		
	Subject: Formation of the Dioxins/Furan Work Group.		
40-8593128	From: Environmental Protection Agency D. Keehner	(3)	513821
	To: Environmental Protection Agency J. Carra		
	Date: February 11, 1985		
	Subject: Formation of the Dioxins/Furan Work Group.		

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOR DOCKET #83002
E_{1a}-FILE

Fiche #

40-8593129	From: Environmental Protection Agency (4) D. Keehner	513822
	To: Environmental Protection Agency F. Kover	
	Date: February 11, 1985	
	Subject: Formation of the Dioxins/ <i>Furan</i> ~~Furan~~ Work Group.	
40-8593130	From: Environmental Protection Agency (5) D. Keehner	513823
	To: Environmental Protection Agency G. Timm	
	Date: February 11, 1985	
	Subject: Formation of the Dioxins/ <i>Furan</i> ~~Furan~~ Work Group.	
40-8593131	From: Environmental Protection Agency (6) A. Ralph	513824
	To: Environmental Protection Agency R. Boethling	
	Date: February 11, 1985	
	Subject: Formation of the Dioxins/ <i>Furan</i> ~~Furan~~ Work Group.	

E_{1a}-2

20587

117

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOR DOCKET #83002
E_{1a}-FILE

Fiche #

40-8593132	From: Environmental Protection Agency M. Halper	(7)	513825
	To: Environmental Protection Agency I. Baumel and M. Shapiro		
	Date: February 14, 1985		
	Subject: Formation of the Dioxins/ <i>furan</i> ~~Furan~~ Work Group.		
40-8593133	From: Environmental Protection Agency A. Ralph	(8)	513826
	To: Environmental Protection Agency Dioxin/Furan Work Group		
	Date: March 1985		
	Subject: Meeting announcement.		
	Enclosures:		
	(1) List of Workgroup members.		
	(2) Draft Development Plan for the Rule.		
	[See E _{1a} (10) for Enclosures]		
40-8593134	From: Environmental Protection Agency A. Ralph	(9)	513827
	To: Environmental Protection Agency Dioxin/Furan Work Group		
	Date: April 12, 1985		
	Subject: Meeting notice and agenda.		

E_{1a}-3

20588 118

Fiche

Fiche #

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOR DOCKET #83002
E_{1a}-FILE

Fiche #

40-8593137 From: Environmental Protection Agency (12) 513830
 S. Lee and K. McCormack

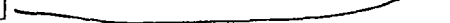
 To: Environmental Protection Agency
 Dioxin/Furan Work Group

 Date: July 31, 1985

 Subject: Meeting announcement and
 agenda.

Enclosures:

- (1) Summary of comments from the
workgroup on the rule.
- (2) Minutes of July 22, 1985
meeting.

[See D_{1a}(3) for Enclosure
(2)] 

40-8593138 From: Environmental Protection Agency (13) 513831
 K. McCormack and S. Lee

 To: Environmental Protection Agency
 Dioxin/Furan Work Group

 Date: August 13, 1985

 Subject: Meeting announcement and
 agenda.

Enclosure:

- (1) Minutes of August 5, 1985
meeting.

[See D_{1a}(4) for Enclosure]

E_{1a}-6

20591

121

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOR DOCKET #83002B
E1b-FILE

Fiche #

40-8693139	From:	National Institute of Environmental Health Sciences J. Goldstein	(1)	513832
	To:	Environmental Protection Agency D. Barnes		
	Date:	January 13, 1986		
	Subject:	The revised draft of the CDD and CDF position document.		
40-8693140	From:	Environmental Protection Agency S. Rudzinski	(2)	513833
	To:	McKenna, Conner and Cuneo C. O'Connor III		
	Date:	February 26, 1986		
	Subject:	Response to request for a private meeting with the Great Lakes Chemical Corp.		
40-8693141	From:	McKenna, Conner and Cuneo C. O'Connor III	(3)	513834
	To:	Environmental Protection Agency S. Rudzinski		
	Date:	February 28, 1986		
	Subject:	Confirmation of the upcoming private meeting.		

E1b-1

122

20592

Fiche #

Enclosure:

[See C₁ File for Enclosure
(2)] _____ ↗

40-8693144 From: Chemical Manufacturers Association (5) 513836
 R. Fensterheim

 To: Environmental Protection Agency
 S. Lee

 Date: April 3, 1986

 Subject: Agenda for the April 22, 1986
 meeting.

Enclosures:

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOR DOCKET #83002B
E_{1b}-FILE

Fiche #

40-8693144 (continued)

(a) Letter from CMA to Dr.
Moore, EPA, requesting a
meeting.
February 18, 1986

(b) Comments on EPA's pro-
posed rule.

[See C₁(3) for Enclosures (a)
and (b)]

40-8693145	From:	Cambridge Isotope Laboratories J.C. Bradley	(6)	513837
	To:	Environmental Protection Agency S. Rudzinski		
	Date:	April 7, 1986		
	Subject:	List of materials in catalog.		

40-8693142	From:	McKenna, Conner and Cuneo A. Kerester	(6a)	513838
	To:	Environmental Protection Agency S. Rudzinski		
	Date:	April 16, 1986		
	Subject:	Cover letter for enclosure.		
	Enclosure:			

(1) Transcript of private
meeting.

[See D_{1b}(1) for Enclosure]

E_{1b}-3

124

20594

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOR DOCKET #83002B
E_{1b}-FILE

Fiche #

40-8693146 From: Environmental Protection Agency (7) 513839
 S. Lee and K. McCormack

To: Environmental Protection Agency
 Dioxin/Furan Workgroup

Date: May 5, 1986

Subject: Removal of chemicals from the
 list.

Enclosure:

(1) Minutes from the April 23,
 1986 meeting.

[See D_{1b}(4) for Enclosure]

40-8693147 From: Environmental Protection Agency (8) 513840
 S. Lee and K. McCormack

To: Environmental Protection Agency
 Dioxin/Furan Work Group

Date: May 15, 1986

Subject: Work Group meeting announce-
 ment and agenda.

Enclosure:

(1) Minutes from the May 7, 1986
 meeting.

[See D_{1b}(5) for Enclosure]

E_{1b}-4

125
20595

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOR DOCKET #83002B
E_{1b}-FILE

Fiche #

40-8693148 From: Environmental Protection Agency (9) 513841
 S. Lee and K. McCormack

 To: Environmental Protection Agency
 Dioxin/Furan Workgroup

 Date: June 10, 1986

 Subject: Meeting announcement and
 agenda.

Enclosures:

- (1) Minutes from the May 21, 1986 meeting.
- (2) Decision paper used to brief R. Tinsworth (EPA).
June 1986

[See D_{1b}(6) for Enclosure (1);
Enclosure (2) Not Provided to
Docket]

40-8693149 From: Environmental Protection Agency (10) 513842
 M. Dreyfus

 To: Cambridge Isotope Laboratories
 J. Bradley

 Date: June 19, 1986

 Subject: Information submitted on the
 economic analysis.

Enclosure:

- (1) Summary of June 18, 1986,
phone call.

[See E_{2b}(3) for Enclosure]

E_{1b}-5

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOR DOCKET #83002B
E_{1b}-FILE

Fiche #

40-8693150 From: Environmental Protection Agency (11) 513843
 K. McCormack and S. Lee

 To: Environmental Protection Agency
 Dioxin/Furan Workgroup

 Date: July 14, 1986

 Subject: Meeting announcement and
 agenda.

E_{1b}-6

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOR DOCKET #83002C
E₁C-FILE

Fiche #

40-8693196	From: Mathtech, Inc. J. Orrell	(1)	513844
	To: Environmental Protection Agency M. Dreyfus		
	Date: September 26, 1986		
	Subject: Production, producers and importers of the Chloranil market.		
40-8693175	From: Environmental Protection Agency (Science Advisory Board) R. Griesemer and N. Nelson	(2)	513845
	To: Environmental Protection Agency L. Thomas		
	Date: November 4, 1986		
	Subject: Science Advisory Board's review of "Interim Procedures for Estimating Risk Associated <u>ciated With Exposures to</u> <u>Mixtures of Chlorinated</u> <u>Dibenzo-p-Dioxins and</u> <u>Dibenzofurans (CCDs and</u> CDFs)".		
40-8693178	From: McKenna, Conner and Cuneo A. Kerester (for C. O'Connor)	(3)	513846
	To: Environmental Protection Agency Document Control Officer		
	Date: November 7, 1986		
	Subject: Participation in a public meeting.		

E₁C-1

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOR DOCKET #83002C
E₁C-FILE

Fiche #

40-8693197	From:	Environmental Protection Agency K. Wong	(4)	513847
	To:	Environmental Protection Agency M. Dreyfus		
	Date:	December 8, 1986		
	Subject:	Input on cost estimate for Dioxin/Dibenzofuran section 8(a) form.		
40-8693188	From:	Environmental Defense Fund E. Silbergeld and R. Percival	(5)	513848
	To:	Environmental Protection Agency J. Moore		
	Date:	January 15, 1987		
	Subject:	Settlement among Vulcan Materials, EPA, and Idacon, Inc., with respect to Dioxin contamination of PCP.		
40-8793195	From:	Environmental Protection Agency J. Moore	(6)	513849
	To:	Environmental Defense Fund E. Silbergeld		
	Date:	March 24, 1987		
	Subject:	Response to EDF's letter of January 15, 1987.		

E₁C-2

129
20599

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOLLOWING DOCKET #83002C
E1d-FILE

Fiche #

40-8793206	From: General Electric Company S.F. Austin	(1)	513850
	To: Environmental Protection Agency Document Control Officer		
	Date: June 26, 1987		
	Subject: Request for clarification of Final Rule.		
40-8793207	From: Kirkland and Ellis T. Hardy	(2)	513851
	To: Environmental Protection Agency D. Keehner		
	Date: June 30, 1987		
	Subject: Request for clarification of the Final Rule.		
40-8793208	From: Supelco, Inc. L. Witting	(3)	513852
	To: Environmental Protection Agency E. Klein		
	Date: July 9, 1987		
	Subject: Request for a waiver from testing.		

E1d-1

130
208600

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOLLOWING DOCKET #83002C
E1d-FILE

Fiche #

40-8793337	From:	Monsanto Chemical Company R. Olszewski	(3a)	524821
	To:	Great Lakes Chemical Corporation D. McAllister		
	Date:	July 21, 1987		
	Subject:	Confidentiality status of the April 3, 1986 submission from Monsanto (F1(2)).		
40-8793209	From:	Kirkland and Ellis T. Hardy	(4)	513853
	To:	Environmental Protection Agency D. Keehner		
	Date:	July 29, 1987		
	Subject:	Request for additional <i>clarifi-</i> ~~clarification~~ of final rule <i>issues</i> . <i>issues.</i>		
40-8793210	From:	American Paper Institute and the National Forest Products Association J. Festa	(5)	513854
	To:	Environmental Protection Agency Document Control Office		
	Date:	August 3, 1987		
	Subject:	Request for clarification of Final Rule.		

E1d-2

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOLLOWING DOCKET #83002C
E1d-FILE

Fiche #

40-8793211	From: Ciba-Geigy Corporation A. DiBattista	(6)	513855
	To: Environmental Protection Agency Document Control Officer		
	Date: August 14, 1987		
	Subject: Clarification of the Final Rule.		
40-8793223	From: Rhone-Poulenc, Inc. N.I. Rouse	(7)	513856
	To: Environmental Protection Agency Document Control Office		
	Date: August 20, 1987		
	Subject: Application for exemption from testing 2,4-Dichloro- phenol.		
	Enclosure:		
	(1) Test results on imported 2,4- Dichlorophenol.		

E1d-3

132
20602

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOLLOWING DOCKET #83002C
E1d-FILE

Fiche #

40-8793212 From: Ethyl Corporation (8) 513857
 T. Pullin

To: Environmental Protection Agency
 Document Control Officer

Date: September 1, 1987

Subject: Cover letter for enclosures.

Enclosures:

(1) Letter of intent to conduct tests on Pentabromodiphenyl-oxide and Octobromodiphenyl-oxide from T. Pullin, Ethyl Corp. to Document Control Officer, EPA.
September 1, 1987

(2) Application letter from T. Pullin, Ethyl Corp. to Document Control Officer, EPA for an exclusion to conduct testing on Tetrabromodiphenyl-oxide - *disphenol A and*
Decabromodiphenyl-oxide
opile (Sanitized)
September 1, 1987

(a) Attachment I: Poly-*bro-*
*oxy*minated Dibenzodioxins *dioxins*
dioxins (PBrDD) and *dibenzofurans*
dibenzofurans (PBrDF) in *Some flame*
some flame Retardant
Preparations. Chemosphere; 15(9-12);
sphere, 15(9-12), 2111-2113.
2113
1986

(b) Attachment II. *→*
(Deleted) *←*

(c) Attachment III. *→*
(Deleted) *←*

E1d-4

Fiche

Subject: Exemption request for 1,2-Bis(tribromophenoxy)ethane.

Subject: Request for a waiver.

(1) Letter request for a waiver from testing for Brominated Chemicals from M. Eldan, Ameribrom, Inc. to Document Control Officer, EPA.
September 4, 1987

Subject: Intent to conduct testing on
2,4-Dichlorophenol.

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOLLOWING DOCKET #83002C
E1d-FILE

Fiche #

40-8793215	From: The Dow Chemical Company J. Gray	(12)	513861
	To: Environmental Protection Agency Document Control Officer		
	Date: September 2, 1987		
	Subject: Letter of intent to conduct testing on 2,4-Dichlorophenol.		
40-8793216	From: The Dow Chemical Company W. Hancock	(13)	513862
	To: Environmental Protection Agency Document Control Officer		
	Date: September 2, 1987		
	Subject: Request for waiver from testing all compounds except 2,4-Dichlorophenol.		
40-8793217	From: Atochem, Inc. M. Hanley	(14)	513863
	To: Environmental Protection Agency Document Control Officer		
	Date: September 3, 1987		
	Subject: Request for an exemption from testing Pentabromodiphenyl Oxide.		

E1d-6

135
20605

E10-FILE

20607

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOLLOWING DOCKET #83002C
E1d-FILE

Fiche #

40-8793226 From: Rohm and Haas Company (18) 513868
 R.L. Keener

To: Environmental Protection Agency
 E.S. Klein

Date: September 23, 1987

Subject: Request for a waiver from
 testing requirements.

Enclosure:

- (1) Internal Pfister Chemical *memo*
~~memo~~ from J.E. Plamondan to *R.L.*
~~R.L.~~ Keener on research *notebook*
~~notebook~~ searching.
September 17, 1987

40-8793333 From: Diaz Chemical Corporation (18a) 524822
 M. Bonn

To: Environmental Protection Agency
 Document Control Officer

Date: September 29, 1987

Subject: Application of HDD/HDF rule *t*
 to the production of Di*bromo*-
~~Bromo~~benzene.

Enclosure:

- (1) Chemical reaction involving
Bromobenzene during the
processing at Diaz Chemical
Corp.

E1d-9

138

20608

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOLLOWING DOCKET #83002C
E1d-FILE

Fiche #

40-8793227	From: Great Lakes Chemical Corporation (19) 513869 D.L. McFadden To: Environmental Protection Agency Document Processing Center Date: October 1, 1987 Subject: Response to the request for any information on <u>allegations</u> of adverse effects.
40-8793228	From: Stauffer Chemical Company (20) 513870 J.T. Elfstrum To: Environmental Protection Agency Document Control Office Date: October 13, 1987 Subject: Letter of intent to test.
40-8793241	From: Stauffer Chemical Company (21) 513871 J. Elfstrum To: Environmental Protection Agency Document Control Office Date: November 13, 1987 Subject: Test data availability.
40-8893242	From: Pfister Chemical, Inc. (22) 513872 R. Huth To: Environmental Protection Agency Document Control Office Date: January 29, 1988 Subject: Letter of intent to test.

E1d-10

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOLLOWING DOCKET #83002C
E₁d-FILE

Fiche #

40-8893243	From: General Electric Company S. Austin	(23)	513873
	To: Environmental Protection Agency Document Control Office		
	Date: January 29, 1988		
	Subject: Summary of ongoing or <i>proposed</i> ~~proposed~~ testing.		
40-8893244	From: Great Lakes Chemical Corporation D. McFadden	(24)	513874
	To: Environmental Protection Agency Document Control Office		
	Date: March 10, 1988		
	Subject: Intent to test.		
40-8893245	From: Horsehead Industries, Inc. R. Marshall	(25)	513875
	To: Environmental Protection Agency L. Marcus		
	Date: March 17, 1988		
	Subject: Production of chemicals falling under the rule.		
40-8893246	From: Davos Chemical Corporation A. DelPrete	(26)	513876
	To: Environmental Protection Agency Document Control Office		
	Date: March 22, 1988		
	Subject: Importation of Chloranil.		

E₁d-11

Fiche #

40-8893248 From: Great Lakes Chemical Corporation (28) 513878
 D. McAllister

 To: Environmental Protection Agency
 Document Control Officer

 Date: March 28, 1988

 Subject: Formation of Brominated
 Dibenzofurans.

Fiche

[See D₁₀(2) for Enclosure]

[See D_{1d}(2) for Enclosure]

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOLLOWING DOCKET #83002C
E_{1d}-FILE

Fiche #

40-8893253	From: Midwest Research Institute D. Steele	(33)	513883
	To: Environmental Protection Agency A. Dupuy (NSTL, MS)		
	Date: March 30, 1988		
	Subject: Cover letter for enclosure.		
	Enclosure:		
	(1) Copy of the February 29, 1988 meeting summary.		
	[See D _{1d} (2) for Enclosure]		
40-8893254	From: Midwest Research Institute D. Steele	(34)	513884
	To: Food and Drug Administration D. Firestone		
	Date: March 30, 1988		
	Subject: Cover letter for enclosure.		
	Enclosure:		
	(1) Copy of the February 29, 1988 meeting summary.		
	[See D _{1d} (2) for Enclosure]		

E_{1d}-15

20614 144

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOLLOWING DOCKET #83002C
E1d-FILE

Fiche #

40-8893255	From: Sartomer Company J. Cortese	(35)	513885
	To: Environmental Protection Agency L. Marcus		
	Date: March 31, 1988		
	Subject: Manufacture of Tetrabromo- bisphenol A Diacrylate.		
40-8893256	From: Pacific Anchor Chemical Corporation D. Johnson	(36)	513886
	To: Environmental Protection Agency L. Marcus		
	Date: March 31, 1988		
	Subject: Manufacture of Dioxin chemicals.		
40-8893257	From: Aceto Manufacturing Company R. Weaving, Jr.	(37)	513887
	To: Environmental Protection Agency Document Control Officer		
	Date: March 31, 1988		
	Subject: Manufacture of any Dioxin product.		

E1d-16

145
20615

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOLLOWING DOCKET #83002C
E₁d-FILE

Fiche #

40-8893258	From: Biddle Sawyer Corporation H. Zeller	(38)	513888
	To: Environmental Protection Agency L. Marcus		
	Date: April 7, 1988		
	Subject: Cover letter for enclosure.		
	Enclosures:		
	(1) Letter from R.E. Chavkin, Biddle Sawyer to Document Control Officer, EPA on the production of Dioxin/Furans. March 17, 1988		
	(2) Copy of return receipt.		
40-8893259	From: Sartomer Company J. Cortese	(39)	513889
	To: Environmental Protection Agency L. Marcus		
	Date: April 8, 1988		
	Subject: Manufacture of chemicals falling under the test rule.		
40-8893284	From: Chugai International Corporation R. Tanaka	(40)	513890
	To: Environmental Protection Agency L. Marcus		
	Date: April 12, 1988		
	Subject: Intent to test.		

E₁d-17

20616 146

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOLLOWING DOCKET #83002C
E1d-FILE

Fiche #

40-8893260	From:	Inchema, Inc. H. Wessel	(41)	513891
	To:	Environmental Protection Agency Document Control Officer		
	Date:	April 18, 1988		
	Subject:	Manufacture of subject chemicals. <u> </u> ^		
40-8893261	From:	Ruhrkohle Tracking Corporation D. Fuhrmann	(42)	513892
	To:	Environmental Protection Agency L. Marcus		
	Date:	April 19, 1986		
	Subject:	Manufacture of subject chemicals. <i>als.</i> ~~als.~~		
40-8893290	From:	Atochem, Inc. O. Shusko (M. Hanley's Secretary)	(43)	524823
	To:	Environmental Protection Agency L. Marcus		
	Date:	May 6, 1988		
	Subject:	Cover letter for enclosure.		
	Enclosure:			
		(1) Letter from M. Hanley to L. Mack, EPA concerning their product "Rilsan BESNO P40 WS". September 24, 1987		

E1d-18

147
20617

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOLLOWING DOCKET #83002C
E1d-FILE

Fiche #

40-8893291	From:	Hoechst Celanese Corporation R. Jourdenais	(44)	524824
	To:	Environmental Protection Agency Document Control Officer		
	Date:	June 14, 1988		
	Subject:	Intent to test 2,3,5,6-Tetra- chloro-2,5-cyclohexadiene- 1,4-dione.		
40-8893292	From:	Great Lakes Chemical Corporation C. Mazac	(45)	524825
	To:	Environmental Protection Agency L. Marcus		
	Date:	July 6, 1988		
	Subject:	Topics and questions for the upcoming protocol review meeting (Letter and Telefax).		
40-8893303	From:	A and D International, Inc. C. Gupta	(46)	524826
	To:	Environmental Protection Agency L. Marcus		
	Date:	July 22, 1988		
	Subject:	Exemption request from <i>testing</i> ~~testing~~ Chloranil.		

E1d-19

148
20618

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOLLOWING DOCKET #83002C
E_{1d}-FILE

Fiche #

40-8893304	From: A and D International, Inc. C. Gupta	(47)	524827
	To: Environmental Protection Agency L. Marcus		
	Date: July 22, 1988		
	Subject: Intent to test Chloranil.		
40-8893307	From: Sandoz Chemicals Corporation B. Drum	(48)	524828
	To: Environmental Protection Agency L. Marcus		
	Date: August 17, 1988		
	Subject: Intent to test 2,3,5,6-Tetra- chloro-2,5-cyclohexadiene- 1,4-dione.		
40-8893316	From: Ethyl Corporation P. Sistrunk	(49)	524829
	To: Environmental Protection Agency Document Control Officer		
	Date: September 26, 1988		
	Subject: Notification of the start of the 2,3,7,8-Tetrabromodiben- zofuran test.		

E_{1d}-20

149
20619

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOLLOWING DOCKET #83002C
E₁d-FILE

Fiche #

40-8893330	From: A and D International, Inc. C. Gupta	(50)	524830
	To: Environmental Protection Agency C. Elkins		
	Date: November 29, 1988		
	Subject: Revision of protocol.		
40-8893331	From: The Dow Chemical Company J. Gray	(51)	524831
	To: Environmental Protection Agency Document Control Office		
	Date: December 2, 1988		
	Subject: Final protocol submission.		
40-8993332	From: Midwest Research Institute D. Steele	(52)	524832
	To: Food and Drug Administration, USDHHS D. Firestone		
	Date: January 19, 1989		
	Subject: Planning for Teleconference.		
40-8993359	From: Ethyl Corporation L.L. Wen	(53)	524833
	To: Environmental Protection Agency Document Control Office		
	Date: May 22, 1989		
	Subject: Production of Pentabromodi- phenyl Oxide.		

E₁d-21

150
20620

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOLLOWING DOCKET #83002C
E_{1d}-FILE

Fiche #

40-8993365 From: Ethyl Corporation (54) 524834
 R.L. Smith

To: Environmental Protection Agency
 Document Control Office

Date: July 5, 1989

Subject: Waiver request.

Enclosure:

- (1) Letter from L. Wen of Ethyl Corp. to Document Control Office, EPA requesting a waiver on the required testing.
May 22, 1989

40-8993360 From: White Chemical Corporation (55) 524835
 S.L. Shopsis

To: Environmental Protection Agency
 L. Marcus

Date: July 12, 1989

Subject: Manufacture of Decabromodiphenyl Oxide.

40-9093395 From: FMC Corporation (56) 524836
 R. Roseberry

To: Environmental Protection Agency
 Document Control Officer

Date: January 2, 1990

Subject: Request for waiver from testing 2,4-Dibromophenol.

E_{1d}-22

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOLLOWING DOCKET #83002C
E_{1d}-FILE

Fiche #

40-9093445	From: Akzo Chemicals, Inc. E. Bisinger, Jr.	(57)	524837
	To: Environmental Protection Agency Document Control Office		
	Date: March 16, 1990		
	Subject: Letter of intent to test.		
40-9093446	From: Akzo Chemicals, Inc. L. Rausch	(58)	524838
	To: Environmental Protection Agency L. Marcus		
	Date: March 27, 1990		
	Subject: Cover letter for enclosure.		
	Enclosure:		
	(1) Letter of intent to test from E. Bisinger, Jr. of Akzo Chemicals, Inc. to Document Control Office, EPA. March 16, 1990		

E_{1d}-23

152

20622

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOLLOWING DOCKET #83002C
E_{1d}-FILE

Fiche #

40-9093447	From: Triangle Labs., Inc. R. Hass	(59)	52483 ⁹
	To: Environmental Protection Agency C. Elkins		
	Date: May 4, 1990		
	Subject: <u>Freedom of Information</u> request. ↗		
	Enclosure:		
	(1) Triangle Laboratories memo from R. Varcoe to R. Hass containing the EPA audit chronology. May 4, 1990		
40-9093448	From: Environmental Protection Agency J. Merenda	(60)	524840
	To: Environmental Protection Agency M. Wood		
	Date: May 9, 1990		
	Subject: <u>Enforcement action</u> <u>recommended against Pfister</u> Chemical, Inc. ↗		
40-9093449	From: Environmental Protection Agency C. Elkins	(61)	524841
	To: Great Lakes Chemical Corporation C. Mazac		
	Date: May 10, 1990		
	Subject: Acceptance of their sampling protocol.		

E_{1d}-24

153
20623

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
WRITTEN COMMUNICATIONS FOLLOWING DOCKET #83002C
E_{1d}-FILE

Fiche #

40-9093453	From: Environmental Protection Agency J. Remmers	(62) <i>533322</i>
	To: Great Lakes Chemical Corporation C. Mazac	
	Date: June 11, 1990	
	Subject: Transmittal of three reports. [Reports Not Provided to Docket]	
40-9093482	From: Chemical Manufacturers Association H. Shaw	(63) <i>533323</i>
	To: Environmental Protection Agency L. Marcus	
	Date: June 13, 1990	
	Subject: Changes in the Brominated <i>Flame</i> ~~Flame~~ Retardant Industry <i>Panel</i> ~~Panel~~ Organization.	
40-9093483	From: Environmental Protection Agency J. Remmers	(64) <i>533324</i>
	To: Sandoz Chemicals Corporation B. Drum	
	Date: July 9, 1990	
	Subject: EPA analysis of Chlor ^{<i>a</i>} nil sample.	

E_{1d}-25

154
20624

Fiche #

Subject: Amendment of protocol.

Subject: Conference call of July 25,
1990.

Enclosure:

(1) Tentative Agenda for Telecon-
Teleconference Call of July 25, 1990.
July 25, 1990.

TSCA SECTION 8(d) AND 4 (a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
TELEPHONE COMMUNICATIONS FOR DOCKET #83002
E_{2a}-FILE

Fiche #

40-8593151	From: University of Wisconsin, McArdle Lab. for Cancer Research A. Poland	(1)	513893
	To: Environmental Protection Agency K. McCormack		
	Date: July 31, 1985		
	Subject: Comments on the Position Document. (Notes of Conversation)		
40-8593152	From: Environmental Protection Agency S. Lee	(2)	513894
	To: National Institute of Environmental Health Sciences D. Cantor (NTP)		
	Date: July 31, 1985		
	Subject: NTP work with Furans.		
40-8593153	From: Center for the Biology of Natural Systems B. Commoner	(3)	513895
	To: Environmental Protection Agency K. McCormack		
	Date: August 30, 1985		
	Subject: Delay in comment submission.		

E_{2a}-1

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
TELEPHONE COMMUNICATIONS FOR DOCKET #83002B
E2b-FILE

Fiche #

40-8693154	From: Environmental Protection Agency S. Lee	(1)	513896
	To: Environmental Defense Fund E. Silbergeld		
	Date: June 3, 1986		
	Subject: EDF's concerns on Dioxins/ Furans in Chlorinated Benzenes.		
40-8693177	From: Environmental Protection Agency P. Tong and R. Gnaedinger	(2)	513897
	To: Environmental Protection Agency S. Billet (Las Vegas, Nevada)		
	Date: June 3, 1986		
	Subject: Chemical screening methods for the detection of PHDDs and PHDFs.		
40-8693155	From: Environmental Protection Agency M. Dreyfus	(3)	513898
	To: Cambridge Isotope Laboratories J. Bradley		
	Date: June 18, 1986		
	Subject: Current availability of standards.		

E2b-1

157
20627

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
TELEPHONE COMMUNICATIONS FOR DOCKET #83002C
E₂C-FILE

Fiche #

40-8693177	From: Environmental Protection Agency (1) P. Tong and R. Gnaedinger To: Environmental Protection Agency S. Billet Date: June 3, 1986 Subject: Chemical screening methods for the detection of PHDDs and PHDFs. [Crossreferenced to E ₂ b(2)]	513897
40-8793198	From: Environmental Protection Agency (2) D. Keehner To: Worker's Institute for Occupational Safety and <i>Health</i> ~~Health~~ M. Gillen Date: April 15, 1987 Subject: Reasonable estimate of worker dermal exposure.	513899
40-8793199	From: Chemical Manufacturers Association (3) C. Stack To: Environmental Protection Agency D. Keehner Date: April 24, 1987 Subject: Status of test rule.	513900

E₂C-1

158
20628

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
TELEPHONE COMMUNICATIONS FOR DOCKET #83002C
E₂C-FILE

Fiche #

40-8793200 From: Environmental Protection Agency (4) 513901
 D. Keehner

 To: The Dow Chemical Company
 K. Burgess

 Date: May 4, 1987

 Subject: CMA's comments on the dermal
 exposure of chemical workers.

E₂C-2

159
20629

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
PETITIONS FOR DOCKET #83002
E3a-FILE

Fiche #

40-8493034

Environmental Defense Fund

(1)

513902

Cover letter from R. Percival to W.D.
Ruckelshaus, EPA
October 22, 1984

Enclosure:

- (1) Petition of the Environmental
Defense Fund and the National *Wildlife*
Wildlife Federation for Rulemaking
to Prevent and to Reduce Environ-
mental Contamination by Dioxins and Dibenzofurans. *by Dioxins and* E.
Silbergeld, R. Percival (EDF) M.
Van Putten, and L.K. Silbert
(National Wildlife Federation).
October 22, 1984

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
PETITIONS FOR DOCKET #83002B
E_{3b}-FILE

Fiche #

40-8693156

Section 21 Petition: Environmental
Defense Fund and National Wildlife
Federation vs. EPA

(1)

513903

Plaintiffs' Opposition to Defendants'
Motion to Dismiss and to Defendants'
and Defendant - Intervenor's Motions
for Partial Summary Judgment. Civil
Action No. 85-973; U.S. District Court
for the District of Columbia. EDF and
NWF vs. Lei M. Thomas, USEPA et al.
February 11, 1986

- (1) Order.
- (2) Plaintiffs' Response to Statements
of Material Facts as to Which
There is No Genuine Issue by
Defendants and Intervenor CMA.
- (3) Plaintiff's Reply to Defendants'
Response to Plaintiff's Statement
of Material Facts as to Which
There is No Genuine Issue.
- (4) Memorandum of Points and Authori-
ties in Opposition to Defendants'
Motion to Dismiss and to Defen-
dants' and Defendant - Intervenor's
Motions for Partial Summary Judg-
ment and in Reply to Defendants'
and Defendant - Intervenor's
Opposition to Plaintiffs' Motion
for Partial Summary Judgment.
February 11, 1986

E_{3b}-1

20631 161

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
PETITIONS FOR DOCKET #83002B
E_{3b}-FILE

Fiche #

40-8693156 (continued)

(5) Supplemental Declaration of Ellen
K. Silbergeld.
February 10, 1986

(a) Chemicals Ignored in Federal
Register Testing Notice Pre-
viously Acknowledged by EPA
as Possibly Contaminated with
Dioxin. (Exhibit A)

E_{3b}-2

20632 162

TSCA SECTION 8(d) and 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF DECEMBER 19, 1985
(DOCKET #83002)
F₁-FILE

Fiche #

40-8693183 Chemical Manufacturers Association (1) 513904

Cover letter from C. Stack to S.
Rudzinski, EPA
September 12, 1986

Enclosure:

- (1) Letter from Visband Der Chemischen
Industrie (Germany) to R. Roland,
CMA (Press Release).
September 3, 1986

- (a) Kunststoffe mit Flammenschutz
auf dem Prüfstand. (German)
August 29, 1986

40-8693338 Monsanto Chemical Company (2) 524842

Letter from C. Farley to Document
Control Officer, EPA
April 3, 1986

Enclosure:

- (1) Analysis of Brominated Diphenyl
Oxides for Brominated Dibenzo-
furans.

TSCA SECTION 8(d) and 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF OCTOBER 23, 1986
(DOCKET #83002B)
G₁-FILE

Fiche #

40-8693283 Great Lakes Chemical Corporation (1) 513905

Response to EPA Questions Received from
Steven Hassur, Ph.D. (Sanitized)
December 17, 1986

G₁-1

20634 164

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1987 ONLY
H_{1.0}-FILE

		<u>Fiche #</u>
40-8793277	Atochem, Inc. Letter from M. Hanley to Document Control Officer, EPA concerning information requested on "Rilson Besno P40 W5". September 24, 1987	(1) 513909
40-8793278	Dead Sea Bromine Company Ltd. <u>Teratology Study in the Rat (FR-1208).</u> Life Science Research, Israel Ltd. February 10, 1987	(2) 513908
40-8793334	(The) Dow Chemical Company Letter from R.L. Hagerman to Document Control Office, EPA October 5, 1987 Enclosures: (1) <u>PCDDs and PCDFs in Environmental Samples; Air, Particulates, Sediments and Soil.</u> C. Rappe and L- ~~O~~ ~~O~~ , Kjeller, Univ. of Umea, Sweden. Presented at the U.S. Vinyl Institute Meeting. Document No. <u>DOO2401</u> . <u>OK</u> ~~DOO2401~~ . 8(d) Submission: 86-880000047. January 26, 1987 (2) <u>Search for Industrial Sources of PCDD/PCDF. III. Short-Chain Chlorinated Hydrocarbons.</u> A. Heindl and O. Huntzinger, Univ. of Bayreuth, FRG. Document No. DOO2402. 8(d) Submission: 86-880000048. Undated	(3) 524843

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1987 ONLY
H_{1.0}-FILE

Fiche #

40-8793334 (continued)

- (3) Letter from R. Cook, The Dow Chemical Co. to T. Cresswell, P. Gehring, C. Goodman, R. Kagel and B. Weaver
August 7, 1986
- (a) A Cohort Mortality Study of Chemical Workers with Potential Exposure to the Higher Chlorinated Dioxins. M.G. Ott, R.A. Olson, R. Cook and G. Bond. Document No. D002403. 8(d) Submission: 86-880000049.
July 8, 1986
- (4) Dioxin and Resource Recovery Symposium ASCE - New York Hilton - 2/10/87 The Dioxin Situation in West Germany. K. Ballschmiter. Document No. D002404. 8(d) Submission: 86-880000050.
Undated
- (5) Summary of Experiments with PVC Combustion Products. L.C. Dickson and F.W. Karasek, Univ. of Waterloo, Ontario. Document No. D002405. 8(d) Submission: 86-880000051.
Undated
- (6) Toxicity of Particulate Emissions From a Municipal Incinerator: Critique of the Concept of TCDD-Equivalents. M. Suter-Hofman and Ch. Schlatter, Univ. of Switzerland and Federal Institute of Technology, Switzerland. Document No. D002406. 8(d) Submission: 86-880000052.
Undated

H_{1.0}-2

20636 166

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1987 ONLY
H_{1.0}-FILE

Fiche #

40-8793334 (continued)

- (7) Dioxins and Incineration - Visit to Professor C. Rappe, UMEA, January 16, 1987. M. Ronnmark and H.M. Clayton. Document No. *D002407*.
~~D002407~~ 8(d) Submission: 86-880000053.
Undated
- (8) Analysis of the Animal Toxicity Studies of 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (TCDD) Used in Derivation of Lifetime Exposure Control Limit Recommendations for Humans. R.J. Kociba, The Dow Chemical Co. Document No. *D002408*.
~~D002408~~ 8(d) Submission: 86-880000054.
June 10, 1986
- (9) The Toxicological Significance of 2,3,7,8-Tetrachlorodibenzo-p-Dioxin and Related Compounds in Human Adipose Tissue. J.L. Byard. Document No. D002409. 8(d) Submission: 86-880000055.
Undated
- (10) The Formation of Folliculitis in the Rabbit Ear Following a Single Subcutaneous Injection of *Symmetri* - ~~Symmetrical~~ Tetrachlorodibenzo-dioxin in Benzene. The Dow Chemical Co. Document No. *D002381*. 8(d) Submission: 86-880000039.
March 5, 1965

H_{1.0}-3

167
20637

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1987 ONLY
H_{1.0}-FILE

Fiche #

40-8793334 (continued)

- (11) The Effects of Repeated Applications of Symmetrical Tetrachlorodibenzodioxin on Guinea Pig Ears. The Dow Chemical Co. Document No. D002380. 8(d) Submission: 86-880000040. Undated
- (12) The Effects of Repeated Applications of Symmetrical Tetrachlorodibenzodioxin on the Rat Ear. The Dow Chemical Co. Document No. D002382. 8(d) Submission: 86-880000041. Undated
- (13) Chloracne Study Conducted on 1,2,3,4,7,8-Hexachlorodibenzo-p-Dioxin. The Dow Chemical Co. Document No. D002385. 8(d) Submission: 86-880000042. March 22, 1971
- (14) The Ineffectiveness of Washing as a Preventive Measure in the ~~Formation~~ Formation of Folliculitis in the Rabbit Ear Following Repeated Applications of Symmetrical Tetrachlorodibenzodioxin. The Dow Chemical Co. Document No. D002386. 8(d) Submission: 86-880000043. March 5, 1965
- (15) Bioconcentration Kinetics of 2,3,7,8-Tetrachlorodibenzo-p-Dioxin in Rainbow Trout (A Revised Draft of Dow Report November 15, 1978). D.R. Branson, J.T. ~~Takahashi~~ *OK as is* Takahashi, W.M. Parker and G.E. Blass. Document No. D002394. 8(d) Submission: 86-880000044. 1983

H_{1.0}-4

168
20638

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1987 ONLY
H_{1.0}-FILE

Fiche #

40-8793334 (continued)

- (16) Analysis of Gall Bladders of Trout
Exposed to 14C-TCDD in the Static
Bioconcentration Experiment. Dow
Chemical USA. Document No. *D002398*
~~D002398~~ 8(d) Submission: *↑*
86-880000045.
September 29, 1978
- (17) Notes by G. Stabenow on the German
translation of study enclosed.
Document No. D002400. 8(d)
Submission: 86-880000041.
November 24, 1986
- (a) Mass Burning - Unprepared
Refuse Martin Stoker *Water* -
Waterwall Boiler-Power
Generator and Steam Supply to
District Heating Systems.
- (b) Analyses of the Blood Serum
of Employees of a Refuse *Heat* -
Heat and-Power Plant in
Regard to Cadmium, Lead and
Mercury. (German Translation) -
Translation) International
Journal for Power Plant Tech-
nology.
October 1984
- (c) The New Bielefeld - Herford
Refuse Incinerator Plant - An
Unexpected Case of Corrosion.
(German Translation) Inter-
national Journal for Power
Plant Technology.
September 1989
- (d) Mass Burning Unprepared Refuse
Duesseldorf Stoker Waterwall
Boiler Power Generation and
In-plant Steam Use.

H_{1.0}-5

20639 169

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1987 ONLY
H_{1.0}-FILE

Fiche #

40-8793334 (continued)

- (e) Chance of Emissions of NOx and CO After Optimization of the Refuse Incineration Installation Wuppertal-Remscheid.
(German Translation) Mull and Abfall.
January 1985
- (f) Technical Installation Measures for the Emission Reduction of Chlorinated Hydrocarbons at Municipal Refuse Incineration Plants.
(German Translation) Mull and Abfall.
February 1985
- (g) Emissions of Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans from Solid Waste Incinerators.
(German Translation) Hull and Abfall; page 313-327.
November 1984
- (h) List of Task Group for Dioxin control - German Federal Government.
- (i) Establishment of a Project Group "Dioxin in Refuse Incineration Installations".
(German Translation)
- (j) Street European NOx Code Brings SCR Into the Limelight.
Pollution Control; pages 53 and 56.
August 1966

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1987 ONLY
H_{1.0}-FILE

Fiche #

40-8793334 (continued)

- (18) Results of Chick Edema Bioassay
Test Using Young Chickens Treated
Orally for 21 Days with Hexachlo-
rodibenzo-p-Dioxin. J.L. Emerson
and C.G. Gerbig. Document No.
D002365. 8(d) Submission:
86-880000024.
August 4, 1971
- (19) Summary of Eye Irritation Study
Conducted on Hexachlorodibenzo-p-
Dioxin. Dow Chemical USA.
Document No. D002366. 8(d)
Submission: 86-880000025.
October 25, 1971
- (20) Summary of Chloracne Study *Con-*
Conducted on 1,2,3,7,8,9-Hexachloro- *chlorodi-*
chlorodibenzo-p-Dioxin. Dow
Chemical USA. Document No.
D002367. 8(d) Submission:
86-880000026.
July 8, 1971
- (21) Summary of Chloracne Study *Con-*
Conducted on Hexachlorodibenzo-p-
Dioxin. Dow Chemical USA, Document
No. D002368. 8(d) Submission: *86-*
*86-*880000027.
July 14, 1971
- (22) Summary of Acute Oral and Chloracne
Studies on Hexachlorodibenzo-p-
Dioxin. Dow Chemical USA.
Document No. D002369. 8(d)
Submission: 86-880000028.
April 10, 1971

H_{1.0}-7

20641

171

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1987 ONLY
H_{1.0}-FILE

Fiche #

40-8793334 (continued)

- (23) Summary of Chloracne Study Con-
ducted on Hexachlorodibenzo-p-
Dioxin. The Dow Chemical Co.
Document No. D002370. 8(d)
Submission: 86-880000029.
December 11, 1970
- (24) Summary of Chloracne Studies Con-
ducted on Hexachlorodibenzo-p-
Dioxin Studies. The Dow Chemical
Co. Document No. D002371. 8(d)
Submission: 86-880000030.
November 3, 1970
- (25) Summary of Chloracne Studies Con-
ducted on Hexachlorodibenzo-p-
Dioxin Studies. The Dow Chemical
Co. Document No. D002372. 8(d)
Submission: 86-880000031.
September 10, 1970
- (26) Results of Chick Edema Bioassay
Test Using Young Chickens Treated
Orally for 21 Days with 2,3,7,8-
Tetrachlorodibenzo-p-Dioxin. The
Dow Chemical Co. Document No.
D002373. 8(d) Submission:
86-880000032.
August 6, 1971
- (27) Urinary Excretion of Radioactivity
Following Oral Administration of
¹⁴C-Labeled 2,3,7,8-Tetrachloro-
dibenzo-p-Dioxin (TCDD) to Female
Guinea Pigs. Dow Chemical USA.
Document No. D002374. 8(d)
Submission: 86-880000033.
July 9, 1979

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1987 ONLY
H_{1.0}-FILE

Fiche #

40-8793334 (continued)

- (28) 2,3,7,8-Tetrachlorodibenzo-p-Dioxin: Tissue Distribution and Excretion Following a Single Oral Dose in Female Guinea Pigs. Dow Chemical USA. Document No. D002375. 8(d) Submission: 86-880000034. August 22, 1978
- (29) Summary of Eye Irritation Study Conducted on 2,3,7,8-Tetrachloro-dibenzo-p-Dioxin. Dow Chemical USA. Document No. D002376. 8(d) Submission: 86-880000035. October 25, 1971
- (30) Summary of Chloracne Study Conducted on 2,3,7,8-Tetrachloro-dibenzo-p-Dioxin. Dow Chemical USA. Document No. D002377. 8(d) Submission: 86-880000036. April 20, 1971
- (31) The Effects of Various Doses of 2,3,7,8-Tetrachlorodibenzo-p-Dioxin Administered with 2,4,5-Trichlorophenoxy Acetic Acid on Rat Fetal Development. G.L. Sparschu, F.L. Dunn, R.W. Lisowe and V.K. Rowe. Document No. D002378. 8(d) Submission: 86-880000037.
- (32) The Ineffectiveness of Washing as a Preventive Measure in the Formation of Folliculitis in the Rabbit Ear Following Repeated Applications of 2,3,7,8-Tetrachloro-dibenzo-p-Dioxin in Corn Oil. Dow Chemical USA. Document No. D002379. 8(d) Submission: 86-880000038. March 26, 1965

H_{1.0}-9

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1987 ONLY
H1.0-FILE

Fiche #

40-8793334 (continued)

- (33) Acute Oral Toxicity of 2,3,7,8-
Tetrabromodibenzo-p-Dioxin in the
Rat. Brominated Flame Retardant
Industry Panel; Inhausen Research
Institute, Inc. Document No.
D002364. 8(d) Submission:
86-880000023.
Undated
- (34) Rabbit Ear Bioassay for Comedogenicity -
city, Multiple-Dose-Level Definitive -
Study with 2,3,7,8- Tetrabromo -
Tetrabromodibenzofuran. Brominated Flame
Retardant
Industry Panel; Inhausen Research
Institute, Inc. Document No.
D002363. 8(d) Submission:
86-880000022.
Undated
- (35) Acute Oral Toxicity of 2,3,7,8-
Tetrabromodibenzofuran in the Rat.
Brominated Flame Retardant Industry
Industry Panel; Inhausen Research
Institute, Inc. Document No.
D002362. 8(d) Submission:
86-880000021.
Undated
- (36) Rabbit Ear Bioassay for Comedogenicity -
city, Multiple-Dose-Level -
Definitive Study with 2,3,7,8-
Tetrabromodibenzo-p-Dioxin.
Brominated Flame Retardant
Industry Panel; Inhausen Research
Institute, Inc. Document No.
D002361. 8(d) Submission:
86-880000020.
Undated

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1987 ONLY
H_{1.0}-FILE

Fiche #

40-8793334 (continued)

- (37) Toxicology of Chlorinated Dibenzo-p-Dioxins. B.A. Schwetz, J.M. Norris, G.L. Sparschu, V.K. Rowe and P.J. Gehring. Document No. D002358. 8(d) Submission: 86-880000019. Undated
- (38) Mortality Among Employees Engaged in the Manufacture of Higher Chlorinated Phenols and Derivative Products. Dow Chemical USA. Document No. D002356. 8(d) Submission: 86-880000018. 1982
- (39) Evaluation of Mortality Patterns Among Chemical Workers with Chloracne. G.G. Bond, R. Cook, F.E. Brenner, D.J. Ducommun and E.A. McLaren. Document No. D002354. 8(d) Submission: 86-880000017. September 1986
- (40) Update of the Mortality Experience of Workers Exposed to Chlorinated Dioxins. R. Cook, G. Bond, R. Olson and M.G. Ott. Document No. D002353. 8(d) Submission: 86-880000016. September 1986
- (41) A Soft Tissue Sarcoma Case Control Study in a Large Multi-Chemical Manufacturing Facility. W. Sobel, G. Bond, B. Skowronski, P. ~~Brownson~~ ~~Brownson~~ and R. Cook. Document No. D002352. 8(d) Submission: 86-880000013. September 1986

(42) *Analyses on 2,4-Dichlorophenyl
to determine H_{1.0}-11 DF Presence.*

*[42] Enclosure Not Provided to Docket
— See #1.4 (13a)]*

20645

175

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1987 ONLY
H_{1.0}-FILE

Fiche #

40-8793335 (The) Dow Chemical Company

(4) 524844

Letter from R.L. Hagerman to Document
Control Office, EPA
October 6, 1987

Enclosures:

- (1) Original letter from R.L.
Hagerman, The Dow Chemical Company
to Document Control Office, EPA
submitting 8(d) studies.
October 5, 1987
- (2) List of Studies Known to Us But
Copies of Which We Do Not Possess
in Our Files.

40-8793336 (The) Dow Chemical Company

(5) 524845

Letter from R.L. Hagerman to Document
Control Office, EPA
October 7, 1987

Enclosures:

- (1) Studies in Progress. (Revised)
- (2) Original cover letter from R.L.
Hagerman, The Dow Chemical Co., to
Document Control Office, EPA
transmitting 8(d) studies.
October 5, 1987

H_{1.0}-12

20646

176

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1987 ONLY
H_{1.0}-FILE

Fiche #

40-8793280	Eastman Kodak Company	(6)	513910
	Letter to Document Control Officer, EPA from R.D. Gerwe September 28, 1987		
	Enclosure:		
	(1) Report forms in compliance with TSCA Section 8(a) for 1,2- Dichlorobenzene, Chlorobenzene, imported products and (CBI) products. (Sanitized)		
40-8793279	E.I. Dupont de Nemours and Company, Inc.	(7)	513907
	Letter from R.R. Houston to Document Control Officer, EPA (Sanitized) September 22, 1987		
	Enclosure:		
	(1) EPA Form 7710-51, Part II containing process and reaction condition information. (Sanitized)		
40-8793281	Ethyl Corporation	(8)	513906
	Letter from Terry H. Pullin to Document Control Officer, EPA September 1, 1987		
	Enclosures:		
	(1) Letter of intent from T. Pullin, Ethyl Corp. to Document Control Officer, EPA to conduct tests on Pentabromodiphenyl Oxide and Octabromodiphenyl Oxide. September 1, 1987		

H_{1.0}-13

20647 177

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1987 ONLY

H₁-FILE
10

Fiche #

40-8793281 (continued)

- (2) Application for an exclusion to
conduct tests on Tetrabromo-
bisphenol A and Decabromodiphenyl
Oxide from T. Pullin, Ethyl Corp.
to Document Control Officer, EPA.
(Sanitized)
September 1, 1987

- (a) Polybrominated Dibenzodioxins
(PBrDD) and Dibenzofurans
(PBrDF) in Some Flame Retar-
dant Preparations.
Chemosphere; 15(9-12):2111-
2113.
1986

(b) CBI.

(c) CBI.

40-8793282

Ethyl Corporation

(9)

513913

Cover letter from T.G. Pullin to Document
Control Officer, EPA
September 29, 1987

Enclosures:

- (1) Analysis of Brominated Diphenyl
Oxides for Brominated Dibenzofurans.
- (2) Rabbit Ear Bioassay for Comedo-
genicity, Dose-Range-Finding Study
for Soot and Char Generated from
the Combustion of High Impact Poly-
styrene. Inhausen Research
Institute Inc.; Study #119.001.
August 1987

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1987 ONLY
H_{1.0}-FILE

Fiche #

40-8793282 (continued)

- (3) Rabbit Ear Bioassay for Comedo-
genicity, Dose-Range-Finding Study
for Soot and Char Generated from
the Combustion of High Impact
Polystyrene Flame Retarded with
Decabromodiphenyl Oxide and
Antimony Trioxide. Inhausen
Research Institute, Inc.; Study
#119.002.
August 1987

- (4) Rabbit Ear Bioassay for Comedo-
genicity, Multiple-Dose-Level
Definitive Study with 2,3,7,8-
Tetrabromodibenzo-p-Dioxin.
Inhausen Research Institute, Inc.;
Study #119.003.
August 1987

- (5) Rabbit Ear Bioassay for Comedo-
genicity, Multiple-Dose-Level
Definitive Study with 2,3,7,8-
Tetrabromodibenzofuran. Inhausen
Research Institute, Inc.; Study
#119.004.
August 1987

- (6) Rabbit Ear Bioassay for Comedo-
genicity Multiple-Dose-Level
Definitive Study for Soot and Char
Generated from the Combustion of
High Impact Polystyrene. Inhausen
Research Institute, Inc.; Study
#119.005.
August 1987

H_{1.0}-15

20649 179

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1987 ONLY
H_{1.0}-FILE

Fiche #

40-8793282 (continued)

- (7) Rabbit Ear Bioassay for Comedogenicity, Multiple-Dose-Level Definitive Study for Soot and Char Generated from the Combustion of High Impact Polystyrene Flame Retarded with Decabromodiphenyl-oxide and Antimony Trioxide.
Inhausen Research Institute, Inc.;
Study #119.006.
August 1987

- (8) Acute Oral Toxicity of 2,3,7,8-Tetrabromodibenzo-p-Dioxin in the Rat. Inhausen Research Institute, Inc.; Study #119.007.
August 1987

- (9) Acute Oral Toxicity of 2,3,7,8-Tetrabromodibenzo-p-Dioxin in the Rat. Inhausen Research Institute, Inc.; Study #119.008.
August 1987

- (10) Acute Oral Toxicity in the Rat of Soot and Char Generated from the Combustion of High Impact Polystyrene (HIPs). Inhausen Research Institute, Inc.; Study #119.009.
August 1987

- (11) Acute Oral Toxicity in the Rat of Soot and Char Generated from the Combustion of High Impact Polystyrene Flame Retarded with Decabromodiphenyl Oxide and Antimony Trioxide (HIPs FR). Inhausen Research Institute, Inc.; Study #119.010.
August 1987

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1987 ONLY
H_{1.0}-FILE

Fiche #

40-8793236 General Electric Company (10) 513918

Letter from S. Austin to Document
Control Officer, EPA
December 23, 1987

Enclosure:

- (1) Pyrolytic Formation of Polybromi-
nated Dibenzodioxins and
Polybrominated Dibenzofurans.
(Table III)

40-8793237 Monsanto Company (11) 513917

Letter from J. Downes to Document
Control Officer, EPA
December 22, 1987

Enclosure:

- (1) Dibenzofuran in Diphenyl Oxide and
the Relationship to Brominated
Dibenzofurans in Brominated
Diphenyl Oxide. F. Hileman, J.
Wehler, J. Wendling, R. Orth, C.
Ritchie and D. McKenzie. Preprint
to be published in Chemosphere.
From the Proceedings of the 7th
International Symposium on
Chlorinated Dioxins and Related
Compounds; October 4-9, 1987.
1988

H_{1.0}-17

191
20651

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1987 ONLY
H_{1.0}-FILE

Fiche #

40-8793286	Rohm and Haas Company	(12)	513911
	Cover letter from G.J. Powell to Document Control Officer, EPA September 28, 1987		
	Enclosure:		
	(1) Dioxin/Furan Report Form (in compliance with TSCA Section 8(a)) for Chlorobenzenes. (Sanitized)		
 40-8793287	 Rohm and Haas Company	 (13)	 513912
	Cover letter from R.L. Keener to Document Control Officer, EPA September 29, 1987		
	Enclosure:		
	(1) Dioxin/Furan Report Form for Chlorobenzene (TSCA Section 8(a) submission). (Sanitized)		

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1987 ONLY
H_{1.0}-FILE

Fiche #

40-8793288 Rohm and Haas Company (14) 513915

Letter from R.L. Keener to Document
Control Officer, EPA (Sanitized)
October 5, 1987

Enclosures:

- (1) Analysis of Dow and Rhodia 2,4-Dichlorophenol. (Sanitized)
October 17, 1977
- (2) Analysis of [] and 2,4-DCP for 1,3,6,8-TCDD and 2,3,7,8-TCDD and of 2,4-DCP for 2,4,6-TCP and 2,4,5-TCP. (Sanitized)
May 18, 1987
- (3) Results of Analyses for 2,7-Dichlorodibenzo-p-Dioxin.
(Sanitized)
October 2, 1970

40-8793285 Rhone-Poulenc, Inc. (15) 513916

Letter from N.I. Rouse to Document
Control Officer, EPA
October 5, 1987

Enclosures:

- (1) 2,4 Dichlorophenol Test Results.
- (2) Plan for the Determination of Polychlorinated Dibenzo-p-dioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs).

H_{1.0}-19

20653 183

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1987 ONLY
H_{1.0}-FILE

Fiche #

40-8793234 Standard Chlorine of Delaware, Inc.

(16) 513914

Letter from R. Touhey to Document
Control Officer, EPA
September 30, 1987

Enclosure:

- (1) Process Block Flow Diagram.
Corrected copy of one submitted in
the September 28, 1987 submission
(CBI).

H_{1.0}-20

20654 184

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
~~SUPPORT REFERENCES FOR DOCKET #~~
H₁₀ ~~83~~ FILE

Fiche #

40-87935-20 U.S. EPA

Guidelines for the determination (17) 53332,

of Halogenated Dibenzop-p Diopene
and Dibenzofurans in Commercial

Products.

September 1987

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1988 ONLY
H_{1.1}-FILE

Fiche #

40-8893310 A and D International, Inc. (1) 524846

Letter to L. Marcus, EPA
September 16, 1988

Enclosure:

- (1) Analytical Procedures for the Determination of Polychlorinated Dibenzodioxins and Dibenzofurans by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS). Triangle Laboratories, Inc.
August 1988

40-8893308 Brominated Flame Retardants Industry Panel (2) 524847

Letter from P.H. Sistrunk, Ethyl Corp.
to Document Processing Center, EPA
September 6, 1988

Enclosure:

- (1) Acute Oral Toxicity of 2,3,7,8-Tetrabromodibenzofuran (TBDF) in the Rat. (Draft) Inhausen Research Institute, Inc.; Study No. 119.022.

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1988 ONLY
H_{1.1}-FILE

Fiche #

40-8893299 Chugai International Corporation (3) 524848

Cover letter from R. Tanaka to P.
Halper, EPA
July 21, 1988

Enclosure:

- (1) Letter from N. Takahashi of Nippon
Kayaku Co. Ltd.
July 18, 1988

(a) Analytical Determination of
Dioxin in Tetrachloro-p-
Benzoquinone (Chloranil).
Japan Food Research Labs.

40-8893296 (The) Dow Chemical Company (4) 524849

Cover letter from J. Gray to Document
Control Office, EPA
July 1, 1988

Enclosures:

- (1) Sampling Protocol for the Determi-
nation of Halogenated Dibenzo-p-
Dioxins and Dibenzofurans in 2,4-
Dichlorophenol. Dow Chemical USA.
June 29, 1988
- (2) Quality Assurance Project Plan for
Determination of Halogenated
Dibenzo-p-Dioxins and Dibenzo-
furans. Environmental Protection
Agency; Chemserv.

H_{1.1}-2

20657

187

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1988 ONLY
H_{1.1}-FILE

Fiche #

40-8893319 (The) Dow Chemical Company (4a) 524850

Letter from J. Gray to Document Control
Office, EPA
December 16, 1988

Enclosure:

- (1) Sampling Protocol for the Determination of Halogenated Dibenzo-p-Dioxins and Dibenzofurans in 2,4-Dichlorophenol. Dow Chemical USA.
- (2) Protocol and Quality Assurance Plan for the Determination of Halogenated Dibenzo-p-Dioxins and Dibenzofurans in 2,4-Dichlorophenol. Dow Chemical USA.

40-8893339 Great Lakes Chemical Corporation (4b) 524851

Letter from D.L. McFadden to Document
Processing Center, EPA
November 28, 1988

Enclosures:

- (1) Listing of test studies.
- (2) Studies on 1,2-Bis-(Tribromophenoxy)Ethane for Velsicol Chemical Corp.:
 - (a) Rate of Hydrolysis Studies.
September 22, 1988
 - (b) Pharmacokinetic Study of FM-680 in Rats.
August 11, 1978
 - (c) Photolysis of Firemaster 680.
January 23, 1979

H_{1.1}-3

20658 188

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1988 ONLY
H_{1.1}-FILE

Fiche #

40-8893339 (continued)

- (d) Water Solubility of Several
Flame Retardants and ~~Indus-~~
Industrial Chemicals.
April 12, 1978
- (3) Studies on 1,2-Bis(Tribromo^{phenoxyl}
~~phenoxy~~ Ethane for Michigan
Chemical Corp.
- (a) 28-Day Rat Feeding Study.
WARF Institute, Inc.; Report
No. 2071960.
- (b) Acute Oral LD50; Acute Dermal
LD50; Skin Irritation and Eye
Irritation Studies. Warf
Institute, Inc.; Report No.
2081295.
September 11, 1972
- (c) Acute Oral Toxicity Study in
the Albino Rat. International
tional Research and
Development Corp. ↑
November 27, 1974
- (d) Acute Dermal LD50 on ~~Live-~~
Pineaster 680. (Corrected) Warf
Warf Institute, Inc.; Report No. ↑
No. 3022861.
June 14, 1973
- (e) Acute Inhalation Toxicity in
the Albino Rat. International
tional Research and ↑
Development Corp.; Report No. ↑
134-013.
November 27, 1974
- (f) Acute Oral Toxicity Study in
Beagle Dogs. International
Research and Development
Corp.; Report No. 134-012.
November 27, 1984

H_{1.1}-4

20659

189

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1988 ONLY
H_{1.1}-FILE

Fiche #

40-8893339 (continued)

- (g) Acute Toxicity (TL50) Study.
in the Bluegill. International ^{Research}
~~tional~~ Research and Development ^{ment}
~~ment~~ Corp.; Report No. 134-014,
814:
December 13, 1974
- (h) Acute Heated Vapor Inhalation
Toxicity Study in Rats.
Industrial Bio-Test Labs.,
Inc.; Report No. 8562-09787.
December 6, 1976
- (i) Modified Draize Multiple
Insult Test in Male Humans.
International Research and
Development Corp.; Report No.
134-017.
January 30, 1975
- (j) Twenty-Eight Day Dermal
Toxicity Study in Rabbits.
International Research and
Development Corp.; Study No.
134-015.
February 11, 1975
- (k) Twenty-One Day Inhalation
Toxicity Study in Rats.
International Research and
Development Corp.; Study No.
134-016.
February 11, 1975
- (l) Acute Inhalation Toxicity in
the Albino Rat After Pyrolysis.
International Research and
Development Corp.; Study No.
134-039 and No. 134-038.
March 12, 1975

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1988 ONLY
H_{1.1}-FILE

Fiche #

40-8893339 (continued)

- (m) Fourteen-Day Range Finding Study in Rats. International Research and Development Corp.; Study No. 134-053. April 10, 1975
- (n) Twenty-Eight Day Toxicity Study in Rats. International Research and Development Corp.; Study No. 134-018. May 19, 1975
- (o) Biodegradation Study with 14C-~~MC-680~~ Tagged MC-680. *Industrial Bio-Test Labs., Inc.; Study*
~~Industrial Bio-Test Labs., Inc.; Study~~ No. 632-07189. June 11, 1976
- (p) Primary Skin Irritation Test with Mother Liquor 680 Process, Code No. 7-29-76-B in Albino Rabbits. *Industrial Bio-Test Laboratories, Inc.;* Study No. 8530-09618. October 25, 1976
- (q) Skin Sensitization Test With Mother Liquor 680 Process in Albino Guinea Pigs. Industrial Bio-Test Laboratories, Inc.; Study No. 8530-09618. December 8, 1976
- (r) 90-Day Subacute Oral Toxicity Study with Firemaster 680 in Albino Rats. Industrial Bio-Test Laboratories, Inc.; *Study*
~~Study~~ No. 8532-08925 and Addendum. January 6, 1977 and March 10, 1977

H_{1.1}-6

20661 191

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1988 ONLY
H_{1.1}-FILE

Fiche #

40-8893339 (continued)

- (s) Mutagenicity Evaluation of 859-74-5. Litton Bionetics, Inc.; Project No. 2547. May 25, 1976
- (t) Pilot Teratology Study in Rats. International Research and Development Corp.; Study No. 163-544. March 2, 1978
- (u) Teratology Study in Rats. International Research and Development Corp.; Study No. 163-547. February 13, 1979
- (v) Tissue Residue Accumulation/Depletion Study with *Fix Rats*
~~Firemaster~~ 680 in Albino *Labore-*
~~Rats~~ Industrial Bio-Test *8532-*
~~Laboratories~~, Inc.; Study No. *8532-*
8532708950.
January 9, 1979
- (4) Studies on Pentabromodiphenyl *Oxide*
Oxide for Great Lakes Chemical *Caspore-*
Corporation:
 - (a) Mutagenicity Evaluation of Pentabromodiphenyl Ether. Litton Bionetics, Inc.; Project No. 2547. May 25, 1976
 - (b) The Acute Oral Toxicity of Pentabromodiphenyl Ether to Rats. The British Industrial Biological Research Assoc.

H_{1.1}-7

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1988 ONLY
H_{1.1}-FILE

Fiche #

40-8893339 (continued)

- (c) Acute Toxicity Studies in Rats
~~Rats and Rabbits.~~ *International Research and Development Corp.; Study No. 274-025.*
October 31, 1975
- (d) Twenty-eight Day Toxicity Study in Rats. International Research and Development Corp.; Study No. 274-023.
January 24, 1976
- (e) The Bioaccumulation of Compound S-512 by Carp. Chemicals Inspection and Testing Institute, Japan.
- (f) 30-Day Dietary Study. WIL Research Laboratories, Inc.; Project No. 12042. Three volumes.
December 4, 1985
- (g) 90-Day Dietary Study. Three ~~volumes.~~ *Wil Research Laboratories, Inc.; Project No. 12011.*
October 8, 1984
- (5) Studies on Octabromodiphenyl Oxide for Great Lakes Chemical Corp.:
 - (a) The Bioaccumulation of Compound S-511 by Carp. Chemicals Inspection and Testing Institute, Japan.
1982

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1988 ONLY
H_{1.1}-FILE

Fiche #

40-8893339 (continued)

- (b) Acute Toxicity Studies in *Rats*
~~Rats and Rabbits.~~ *International*
~~tional Research and Development~~
~~ment Corp.;~~ Study No. 274-024.
October 31, 1975
- (c) Subacute Inhalation Toxicity
Study in Rats. International
Research and Development
Corp.; Study No. 274-035.
July 27, 1978
- (d) Mutagenicity Evaluation of
Compound 345-79A. Litton
Bionetics, Inc.
1976
- (e) In Vitro Sister Chromatid
Exchange in Chinese Hamster
Ovary Cells with Octabromo-
diphenyl Ether. Hazleton
Laboratories America, Inc.
November 18, 1982
- (f) Unscheduled DNA Synthesis
Assay Compound DE79. *Hazleton*
~~Hazleton~~ Laboratories
America, Inc. *↑*
March 9, 1983
- (g) Twenty-eight Day Toxicity
Study in Rats. International
Research and Development
Corporation; Study No. 3274-
023.
January 24, 1976
- (h) Thirteen Week Feeding Study in
~~in~~ Rats. (Revised) *Inter-na-*
~~tional~~ *Research and Develop-*
~~Development Corp.;~~ Study No. *↑*
274-029.
April 18, 1978

H_{1.1}-9

20664

194

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1988 ONLY
H_{1.1}-FILE

Fiche #

40-8893339 (continued)

- (i) A Range-Finding Teratology Study in Rats with DE-79.
WIL Research Labs., Inc.;
Study No. 12051.
August 25, 1986

40-8893297 Hoechst Celanese Corporation (5) 524852

Cover letter from R. Jourdenais to
Document Control Officer, EPA
July 8, 1988

Enclosures:

- (1) Quality Assurance Plan for Polychlorinated Chemical Sample Analysis. Triangle Labs., Inc.
July 3, 1988
- (2) Analytical Procedures for the Determination of Polychlorinated Dibenzodioxins and Dibenzofurans by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS). *Specs - Triangle*
~~Triangle Labs., Inc.~~
July 1988

40-8893313 Hoechst Celanese Corporation (6) 524853

Letter from D. Woodhull to L. Moos, EPA
October 24, 1988

Enclosure:

- (1) Report of Air Sampling for the Presence of Polybrominated Dibenzodioxins and Dibenzofurans During the Production of Polybutylene Terephthalate Resin with Decabromodiphenyl Oxide. *Dibenzodioxins and Dibenzofurans During the Production of Polybutylene Terephthalate Resin with Decabromo -*

H_{1.1}-10

20665

195

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1988 ONLY
H_{1.1}-FILE

Fiche #

40-8893186 Hoechst-Celanese Corporation (7) 524854

Letter from D. Woodhull to L. Moos, EPA
with corrections to the October 24, 1988
1988 report "Air Sampling for the *Presence of Polybrominated Dibenzo-
dioxins and Dibenzofurans During the*
Production of Polybutylene Terephthalate Resin with Deca-
bromodiphenyl
late Resin with Decabromodiphenyl
Oxide".
November 8, 1988

40-8893298 Midwest Research Institute (8) 524855

Letter from D. Steele to T. Murray, EPA
July 13, 1988

Enclosure:

- (1) Review of "The Dow Chemical Co.
Sampling and Analytical Protocols
for 2,4-Dichlorophenol".

40-8893341 Midwest Research Institute (9) 524856

Letter from D. Steele to T. Murray, EPA
on the review of the report by BFRIP on
the Hoechst Celanese Corp., Bishop,
Texas plant air monitoring study.
November 18, 1988

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1988 ONLY
H_{1.1}-FILE

Fiche #

40-8893302 Sandoz Chemicals Corporation (10) 524857

Letter from B. Drum to L. Marcus, EPA
August 17, 1988

Enclosures:

- (1) Determination of Polyhalogenated
Dibenzo-p-Dioxins and Dibenzo-
furans in 2,3,5,6-Tetrachloro-
2,5-cyclohexadiene-1,4-dione;
Sample Selection and Sampling
Plan.
August 17, 1988

40-8893305 Sandoz Chemicals Corporation (11) 524858

Letter from B. Drum to L. Marcus, EPA
August 17, 1988

Enclosure:

- (1) Dioxins/Furans Report form #7910-
51 Part II for: 2,6-Dibromo-4-
nitroaniline, Chlorobenzene and
2,6-Dichloro-4-nitroaniline.

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1988 ONLY
H_{1.1}-FILE

Fiche #

40-8893306 Sandoz Chemicals Corporation (12) 524859

Letter from B. Drum to L. Marcus, EPA
August 17, 1988

Enclosures:

- (1) Existing test data from a study testing for presence of HDDs/HDFs in 2,3,5,6-Tetrachloro-2,5-cyclohexadiene-1,4-dione.
- (2) Test method for determination of 2,3,7,8-Tetrachlorodibenzo-p-dioxin in environmental samples. Federal Register; 49(209):136-141.
October 26, 1984

40-8893309 U.S. Environmental Protection Agency (13) 524860

Internal EPA Action Memorandum from M. Halper to C. Elkins on the recommendation concerning The Dow Chemical Co. protocol on 2,4-Dichlorophenol.
September 12, 1988

Enclosure:

- (1) Letter from C. Elkins, EPA, to J. Gray, The Dow Chemical Co., on the review and recommendation of their test protocol on 2,4-Dichlorophenol.
September 14, 1988

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1988 ONLY
H_{1.1}-FILE

Fiche #

40-8893311 U.S. Environmental Protection Agency (14) 524861

Letter from C. Elkins to R. Jourdenais,
Hoechst Celanese Corp. on their
Chloranil testing protocol for the
presence of Dioxins and Furans.
October 14, 1988

[Enclosure Not Provided to Docket]

40-8893312 U.S. Environmental Protection Agency (15) 524862

Letter from C. Elkins to R. Tanaka,
Chugai International Corp. on their
protocol for testing Chloranil for the
presence of Dioxins and Furans.
October 14, 1988

Enclosures:

- (1) Polyhalogenated Dibenzo-p-Dioxins/
Dibenzofurans Testing and Reporting
Requirements Final Rule. *Docket*
~~Docket~~ #83002C. Federal Register; 52:
52021412.
June 5, 1987

- (2) Guidelines for the Determination
of Halogenated Dibenzo-p-Dioxins
and Dibenzofurans in Commercial
Products.

- September 1987*
(3) Guidance Document for the
Preparation of Quality Assurance
Project Plans.

[See A₁(3) for Enclosure (1) *Guidelines for Review*
Enclosures (2) and (3) *Test Plans submitted*
for Determination
HDDs and HOF
in Commercial Products
February 26, 1988
Results of HDD and HOF
Differentiation in Commercial Products
June
Docket]

- (4) Guidelines for Reporting Test
Results of HDD and HOF
Differentiation in Commercial Products.

H_{1.1}-14

198

20669

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1988 ONLY
H_{1.1}-FILE

Fiche #

40-8893314	U.S. Environmental Protection Agency Letter from C. Elkins to B. Drum, Sandoz Chemicals Corporation on the protocol for measuring Dioxins and Furans in Chloranil. November 7, 1988	(16)	524863
40-8893315	U.S. Environmental Protection Agency Letter from C. Elkins to A.P. Gupta, ~~✱~~ <i>A</i> and D International, Inc. on their protocol for measuring Dioxins and Furans in Chloranil. November 7, 1988	(17)	524864
40-8893318	U.S. Environmental Protection Agency <u>Charter of the Dioxin/Furan Protocol Review Panel.</u> December 14, 1988	(18)	524865

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993340 A and D International, Inc. (1) 524866

Letter from C.K. Gupta to T. Murray/C.
Elkins, EPA
February 3, 1989

Enclosures:

- (1) Letter from C. Elkins, EPA to A.P. Gupta of A and D International on the Chloranil protocol.
November 7, 1988

[See H_{1.1}(17) for Enclosure (1)]
- (2) Sampling Plan for Testing HDD's and HDF's in Chloranil Imported by A and D International, Inc.
- (3) Letter from Y. Tondeur of Triangle Labs., Inc. to A.P. Gupta of A and D International, Inc.
December 5, 1988

(a) Analytical Procedures for the Determination of Polychlorinated Dibenzodioxins and Dibenzofurans by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS). Triangle Labs., Inc.
December 1988

H_{1.2}-1

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993368 A and D International, Inc. (2) 524867

Telefax from C.K. Gupta to L. Marcus,
EPA
August 8, 1989

Enclosures:

- (1) Letter from C. Gupta of A and D International, Inc. to C. Elkins, EPA on their Analytical Protocol. August 1, 1989
 - (a) Sample Selection and Sampling Plan.
 - (b) Agreement for sharing test cost with Sandoz.

40-8993369 Akzo Chemicals, Inc. (3) 524868

Letter from E. Bisinger, Jr. to *document*
~~Document~~ Control Office, EPA
August 16, 1989

Enclosure:

- (1) Analytical Protocol for the *Determining*
Determination of Polybrominated *Dibenzofurans*
Dibenzop-Dioxins and Dibenzofurans by
High-Resolution Gas
Chromatography/High-Resolution
Mass Spectrometry in Pentabromo-
diphenyloxide. Brominated Flame
Retardant Industry Panel; Triangle
Laboratories, Inc.
July 4, 1989

H_{1.2}-2

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993353

Ameribrom, Inc.

(4)

524869

Letter from M. Eldan to Office of
Compliance Monitoring, EPA
July 3, 1989

Enclosures:

- (1) Letter from M. Eldan, Ameribrom to
Document Control Office, EPA
July 3, 1989

(a) Sampling Protocol for the
Determination of Polybromo-
minated Dibenzo-p-Dioxins and
Dibenzofurans in Decabromo-
diphenyloxide. Bromine
Compounds Ltd. (Israel)
July 1989

(b) Analytical Protocol for the
Determination of Polybromi-
nated Dibenzo-p-Dioxins and
Dibenzofurans by High-Resolu-
tion Gas Chromatography/High-
Resolution Mass Spectrometry
in Decabromodiphenyloxide.
Triangle Labs., Inc.
July 4, 1989

H_{1.2}-3

20673 203

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993358

Ameribrom, Inc.

(5)

524870

Letter from A.S. Tillman to J. Johnson,
EPA, Office of Compliance Monitoring
July 13, 1989

Enclosures:

(1) Letter from M. Eldan, Ameribrom,
Inc. to Office of Compliance
Monitoring, EPA
July 3, 1989

(a) Letter from M. Eldan,
Ameribrom, Inc. to Document
Control Office, EPA
July 3, 1989

1. Sampling Protocol for the
Determination of Polybrominated Dibenzo-*p*-Dioxins
and Dibenzofurans in Pentabromodiphenyl oxide.
Broomchemie-Terneuzen.
July 1989

(2) Letter from M. Eldan of Ameribrom,
Inc. to Office of Compliance
Monitoring, EPA
July 3, 1989

(a) Letter from M. Eldan of
Ameribrom, Inc. to Document
Control Office, EPA
July 3, 1989

H_{1.2}-4

20674 204

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993358 (continued)

1. Sampling Protocol for the
~~the~~ Determination of Polybrominated Dibenzo-
~~Polybrominated Dibenzo-~~ p-Dioxins and Dibenzofurans in
~~furans in Tetrabromobisphenol-A.~~
~~bisphenol-A.~~ Bromine
Compounds Ltd. (Israel) XOK.
July 1989 Lead in
- (3) Letter from M. Eldan, Ameribrom,
Inc. to Office of Compliance
Monitoring, EPA
July 3, 1989
- (a) Letter from M. Eldan,
Ameribrom, Inc. to Document
Control Office, EPA
July 3, 1989
1. Sampling Protocol for the
~~the~~ Determination of Polybrominated Dibenzo-
~~Polybrominated Dibenzo-~~ p-Dioxins and Dibenzofurans in
~~furans in Octabromodiphenyl oxide.~~
~~phenyl oxide.~~ Bromine
Chemie-Terneuzen. XOK.
July 1989 Lead in

40-8993343

Brominated Flame Retardant Industry
Panel

(6)

524871

Letter from D. McAllister to T. Murray,
EPA responding to EPA letter of
November 18, 1988 reviewing the Bishop,
Texas "Air Sampling Report".
February 22, 1989

H_{1.2}-5

20675 205

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993370	Brominated Flame Retardant Industry Panel	(7)	524872
------------	---	-----	--------

Letter from D. McAllister to Document Processing Center, EPA on the progress of the "90-Day Oral Subchronic Study on 2,3,7,8-Tetrabromodibenzodioxin. July 6, 1989

40-8993322	Chugai Boyeki (America) Corporation	(8)	524873
------------	-------------------------------------	-----	--------

Letter from R. Tanaka to C. Elkins, EPA January 13, 1989

Enclosures:

(1) Sampling Procedures for Chloranil.
Tokuyama Soda Co. Ltd.

(2) Analytical Procedures for the Determination of Polychlorinated Dibenzo-p-Dioxins and Dibenzofurans by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).
Triangle Laboratories, Inc.
December 1988

Supra Chromatography Mass Spectro Triangle

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993350 Chugai Boyeki (America) Corporation (9) 524874

Letter from R. Tanaka to C. Elkins, EPA
June 22, 1989

Enclosures:

- (1) Sampling Plan. Tokuyama Soda Co.,
Ltd.
June 1, 1989
- (2) Analytical Procedures for the
Determination of Polychlorinated
Dibenzodioxins and Dibenzofurans
by High-Resolution Gas Chromato-
graphy/High-Resolution Mass Spectro-
metry (HRGC/HRMS). *Triangle*
Triangle Laboratories, Inc.
May 1989

H_{1.2}-7

20677 207

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993371 Chugai Boyeki (America) Corporation (10) 524875

Letter from M. Tanaka to L. Marcus, EPA
August 1, 1989

Enclosure:

- (1) Letter from R. Tanaka of Chugai
Bayeki Corp. to C. Elkins, EPA
July 24, 1989

(a) Analytical Procedures for the
Determination of Polychlori-
nated Dibenzodioxins and
Dibenzofurans by High-Resolu-
tion Gas Chromatography/High-
Resolution Mass Spectrometry
(HRGC/HRMS). Triangle
Laboratories, Inc.
July 1989

(b) Sampling Plan. Tokuyama Soda
Co. Ltd.
July 14, 1989

[Enclosure (b) Not Provided to
Docket]

40-8993425 Chugai Boyeki (America) Corporation (10a) 524876

Letter from R. Tanaka to C. Elkins, EPA
listing the sample numbers selected for
analytical testing.
September 22, 1989

H_{1.2}-8

20678 208

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993388 Chugai Boyeki (America) Corporation (10b) 524877

Letter from M. Tanaka to L. Marcus on
the delay of the Chloranil samples.
November 9, 1989

Enclosure:

- (1) Letter from D. Williford of
Triangle Labs. to M. Tanaka of
Chugai Boyeki Corp. on the reasons
for the delay of the Chloranil
samples.
November 6, 1989

40-8993342 (The) Dow Chemical Company (11) 524879

Letter from J. Gray to Document Control
Office, EPA
February 17, 1989

Enclosure:

- (1) Protocol and Quality Assurance Plan
Plan for the Determination of Halogen-
Substituted Dibenzo-p-Dioxins and Diben-
zofurans in 2,4-Dichlorophenol
phenol Dow Chemical USA.
February 10, 1989

H_{1.2}-9

20679 209

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993349 (The) Dow Chemical Company (12) 524880

Letter from J. Gray to Document Control
Office, EPA
June 7, 1989

Enclosure:

- (1) Final Report of the Determination
of Halogenated Dibenzo-p-Dioxins
and Dibenzofurans in 2,4-Dichloro-
phenol. Dow Chemical USA.
June 6, 1989

40-8993389 E.I. Dupont de Nemours and Company, Inc. (12a) 524881

Letter from K.D. Dastur to H. Podall,
EPA on their use of o-Dichlorobenzene.
October 17, 1989

40-8993347 Ethyl Corporation (13) 524882

Letter from P.H. Sistrunk to Document
Control Officer, EPA
March 22, 1989

Enclosure:

- (1) 28-Day Range Finding Study 2, 3, 7, 8 -
2,3,7,8-Tetrabromodibenzofuran (TBDF) in
(TBDF) in the Rat. Inhausen Research Insti-
tute, Inc.; Study ~~119-048~~
No. 119-048.

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993355

Ethyl Corporation

(14)

524883

Letter from R.L. Smith to Document
Control Office, EPA
July 5, 1989

Enclosures:

- (1) Sampling Protocol for the Determination of Brominated Dibenzo-p-Dioxins and Dibenzofurans in Decabromodiphenyloxide.
July 1989
- (2) Analytical Protocol for the Determination of Polybrominated Dibenzo-p-Dioxins and Dibenzofurans by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry in Decabromodiphenyloxide.
Triangle Labs., Inc.
July 4, 1989

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993356

Ethyl Corporation

(15)

524906

Letter from R.L. Smith to Document
Control Office, EPA
July 5, 1989

Enclosures:

(1) Sampling Protocol for the Determination of Brominated Dibenzo-p-dioxins and Dibenzofurans in Octabromodiphenyl oxide.
July 1989

(2) Analytical Protocol for the Determination of Polybrominated Dibenzo-p-Dioxins and Dibenzofurans by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry in Octabromodiphenyl Oxide. Triangle Labs., Inc.
July 4, 1989

H_{1.2}-12

212

20682

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993354

Ethyl Corporation

(16)

524907

Letter from R.L. Smith to Document
Control Office, EPA
July 5, 1989

Enclosures:

- (1) Analytical Protocol for the *Deter-*
Determination of Polybrominated *Dibenzo-*
Dibenzo-p-Dioxins and Dibenzo- *furans by*
furans by High-Resolution Gas
Chromatography/High-Resolution
Mass Spectrometry) in Tetra-
bromobisphenol A. *Triangle Labs.,*
Inc.
July 4, 1989
- (2) Sampling Protocol for the Deter-
mination of Brominated Dibenzo-p-
Dioxins and Dibenzofurans in *Tetra-*
Tetrabromobisphenol A.
June 26, 1989

40-8993372

Great Lakes Chemical Corporation

(17)

524884

Letter from C. Mazac to J. Glatz, EPA
with the agenda for the upcoming March
1, 1989 meeting.
February 21, 1989

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993352

Great Lakes Chemical Corporation

(18)

524885

Letter from C.J. Mazac to L. Marcus,
EPA
July 5, 1989

Enclosures:

- (1) Letter from C.J. Mazac, Great
Lakes Chemical Corp. to L. Marcus,
EPA
July 1, 1989

(a) Sampling Protocol for the
Determination of Halogenated
Dibenzo-p-Dioxins and Dibenzo-
Dibenzofurans in Tetrabromobisphenol
Tetrabromobisphenol A.
June 26, 1989

(b) Analytical Protocol for the
Determination of Polybromi-
nated Dibenzo-p-Dioxins and
Dibenzofurans by High-Resolu-
tion Gas Chromatography/High-
Resolution Mass Spectrometry
in Tetrabromobisphenol A.
Triangle Labs., Inc.
July 4, 1989

- (2) Letter from C.J. Mazac, Great
Lakes Chemical Corp. to L. Marcus,
EPA
July 1, 1989

(a) Sampling Protocol for the
Determination of Halogenated
Dibenzo-p-Dioxins and Diben-
zofurans in Tetrabromobis-
phenol-A-Bisethoxylate (BA-
50).
June 26, 1989

H_{1.2}-14

214

20684

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993352 (continued)

- (b) Analytical Protocol for the Determination of Polybrominated Dibenzo-p-Dioxins and Dibenzofurans by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry in Tetrabromobisphenol-A-Bisethoxylate. Triangle Labs., Inc.
July 4, 1989
- (3) Letter from C.J. Mazac, Great *Lakes* Chemical Corp. to L. Marcus, *EPA*
EPA
July 1, 1989
- (a) Sampling Protocol for the Determination of Halogenated Dibenzo-p-Dioxins and Dibenzofurans in Allyl Ether of Tetrabromobisphenol A (BE-51).
June 26, 1989
- (b) Analytical Protocol for the Determination of Polybrominated Dibenzo-p-Dioxins and Dibenzofurans by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry in Tetrabromobisphenol-A-Bis(Allyl Ether). Triangle Labs., Inc.
July 4, 1989
- (4) Letter from C.J. Mazac, Great *Lakes* Chemical Corp. to L. Marcus, *EPA*
EPA
July 1, 1989

H_{1.2}-15

20685

215

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993352 (continued)

- (a) Sampling Protocol for the Determination of Halogenated Dibenzo-p-Dioxins and Dibenzofurans in 2,4,6-Tribromophenol (PH-73).
June 26, 1989
- (b) Analytical Protocol for the Determination of Polybrominated Dibenzo-p-Dioxins and Dibenzofurans by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry in 2,4,6-Tribromophenol. Triangle Labs., Inc.
July 4, 1989
- (5) Letter from C.J. Mazac, Great Lakes Area Chemical Corp. to L. Marcus, EPA
EPA
July 1, 1989
- (a) Sampling Protocol for the Determination of Halogenated Dibenzo-p-Dioxins and Dibenzofurans in 1,2-Bis(Tribromophenoxy)Ethane (FF-680).
June 26, 1989
- (b) Analytical Protocol for the Determination of Polybrominated Dibenzo-p-Dioxins and Dibenzofurans by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry in 1,2-Bis(Tribromophenoxy)Ethane. Triangle Labs., Inc.
July 4, 1989

H_{1.2}-16

216

20686

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993352 (continued)

- (6) Letter from C.J. Mazac, Great Lakes
Chemical Corp. to L. Marcus, EPA
July 1, 1989

(a) Sampling Protocol for the
Determination of Halogenated
Dibenzo-p-Dioxins and Dibenzo-
furans in Pentabromodiphenyl
diphenyl Oxide (DE-71).
June 26, 1989

(b) Analytical Protocol for the
Determination of Polybro-
minated Dibenzo-p-Dioxins and
Dibenzofurans by High-Resolu-
tion Gas Chromatography/ High-
Resolution Mass Spectrometry
in Pentabromodiphenyl Oxide.
Triangle Labs., Inc.
July 4, 1989

- (7) Letter from C.J. Mazac, Great Lakes
Chemical Corp. to L. Marcus, EPA
July 1, 1989

(a) Sampling Protocol for the
Determination of Halogenated
Dibenzo-p-Dioxins and Dibenzo-
furans in Octabromodiphenyl
phenyl oxide.
June 26, 1989

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993352 (continued)

- (b) Analytical Protocol for the Determination of Polybrominated Dibenzo-p-Dioxins and Dibenzofurans by High-Resolution Gas Chromatography/ High-Resolution Mass Spectrometry in Octabromodiphenyl oxide.
Triangle Labs., Inc.
July 4, 1989
- (8) Letter from C.J. Mazac, Great Lakes Chemical Corp. to L. Marcus, EPA
July 1, 1989
- (a) Sampling Protocol for the Determination of Halogenated Dibenzo-p-Dioxins and Dibenzofurans in Decabromodiphenyl oxide (DE-83).
Triangle Labs., Inc.
June 26, 1989
- (b) Analytical Protocol for the Determination of Polybrominated Dibenzo-p-Dioxins and Dibenzofurans by High-Resolution Gas Chromatography/ High-Resolution Mass Spectrometry in Decabromodiphenyl oxide.
Triangle Labs., Inc.
July 4, 1989

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993320

Hoechst-Celanese Corporation

(19)

524886

Letter from R. Jourdenais to Document
Control Officer, EPA
January 5, 1989

Enclosures:

- (1) TCDD's in Chloranil (Tetrachloro-p-Benzochinone) Sample Collection Handling and Preservation.
(Revised Protocol) Hoechst
Aktiengesellschaft.
December 19, 1988
- (2) Analytical Procedures for the Determination of Polychlorinated Dibenzo-dioxins and Dibenzofurans by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).
(Revised Protocol) Triangle
Laboratories, Inc.
December 1988

H_{1.2}-19

219

20689

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993348 Hoechst Celanese Corporation (20) 524887

Letter from R.A. Jourdenais to Document
Control Officer, EPA
May 25, 1989

Enclosures:

- (1) TCDD's in Chloranil Sample Collec-
tion, Handling and Preservation.

Hoechst AG.
May 12, 1989

- (2) Analytical Procedures for the
Determination of Polychlorinated
Dibenzodioxins and Dibenzofurans

~~by~~ High-Resolution Gas Chromato-
graphy/High-Resolution Mass *graphy!*
Spectrometry (HRGC/HRMS). *Triangle*
~~Triangle~~ Laboratories, Inc.
May 1989

- (3) Brominated Flame Retardant *Indicates*

~~Industry~~ Panel (BFRIP) Hoechst- *Celanese Air*
Celanese Air Samples from Bishop,
Texas Test. (Revised) Triangle
Labs., Inc.
June 24, 1988

40-8993357 Hoechst-Celanese Corporation (21) 524888

Letter from R.A. Jourdenais to Document
Control Officer, EPA
July 11, 1989

Enclosure:

- (1) Revised pages 3, 5, 6 and 10 of *the*
~~the~~ analytical portion of the *protocol*
protocol dated May 25, 1989.

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993323 Midwest Research Institute (22) 524889

Letter from D. Steele to D. Firestone,
FDA
January 19, 1989

Enclosure:

- (1) Summary report checklist for
Revision #1 of the Hoechst-*Celanese*
~~Celanese~~ Corp. analytical protocol *for*
~~for~~ Chloranil.

H_{1.2}-21

221

20691

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993324 Midwest Research Institute (23) 524890

Letter from D. Steele to W. Sovocool,
EPA (Las Vegas, Nevada) and duplicate
letters sent to R. Harless, EPA (EMSL,
NC), D. Firestone, FDA, A. Dupuy, EPA
(ECL, Miss.) and W. Bontoyan, EPA
(Beltsville, Md.)
January 25, 1989

Enclosures:

- (1) Summary Report Checklist for the
Testing Protocol for HDD's and
HDF's in Commercial Products
Containing Chloranil Produced by
Hoechst-Celanese Corp.
January 23, 1989
- (2) Charter of the Dioxin/Furan
Protocol Review Panel. (Revised)
January 19, 1989
- (3) Status of TSCA Section 4 D/F
Protocols.

40-8993325 Midwest Research Institute (24) 524891

Letter from D. Steele to D. Firestone,
FDA and duplicates sent to R. Harless,
EPA (EMSL, N.C.), W. Bontoyan, EPA
(Beltsville, MD.) W. Sovocool, EPA (Las
Vegas, Nevada) and A. Dupuy, EPA (ECL,
Miss.)
February 3, 1989

Enclosures:

- (1) Minutes of January EPA TSCA *Action*
~~Section 4~~ Dioxin/Furan Protocol *Review*
~~Review Panel~~ Teleconference.

H_{1.2}-22

222

20692

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993325 (continued)

- (2) Status of TSCA Section D/F ~~Protocols.~~ *as*
February 1, 1989
- (3) Summary Report Checklist of the
Testing Protocol for HDD's and
HDF's in Commercial Products
Containing Chloranil Produced by
Chugai, International Corp.
February 3, 1989

[See D_{1d}(9) for Enclosure (1)]

40-8993366

Midwest Research Institute

(25) 524892

Letter from D. Steele to D. Firestone,
FDA and duplicates sent to R. Harless,
EPA (EMSL, NC.), W. Bontoyan, EPA
(Beltsville, Md.), A. Dupuy, EPA (ECL,
Miss.) and W. Sovocool, EPA (Las Vegas,
N.V.)
February 24, 1989

Enclosures:

- (1) Status of TSCA Section 4 D/F
Protocols.
February 24, 1989
- (2) Testing Protocol for HDD's and
HDF's in Commercial Products
Containing Chloranil from A and D
International. Protocol No. 005;
Revision 1.
- (3) Testing Protocol for HDD's and
HDF's in Commercial Products
Containing Chloranil from Sandoz
Chemicals Corp. Protocol No. 004;
Revision 1.

H_{1.2}-23

223
20693

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993366 (continued)

- (4) Protocol and Quality Assurance Plan
Plan for the Determination of
Halogenated Dibenzo-p-Dioxins and
Dibenzofurans in 2,4-Dichlorophenol
phenol, Dow Chemical USA.
February 10, 1989

[See H_{1.2}(11) for Enclosure (4)]

- (5) BFRIP questions for discussion at
the March 1 panel meeting.

[Enclosure (5) Not Provided to
Docket]

40-8993367 Midwest Research Institute

(26) 524893

Letter from D. Steele to D. Firestone
of FDA and duplicates sent to R.
Harless, W. Bontoyan, W. Sovocool and
A. Dupuy of EPA
March 3, 1989

Enclosure:

- (1) Data Package on Hoechst-Celanese
Air Samples from Bishop, Texas
Test. Brominated Flame Retardant
Industry Panel.

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993345

Midwest Research Institute

(27)

524894

Letters from D. Steele to A. Dupuy, EPA
(NSTL, Miss), D. Firestone, FDA, R.
Harless, EPA (RTP, N.C.), W. Bontoyan,
EPA (Beltsville, Md) and W. Sovocool,
EPA (Las Vegas, N.V.)
March 20, 1989

Enclosures:

- (1) TSCA Section 4 Dioxin/Furan Proto-
col Review Panel Draft Recommenda-
tions for Revision 1 of the Doekst = 3, 5, 6 -
Hoechst-Celanese Protocol (002) for 2, 3, 5, 6 -
for 2, 3, 5, 6-Tetrachloro-2, 5-Cyclohexadiene-1, 4-
hexadiene-1, 4-dione (Chloranil).
March 20, 1989
- (2) TSCA Section 4 Dioxin/Furan Proto-
col Review Panel Draft Recommenda-
tions for Revision 1 of the Chugai, Intern -
Chugai International Corp. Protocol (003) for 2, 3, 5, 6-Tetra-
chloro-2, 5-Cyclohexadiene-1, 4-
dione (Chloranil).
March 20, 1989
- (3) TSCA Section 4 Dioxin/Furan Proto-
col Review Panel Draft Recommendations
tions for Revision 1 of the Sandoz Chemi -
Chemicals Corp. Protocol (004) for
2, 3, 5, 6-Tetrachloro-2, 5-Cyclo-
hexadiene-1, 4-dione (Chloranil).
March 20, 1989

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993345 (continued)

- (4) TSCA Section 4 Dioxin/Furan Protocol Review Panel Draft Recommendations ~~for~~ for Revision 1 of the A and D International, Inc. Protocol (005) for 2,3,5,6-Tetrachloro-2,5-Cyclohexadiene-1,4-dione (Chloranil).
March 20, 1989

- (5) Example Sampling Plan.

40-8993346

Midwest Research Institute

(28)

524895

Letters from D. Steel to R. Harless, W. Bontoyan, W. Sovocool, A. Dupuy of EPA and D. Firestone of FDA
March 9, 1989

Enclosures:

- (1) Status of TSCA Section 4 D/F Protocols.
- (2) Letter from D. Steel, Midwest Research Institute to D. McAllister of BFRIP responding to the BFRIP March 1 presentation to the panel. March 9, 1989
- (3) Minutes of the March TSCA Section 4 Dioxin/Furan Protocol Review Panel Meeting.

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993373

Midwest Research Institute

(29)

524896

Letter from D. Steele to D. McDaniel,
EPA, J. Donnelly of Lockheed *Engineering*
Engineering and Sciences Co., R. 1
Harless, EPA (RTP, NC), D. Firestone
(USFDA); W. Bontoyan, EPA (Beltsville,
Md.), A. Dupuy, EPA (NSTL, MS) and W.
Sovocool, EPA (NERL, Las Vegas, Nevada)
August 1, 1989

Enclosure:

- (1) Review of protocols for Decabromo-
diphenyloxide from Ameribrom, Inc.
(006), Ethyl Corp. (007) and Great
Lakes Chemical Corp. (013); for
Octabromodi-phenyloxide from Ethyl
Corp. (008), Ameribrom, Inc. (011)
and Great Lakes Chemical Corp.
(014); for Pentabromodiphenyloxide
from Ameribrom, Inc. (012), Great
Lakes Chemical Corp. (015); for
1,2-Bis(Tribromophenoxy)Ethane
from Great Lakes Chemical Corp.
(017); and for Allyl Ether of
Tetrabromobisphenol-A from Great
Lakes Chemical Corp. (019).
July 1989

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993374

Midwest Research Institute

(30)

524897

Letter from D. Steele to W. Bontoyan, EPA, (Beltsville, Md.), to J. Donnelly of Lockheed Engineering and Sciences Co., to R. Harless, EPA (RTP, NC), to D. Firestone (USFDA), to W. Bontoyan, EPA (Beltsville, Md.), to A. Dupuy and D. McDaniel, EPA (NSTL, MS) and W. Sovocool, EPA (NERL, Las Vegas, Nevada) August 15, 1989

Enclosures:

- (1) Analytical and Sampling Protocols.
Chugai Boyeki (America) Inc.
July 1989

[See H_{1.2}(10) for Enclosure (1)]

- (2) Analytical and Sampling Protocols.
A and D International, Inc.
December 1988

[See H_{1.2}(1) for Enclosure (2)]

- (3) Summary Report Checklist for HDDs and HDFs in Commercial Products Containing Tetrabromobisphenol A from Ethyl Corp. (009).

- (4) Summary Report Checklist for HDDs and HDFs in Commercial Products Containing Tetrabromobisphenol A from Ameribrom, Inc. (010).

- (5) Summary Report Checklist for HDDs and HDFs in Commercial Products Containing Tetrabromobisphenol A from Great Lakes Chemical Corp. (016).

H_{1.2}-28

20698 228

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993374 (continued)

- (6) Summary Report Checklist for HDDs and HDFs in Commercial Products Containing Tetrabromobisphenol A-Bisethoxylate from Great Lakes Chemical Corp. (020).
- (7) Summary Report Checklist for HDDs and HDFs in Commercial Products Containing 2,4,6-Tribromophenol from Great Lakes Chemical Corp. (018).
- (8) Status of TSCA Section 4 D/F Protocols.
August 14, 1989

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993390 Midwest Research Institute (30a) 524898

Cover letter from D. Steele to W.
Sovocool, EPA (Las Vegas, Nevada), R.
Harless, EPA (Research Triangle Park,
NC), D. Firestone, USFDA and A. Dupuy,
EPA (NSTL, Miss.)
November 8, 1989

Enclosures:

- (1) Bromodioxins and Bromofurans in Stock. Cambridge Isotope Laboratories.
July 21, 1989
- (2) Production Schedule for Bromo - Bromodioxins and Bromofurans. *Cambridge*
~~Cambridge~~ Isotope Laboratories.
July 21, 1989
- (3) Minutes of EPA TSCA Section 4 Dioxin/Furan Protocol Review Panel Meeting.
August 23-24, 1989
- (4) Minutes of EPA TSCA Section 4 Dioxin/Furan Protocol Review Panel Teleconference.
September 8, 1989
- (5) Minutes of EPA TSCA Section 4 Dioxin/Furan Protocol Review Panel Teleconference.
September 29, 1989
- (6) Minutes of EPA TSCA Section 4 Dioxin/Furan Protocol Review Panel Teleconference.
October 25, 1989

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
FILE

4.3

Fiche #

40-9093508

Chemical Manufacturers
Association

(209) 533337

Letter from G. Cox to
C. Elkins, EPA in
response to EPA's letter
of October 26, 1990 concerning
the development of the
analytical methods
for eight chemical
substances.
November 21, 1990

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
~~FILE~~ FILE

#13

Fiche #

40-9093572

Chemical Manufacturers (20b) 533338
Association

Letter from H. Shah to
L. Marcus, EPA
December 6, 1990

Enclosure:

- (1) Letter from K. Riggs,
Battelle to C. Mazac
of Prominates Flame
Retardant Industry Panel
Containing a status
report on the development
of the Analytical Protocol
for determining Dioxins
in Decabromodiphenyl
Ether matrix.
November 7, 1990
(a) Results of initial
analyses.

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
~~E~~ FILE

H/1.3

Fiche #

40-9093512 (Continued)

- (2) Letter from R. Mitchum
of Triangle Labs. to
H. Shah, CMA containing
a status report on the ~~development~~ development of
the Analytical Protocols for
OB DPO.
November 27, 1990
(a) Initial analyses.

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093406 Chugai Boyeki (America) Corporation (21) 524938

Letter from R. Tanaka to L. Marcus, EPA
January 9, 1990

Enclosure:

- (1) Letter from R. Varcoe of Triangle
Labs. to S. Ushiyama of Chugai
Boyeki Corp. on the reason for the
blank "Certificate of Analysis"
sample enclosed in their December
26, 1989 letter.
November 17, 1989

40-9093474 Chugai Boyeki (America) Corporation

(22) 533339

Letter from D. Severn of Jellinek,
Schwartz, Connolly and Freshman, Inc.
to J. Canterbury, EPA on protocol
modifications.
August 6, 1990

Enclosures:

- (1) Certificate of Analysis for Two
Samples of PCDD/PCDF.
March 11, 1990

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093410

Ethyl Corporation

(23)

524939

Letter from L. Wen to L. Marcus, EPA
January 16, 1990

Enclosures:

- (1) Analytical Protocol for the Determination of Polybrominated Dibenzo-
p-Dioxins and Dibenzofurans by
High-Resolution Gas Chromatography/
pH/Medium High-Resolution Mass Spec. -
Spectrometry in Tetrabromobisphenol-A,
phenol-A, Triangle Laboratories, Inc.
Inc.
January 12, 1990
- (2) Analytical Protocol for the Determination of Polybrominated Dibenzo-
p-Dioxins and Dibenzofurans by
High-Resolution Gas Chromatography/
pH/Medium High-Resolution Mass Spec. -
Spectrometry in Octabromodiphenyl
oxide, Triangle Laboratories, Inc.
January 12, 1990
- (3) Analytical Protocol for the Determination of Polybrominated Dibenzo-
p-Dioxins and Dibenzofurans by
High-Resolution Gas Chromatography/
pH/Medium-High-Resolution Mass Spec. -
Spectrometry in Decabromodiphenyl
oxide, Triangle Laboratories, Inc.
January 12, 1990

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093411 Ethyl Corporation

(24) 524940

Letter from L. Wen to L. Marcus, EPA
January 16, 1990

Enclosures:

(1) Letter from L. Wen, Ethyl Corp. to
L. Marcus, EPA
January 11, 1990

(a) Sampling Protocol for the
Determination of Brominated
Dibenzo-p-Dioxins and Diben-
zofurans in Decabromodi-
phenyl-oxide. Triangle
Laboratories, Inc.
January 4, 1990

(b) Sampling Protocol for the
Determination of Brominated
Dibenzo-p-Dioxins and Diben-
zofurans in Tetrabromobis-
phenol-A. Triangle Labora-
tories, Inc.
January 4, 1990

(c) Sampling Protocol for the
Determination of Brominated
Dibenzo-p-Dioxins and Diben-
zofurans in Octabromodiphenyl-
oxide. Triangle Laboratories,
Inc.
January 4, 1990

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093412 Ethyl Corporation

(25) 524941

Letter from L. Wen to L. Marcus, EPA
enclosing a copy of complete protocol
(incomplete copy sent January 16,
1990).
January 18, 1990

Enclosure:

- (1) Analytical Protocol for the Determination of Polybrominated Dibenzo-p-Dioxins and Dibenzo-furans by High-Resolution Gas Chromatography/Medium High-Resolution Mass Spectrometry in Octabromodiphenyl ~~oxide~~ ^{oxide}. Triangle Laboratories, Inc.
January 12, 1990

40-9093407 Great Lakes Chemical Corporation

(26) 524942

Cover letter from C. Mazac to L. *Marcus*,
~~Marcus~~, EPA
January 16, 1990

Enclosures:

- (1) Letter from C. Mazac to L. Marcus,
EPA
January 16, 1990

- (a) Analytical Protocol for the Determination of Polybrominated Dibenzo-p-Dioxins and Dibenzofurans by High-Resolution Gas Chromatography/Medium High-Resolution Mass Spectrometry in 1,2-Bis(*tribromophenoxy*)Ethane. Triangle Laboratories, Inc.
January 12, 1990

H_{1.3}-18

237

20707

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
-FILE

H1.4

(13)

Fiche #

40-9193555

Chemical Manufacturers
Association

Letter from H. Shalita
J. Casra, EPA
October 2, 1991

Enclosures:

1) Table I. BFRIP

Protocol Corrections

(2) Analytical Protocol
for the Determination
Polybrominated Dibenzo-p-
Diopins and Dibenzofurans
by High-Resolution Gas
Chromatography / Medium High
Resolution Mass Spectrometry in
Decabromodiphenyl oxide. Triangle

Labs. Inc. for the BFRIP Panel.
January 29, 1992 Revised January 29, 1991
Protocol.

September 20, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
FILE

40-919355 (Continued) 171.4

Fiche #

(3) same as (2)

in Octabromodiphenyl oxide.

(4) same as (2)

in Pentabromodiphenyl oxide.

(5) same as (2)

in Tetrabromobiphenyl A.

(6) same as (2)

in Tribromobiphenyl.

(7) same as (2)

in Tetrabromobiphenyl - A -
Bisethoxylate.

(8) same as (2)

in Tetrabromobiphenyl A ~~the~~
Bis (Allyl Ether).

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
E-FILE

40-9193556

H-4
Chemical Manufacturers
Association

Fiche #

(14) 533376

Letter from H. Platt to
J. Haring, EPA on additional
data on Pentabromodiphenyl
Epoxy.

October 2, 1991

Enclosure:

- (1) Attachment A: Analysis
of Pentabromodiphenylepoxy
Plant Samples

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF

H 1.4
-FILE

Fiche #

40-9193557

Chemical Manufacturers
Association

(67) 15
(12)
533377

Letter from G. Strickland
to J. Casra, EPA in
response to his August 30,
1991 letter concerning the
analytical protocol for
1,2-Bis (Tribromophenoxy)-
ethane.

October 4, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
EPA-FILE

H. 1. 1

40 - 9193560

Chemical Manufacturers
Association

(16)
(~~15~~)

Fiche #

533378

Letter from H. Shah
to R. Marcus, EPA Concerning
reports inadvertently omitted from the October 7, 1991
October 17, 1991 submission.

Enclosures:

(1) Evaluation of a Protocol
for the Determination of

PBDD/PBDF in

Tetrabromobisphenol-A-

Bis(4-chlorophenyl) ether. Great

Lakes Chemical Corp.;

Battelle.

March 11, 1991

(2) same as (1) in

Tetrabromobisphenol-A-Bis(Allyl
Ether).

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
-FILE

H_{1.4}

Fiche #

40-9193567

Chemical Manufacturers (17)
Association

Letter from H. Shah to
J. Garra, EPA in response
to ~~their letter~~ of August 30, 1991
~~the same~~
EPA's letter:

December 2, 1991

Enclosure:

(1) Analytical Protocol for the
Determination of Polybrominated
Dibenzop-D-Dioxins and Dibenzofurans
by High-Resolution Gas Chromatography/
Medium Resolution Mass Spectrometry in
1,2-Dibis (Tribromophenyl) Ethane.

Battelle Labs. for Brominated
Flame Retardant Industry Panel.
November 25, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
FILE

H. 1. 4

(18)

Fiche #

40-9193 568

Chemical Manufacturers
Association

Letter from H. Shah
to Document Control Office,
EPA ~~Washington~~ on the
voluntary study plan for
Tetrabromobiphenyl A, Penta-
bromodiphenyl oxide and 2,4,6-
tribromophenol.

December 10, 1991

Enclosures:

(1) Curriculum Vitae for
personnel from Triangle
Labs., Inc.

(2) Analytical Protocol for the
Determination of Polybrominated
Dibenzop-p-bisopins and
Dibenzofurans by High-

Resolution Gas Chromatography/Medium
High-Resolution Mass Spectrometry in
Tetrabromobiphenyl A. Triangle Labs.

D.C. for Brominated Flame Retardant Industry
January 29, 1991

Panel.

244

20714

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
~~EX~~-FILE

Fiche #

40-9193568 (continued) #1.4

(3) same as (2)

in Pentabromodiphenylpicole.

Same - - - - -

January 29, 1991

(4) same as (2)

in Tribromophenol.

same

January 29, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
FILE

14, 14

Fiche

3 569 ~~Letter~~ Chemical Manufacturers (19)
Association

Letter from H. Shakte
Document Control Office,
EPA on the ^{run} rotating study
plan for Decabromodiphenyl oxide,
Octabromodiphenyl oxide, Tetra-
bromobisphenol-A-Bisethers, and
and Allyl Ether of tetrabromo-
bisphenol A.

December 10, 1991

Enclosure:

- (1) ~~Curriculum~~ Vitae for
personnel from
Battelle Memorial Institute
- (2) Analytical Protocol for the
Determination of Polybrominated
Dibenzop-p-Dioxins and Dibenzofurans
by High-Resolution Gas Chromatography/
Medium High-Resolution Mass Spectrometry
in Decabromodiphenyl oxide. Triangle
Env. for the Brominated Flame Retardant
Nov 29, 1991 Industry Panel.

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
-FILE

H 1-4

40-9193 562 (The) Dow Chemical Company (²⁰~~1-3~~) 533379 Fiche #

Letter from R. L. Hagerman
to E. Aron in response to an
inquiry in their October 5, 1987 letter (H.O. (3)).
November 8, 1991

Enclosure:

(1) Analysis of 2,4-dichlorophenol

for the presence of 2,3,7,8 -

tetrachlorodibenzo-p-dioxin.

The Analyst

February 4, 1985

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
~~FILE~~

H1.4

Fiche #

40-9193570 Ethyl Corporation (21)

Letter from P. Ranker to
M. Bauer, Battelle Labs. Inc.,
informing them of the testing
of Decabromodiphenyl Oxide
and Octabromodiphenyl
Oxide.
November 26, 1991

40-9193571 Ethyl Corporation (22)

~~Like~~ Like 21

of Tetrabromodiphenyl A.
November 26, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
'DOCUMENTS RECEIVED FOLLOWING DECISION OF
~~FILE~~-FILE

H. 4

Fiche #

40-9193572 Great Lakes Chemical (23)
Corporation

Letter from C. Mazur
to F. Varcoe, Triangle
Labs. notifying them of
the testing of Tetrabromo-
biphenyl A, 2, 4, 6-Tribromo-
phenol and ~~Penta~~ Pentabromo-
diphenyl Oxide

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
EPA-FILE

H1.4

Fiche #

40-9193573

ICI American, Inc. (24)

Letter from J. F. Jadlocki
to Document Control Office,
EPA concerning the
presence of dioxins and
furans in Chloranil.

February 4, 1991

Enclosures:

(1) Letter from J. Casra, EPA
on the investigation
of Chloranil for dioxin
contamination.

December 31, 1990

(2) Detailed process description
of the manufacture of Chloranil.
(CBI)

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
EPA-FILE

H-4

Fiche #

40-9193523 Pfister Chemical, Inc. (25) ~~27~~

533380

Letter from R. Braun to
R. Marcus, EPA

January 15, 1991

Enclosures:

(1) Sampling Protocol for the
Determination of Halogenated
Dibenzo-p-Dioxins and
Dibenzofurans in 3, 4', 5-
Tribromosalicylanilide.

January 15, 1991

(2) Curriculum Vitae for Triangle
Lab. personnel.

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993391 Midwest Research Institute (30b) 524899

Letter from D. Steele to W. Bontoyan,
EPA (Beltsville, Md.), D. Firestone,
USFDA, R. Harless, EPA (RTP, NC), W.
Sovocool, EPA (Las Vegas, Nevada), A.
Dupuy, EPA (NSTL, Miss.) and J.
Donnelly, Lockheed Engineering and
Sciences Co.
December 12, 1989

Enclosure:

- (1) Letter from C. Elkins, EPA to A.
Gusmano, Pfister Chemical, Inc.
containing the review of their
protocol for the analytical *Testing*
~~testing~~ of 3,4',5-Tribromo-
salicylanilide.
November 27, 1989

40-8993392 Midwest Research Institute (30c) 524900

Letter from D. Steele to W. Sovocool,
EPA (Las Vegas, Nevada), R. Harless,
EPA (RTP, NC), D. Firestone, USFDA, A.
Dupuy, EPA (NSTL, Miss.), W. Bontoyan,
EPA (Beltsville, Md.) and J. Donnelly
of Lockheed Engineering and Sciences Co.

→ ~~cc~~
December 18, 1989

Enclosure:

- (1) Initial Review of Hoechst-Celanese
(002) Data for Chloronil.
December 18, 1989

H_{1.2}-31

252
20722

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993375 Pfister Chemical, Inc. (31) 524901

Letter from A. Gusmano to L. Marcus,
EPA on the manufacture of 3,4',5-
Tribromosalicylanilide.
August 8, 1989

40-8993376 Pfister Chemical, Inc. (32) 524902

Letter from A. Gusmano to Document
Control Office, EPA
September 15, 1989

Enclosure:

- (1) Analytical Protocol for the *Deter -*
Determination of Polybrominated *Dibenzo*
Dibenzo-*p*-Dioxins and Dibenzofurans *by TGG*
furans by High-Resolution Gas
Chromatography/High-Resolution
Mass Spectrometry in 3,4',5-
Tribromosalicylanilide. Triangle
Laboratories, Inc.
August 28, 1989

40-8993327 Sandoz Chemicals Corporation (33) 524903

Letter from B. Drum to L. Marcus, EPA
February 8, 1989

Enclosure:

- (1) Protocol for the Determination of
Polyhalogenated Dibenzo-*p*-dioxins
and Dibenzofurans in 2,3,5,6-
Tetrachloro-2,5-cyclohexadiene-
1,4-dione.
February 7, 1989

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993351 Sandoz Chemicals Corporation (34) 524904

Letter from B.W. Drum to L. Marcus, EPA
June 30, 1989

Enclosures:

- (1) Agreement for Sharing Testing Cost
(A&D International, Inc.)
- (2) Sample Selection and Sampling Plan
for the Determination of Polyhalo-
genated Dibenzo-p-Dioxins and
Dibenzofurans in 2,3,5,6-Tetra-
chloro-2,5-Cyclohexadiene-1,4-
dione. Triangle Labs., Inc.
June 30, 1989

40-8993451 Sandoz Chemicals Corporation (34a) 524905

Letter from B. Drum to L. Marcus, EPA
revising their notice of intent to test
(letter of August 17, 1988).
June 30, 1989

Enclosure:

- (1) Analytical Testing Protocol for the
determination of Polyhalo-
genated Dibenzo-p-Dioxins and
Dibenzofurans in 2,3,5,6-Tetra-
chloro-2,5-Cyclohexadiene-1,4-
dione. Triangle Labs., Inc.
May 1989

H_{1.2}-33

254
20724

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993377 Sandoz Chemicals Corporation (35) 524908

Letter from B. Drum to L. Marcus, EPA
July 27, 1989

Enclosure:

- (1) Agreement for Sharing Testing Cost
(Between Sandoz Chemicals Corp.
and A and D International, Inc.).

40-8993378 Sandoz Chemicals Corporation (36) 524909

Letter from B. Drum to L. Marcus, EPA
July 27, 1989

Enclosure:

- (1) Four corrected pages and one
missing page to the protocol
submitted on 2,3,5,6-Tetrachloro-
2,5-Cyclohexadiene-1,4-dione
submitted June 30, 1989.

[See H_{1b}(34a) for Protocol]

40-8993393 Standard Chlorine of Delaware, Inc. (36a) 524910

Letter from R. Touhey to H. Podall, EPA
in response to his letter of October 4,
1989 regarding contents of *Paradichloro -*

~~Paradichlorobenzene~~ used to produce *1,2,4-Trichloro -*
~~1,2,4-Trichlorobenzene~~.

November 7, 1989

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993344 U.S. Department of Health and Human (37) 524911
Services, National Institute for
Occupational Safety and Health

Letter from R.W. Hartle from the *Centers*
~~Centers~~ for Disease Control (CDC) to L. *Moore*,
~~Moore~~, EPA containing a status report on
NIOSH's involvement with the Brominated
Flame Retardant Industry Panel's *investigation*
investigation of PBDD's and PBDF's.
February 22, 1989

Enclosures:

- (1) Report of Air Sampling for the
Presence of Polybrominated Dibenzodioxins and Dibenzofurans During
the Production of Polybutylene
Terephthalate Resin with Decabromodiphenyl Oxide. Hoeschst-Celanese
~~Celanese Corp.~~, Brominated Flame Retardant
Retardant Industry Panel.
- (2) USDHHS memorandum from A. *Lunsford*,
~~Lunsford~~, to R. Hartle containing *a review of*
a review of the "analytical
section" of the BFRIP report.
- (a) Summary of PBDD/PBDF *Analytical*
Analytical Results from *Triangle Labo-*
~~Triangle Laboratories, Inc.~~
(Table)

40-8993321 U.S. Environmental Protection Agency (38) 524912

EPA memo from T. Murray to "The Record"
on the Sampling Protocol from A&D
International, Inc.
January 11, 1989

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993326	U.S. Environmental Protection Agency EPA memo from T. Murray to "The Record" on the review of The Dow Chemical Co. Sampling and Analytic Protocol. February 6, 1989 Enclosure: (1) <u>Draft Panel Recommendations for Revision 1 of the Dow Protocol Submitted for 2,4-Dichlorophenol Under the EPA TSCA Section 4 Dioxin/Furan Rule.</u> Midwest Research Institute.	(39)	524913
40-8993379	U.S. Environmental Protection Agency Letter from C. Elkins to R. Jourdenais of Hoechst-Celanese Corp. reviewing their revised test protocol sent January 5, 1989 on Chloranil. April 17, 1989	(40)	524914
40-8993380	U.S. Environmental Protection Agency Letter from C. Elkins to B. Drum of Sandoz Chemicals Corp. reviewing their revised test protocol for Chloranil sent February 8, 1989. April 17, 1989	(41)	524915
40-8993381	U.S. Environmental Protection Agency Letter from C. Elkins to C.K. Gupta of A and D International, Inc. reviewing their revised test protocol for ~~Chloranil~~ <i>Chloranil</i> sent February 3, 1989. April 17, 1989	(42)	524916

H_{1.2}-36

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993382	U.S. Environmental Protection Agency Letter from C. Elkins to R. Tanaka of Chugai Boyeki (America) Corp. reviewing their revised test protocol for Chloranil sent January 13, 1989. April 17, 1989	(43)	524917
40-8993383	U.S. Environmental Protection Agency Letter from C. Elkins to B. Drum of Sandoz Chemicals Corp. accepting their revised test protocol for Chloranil sent July 27, 1989. August 21, 1989	(44)	524918
40-8993384	U.S. Environmental Protection Agency Letter from C. Elkins to R. Tanaka of Chugai Boyeki (America) Corp. accepting their revised test protocol for ~~Chloranil~~ <i>Chlora-</i> Chloranil sent June 22, 1989. August 21, 1989	(45)	524919
40-8993385	U.S. Environmental Protection Agency Letter from C. Elkins to R. Jourdenais of Hoechst-Celanese Corp. accepting their revised test protocol for ~~Chloranil~~ <i>Chlora-</i> Chloranil sent May 25, 1989. August 21, 1989	(46)	524920
40-8993386	U.S. Environmental Protection Agency Letter from C. Elkins to C.K. Gupta of A and D International, Inc. accepting their revised test protocol for ~~Chloranil~~ <i>Chlora-</i> Chloranil sent August 1, 1989. August 21, 1989	(47)	524921

H_{1.2}-37

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1989 ONLY
H_{1.2}-FILE

Fiche #

40-8993387 U.S. Environmental Protection Agency (48) 524922

Internal EPA memo from J. Merenda to C.
Auer on the analytical data for 2,4-
Dichlorophenol submitted by The Dow
Chemical Co. .
September 1, 1989

Enclosure:

- (1) Letter from A. Dupuy, Jr., EPA
(Environmental Chemistry Section,
Stennis Space Center, Miss.) to E.
Bryan, EPA (Hdqtrs.) on the review
of data for 2,4-Dichlorophenol
submitted by The Dow Chemical Co.
August 23, 1989

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093465 A and D International, Inc.

(1) 533328

Letter from C. Gupta to J. Canterbury
and J. Breen, *EPA*
July 6, 1990.

Enclosures:

- (1) EPA Form 7710-51 on Chloranil
(Positive Dioxin Report from
Product Analysis).
April 11, 1990
- (2) Log Out for Chlor^aanil from Phenol-
Flow Diagram.
- (3) Comments on Flow Diagram.
- (4) Material Safety Data Sheet for
Chlor^aanil.
- (5) Product Label for Chlor^aanil.
a

40-9093402 Ameribrom, Inc.

(2) 524924

Letter from M. Eldan to Document *Control*
~~Control~~ Office, EPA
January 12, 1990

Enclosure:

- (1) Sampling Protocol for the Deter-
mination of Polybrominated *Dibenzo-*
~~Dibenzo~~p-Dioxins/Dibenzofurans in *Penta-*
~~Penta~~bromodiphenyloxide. *Broomchemie*
Broomchemie B.V.
January 1990

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093403 Ameribrom, Inc.

(3) 524925

Letter from M. Eldan to Document *Control*
~~Control~~ Office, EPA
January 12, 1990

Enclosure:

- (1) Sampling Protocol for the Determination of Polybrominated Dibenzo-p-Dioxins and Dibenzofurans in Tetrabromobisphenol-A. Bromine Compounds, Ltd.
January 1990

40-9093404 Ameribrom, Inc.

(4) 524926

Letter from M. Eldan to Document
Control Office, EPA
January 12, 1990

Enclosure:

- (1) Sampling Protocol for the Determination of Polybrominated ~~Dibenzop~~-Dioxins and Dibenzofurans in furans in Octabromodiphenyloxide. Broomchemie B.V.
January 1990

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093405 Ameribrom, Inc.

(5) 524927

Letter from M. Eldan to Document *Control*
~~Control~~ Office, EPA
January 12, 1990

Enclosure:

- (1) Sampling Protocol for the Determination of Polybrominated Dibenzo-*p*-Dioxins and Dibenzofurans in Decabromodiphenyloxide. Bromine Compounds, Ltd.
January 1990

40-9093408 Ameribrom, Inc.

(6) 524928

Letter from A. Tillman to L. Marcus, *EPA*
EPA
January 16, 1990

Enclosures:

- (1) Analytical Protocol for the Determination of Polybrominated Dibenzo-*p*-Dioxins and Dibenzofurans by High-Resolution Gas Chromatography/Medium High-Resolution Mass Spectrometry in Pentabromodiphenyloxide. Triangle Laboratories, Inc.
January 12, 1990
- (2) Analytical Protocol for the Determination of Polybrominated Dibenzo-*p*-Dioxins and Dibenzofurans by High-Resolution Gas Chromatography/Medium High-Resolution Mass Spectrometry in Octabromodiphenyloxide. *Deter - Dibenzo - furans by* Triangle Laboratories, Inc.
January 12, 1990

H_{1.3}-3

262
20732

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093408 (continued)

- (3) Analytical Protocol for the Determination of Polybrominated Dibenzo-p-Dioxins and Dibenzofurans by High-Resolution Gas Chromatography/Medium High-Resolution Mass Spectrometry in Decabromodiphenyl Ether. Triangle Laboratories, Inc.
January 12, 1990
- (4) Analytical Protocol for the Determination of Polybrominated Dibenzo-p-Dioxins and Dibenzofurans by High-Resolution Gas Chromatography/Medium High-Resolution Mass Spectrometry in Tetrabromobisphenol-A. Triangle Laboratories, Inc.
January 12, 1990

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093414 Chemical Manufacturers Association (7) 524929

Letter from H. Shah to L. Marcus, EPA
containing status report on progress of
analytical methods development.
February 1, 1990

Enclosures:

- (1) Progress Report GLC No. 1 from Y. Tondeur, Triangle Laboratories, Inc. to C. Mazac of Great Lakes Chemical Corp. reporting on activities for PH-73 (Tribromophenol).
January 26, 1990
- (2) Progress Report GLC No. 2 from Y. Tondeur, Triangle Laboratories, Inc. to C. Mazac of Great Lakes Chemical Corp. reporting on BFRIP protocols.
January 26, 1990

40-9093417 Chemical Manufacturers Association (8) 524930

Letter from H. Shah to L. Marcus, EPA
February 23, 1990

Enclosures:

- (1) Progress Report No. 4 on BFRIP protocols from R. Varcoe, Triangle Labs, Inc. to C. Mazac of Great Lakes Chemical Corp.
February 23, 1990
 - (a) Addendum to Progress Report No. 4.
- (2) Progress Report GLC No. 3 on PH-73 from R. Varcoe of Triangle Labs, Inc. to C. Mazac of Great Lakes Chemical Corp.
February 23, 1990

H_{1.3}-5

264

20734

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093430 Chemical Manufacturers Association (9) 524931

Letter from H. Shah to L. Marcus, EPA
April 6, 1990

Enclosures:

- (1) Report on the Results on Comparative Study EPA-TLI TBBPA Procedures. *space* Triangle Labs., Inc.
April 4, 1990
- (2) Progress Report on Darco/AX-21 (350-100 AX-21 Procedure).
April 4, 1990

40-9093431 Chemical Manufacturers Association (10) 524932

Letter from H. Shah to L. Marcus, EPA
April 20, 1990

Enclosures:

- (1) Progress Report No. 6 from Y. Tondeur of Triangle Labs. to C. Mazac of Great Lakes Chemical Corp. on the preparation of *samples for* ~~samples for~~ "single lab evaluation".
April 18, 1990
- (a) Letter from H. Cavalier of Cambridge Isotope Labs. to Y. Tondeur of Triangle Labs. confirming problems with impurities in ED-1460.
March 20, 1990

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093432 Chemical Manufacturers Association (11) 524933

Letter from H. Shah to L. Marcus, EPA
May 10, 1990

Enclosure:

- (1) Letter from Y. Tondeur of Triangle Labs. to C. Mazac of Great Lakes Chemical Corp. containing the status on the solid-phase separation procedure.
May 8, 1990

40-9093433 Chemical Manufacturers Association (12) 524934

Letter from H. Shah to L. Marcus, EPA
May 17, 1990

Enclosures:

- (1) Analytical Protocol for the Determination of Polybrominated Dibenzo-p-Dioxins and Dibenzofurans by High-Resolution Gas Chromatography/Medium High-Resolution Mass Spectrometry in 2,4,6-Tribromophenol.
Triangle Labs., Inc.; Brominated Flame Retardant Industry Panel.
May 15, 1990
- (2) Analytical Protocol for the Determination of Polybrominated Dibenzo-p-Dioxins and Dibenzofurans by High-Resolution Gas Chromatography/Medium High-Resolution Mass Spectrometry in Decabromodiphenyl Oxide. Triangle Labs., Inc.; Brominated Flame Retardant Industry Panel.
May 15, 1990

H_{1.3}-7

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093433 (continued)

- (3) Analytical Protocol for the Determination of Polybrominated Dibenzo-p-Dioxins and Dibenzo-furans by High-Resolution Gas Chromatography/Medium High-Resolution Mass Spectrometry in 1,2-Bis(Tribromophenoxy)Ethane. Triangle Labs., Inc.; Brominated Flame Retardant Industry Panel.
May 15, 1990
- (4) Analytical Protocol for the Determination of Polybrominated Dibenzo-p-Dioxins and Dibenzo-furans by High-Resolution Gas Chromatography/Medium High-Resolution Mass Spectrometry in Tetrabromobisphenol A. Triangle Labs., Inc.; Brominated Flame Retardant Industry Panel.
May 15, 1990

40-9093457

Chemical Manufacturers Association

(12a) 524935

Letter from H. Shah to L. Marcus, EPA
May 31, 1990

Enclosure:

- (1) Progress report on the Analytical Methods Development for Polyhalogenated Dibenzo-p-Dioxins/Dibenzofurans in Octabromodiphenyl oxide and Allyl Ether of Tetrabromobisphenol-A. Triangle Labs., Inc.
May 30, 1990

H_{1.3}-8

20737 267

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093458 Chemical Manufacturers Association (12b) 524936

Letter from H. Shah to L. Marcus, EPA
June 6, 1990

Enclosure:

- (1) Corrected page 55 (Table 5) for
all four protocols submitted
May 17, 1990.

40-9093459 Chemical Manufacturers Association (12c) 524937

Letter from H. Shah to L. Marcus, EPA
June 14, 1990

Enclosures:

- (1) Analytical Protocol for the Deter-
mination of Polybrominated Diben-
zo-~~p~~-Dioxins and Dibenzofurans by
High-Resolution Gas Chromatogra
phy/Medium High-Resolution Mass
Spectrometry in Tetrabromobis
phenyl-A-Bis(Allyl Ether). *phenol -*
Brominated Flame Retardant *Brominated*
Industry Panel. *Industry*
June 15, 1990

- (2) Analytical Protocol for the Deter-
mination of Polybrominated Diben-
zo-~~p~~-Dioxins and Dibenzofurans by
High-Resolution Gas Chromatogra
phy/Medium High-Resolution Mass
Spectrometry in Octabromodiphenyl
oxide. *oxide -*
Brominated Flame Retardant *Industry*
Industry Panel.
June 15, 1990

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093466

Chemical Manufacturers Association

(13) 533329

Letter from H. Shah to J. Remmers, *EPA*
submitting an amendment to the *Analy-*
~~Analytical~~ Protocol for Decabromodiphenyl
~~phenyl~~ Oxide submitted by the Brominated
~~nated~~ Flame Retardant Industry Panels
(BFRIP); requesting a deviation from *test rule*
~~test rule~~ sample size in the Analytical *Protocol*
~~Protocol~~ for Pentabromodiphenyl Oxide *and request*
~~and request~~ for a meeting.
June 26, 1990

Enclosures:

- (1) Progress Report on Decabromodi-
phenyloxide Analytical Protocol
on BA-50 and Method Development
for PeBDPO. Triangle Labs., Inc.
June 24, 1990
- (2) Note on the Single-Laboratory
Evaluation of P₄BDPO. Triangle
Labs., Inc. *e*

40-9093467

Chemical Manufacturers Association

(14) 533330

Letter from G. Cox to C. Elkins
requesting the analysis of blood
samples taken from employees working
near the processing of Polybutylene
Terephthalate (Containing Decabromo-
diphenyl Ether as a Flame Retardant) ~~be~~
be performed at the Midwest Research
Institute.
July 16, 1990

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093468

Chemical Manufacturers Association

(15) 53333/

Letter from H. Shah to L. Marcus, EPA
July 17, 1990

Enclosures:

- (1) Analytical Protocol for the *Letter -*
Determination of Polybrominated *Dibenzo -*
Dibenzo-p-Dioxins and Dibenzo *furans by*
furans by High-Resolution Gas
Chromatography/Medium High-
Resolution Mass Spectrometry in ↑
Pentabromodiphenyl oxide. Triangle
Labs., Inc.; Brominated Flame
Retardant Industry Panel.
July 15, 1990

- (2) Analytical Protocol for the *Letter*
Determination of Polybrominated *Dibenzo -*
Dibenzo-p-Dioxins and Dibenzo *furans by*
furans by High-Resolution Gas ↑
Chromatography/Medium High- ↑
Resolution Mass Spectrometry in —
Tetrabromobisphenol-A-Bisethoxy- —
late. Triangle Labs., Inc.; —
Brominated Flame Retardant
Industry Panel.
July 15, 1990

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093469

Chemical Manufacturers Association

(16) 533332

Letter from H. Shah to L. Marcus, EPA
July 17, 1990

Enclosure:

- (1) DBDPO Analytical Protocol *Amend-*
Amendment. Triangle Labs., Inc.; *Bromis-*
Brominated Flame Retardant *Industry*
Industry
July 5, 1990
- (a) Table 1 - Analytical Results
for Sample "Macro-SG-Micro-
A".
- (b) Table 2 - Analytical Results
for Sample "Macro-SG-Micro-
B".

40-9093470

Chemical Manufacturers Association

(17) 533333

Letter from H. Shah to J. Remmers, *EPA*
responding to EPA's questions on the
Analytical Protocol submitted by the
Brominated Flame Retardant Industry
Panel.
July 19, 1990

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093471 Chemical Manufacturers Association

(18) 533334

Letter from H. Shah to J. Remmers, EPA
containing the interpretation of ~~remarks~~ *remarks*
~~remarks~~ from Y. Tondeur of Triangle *Labs., Inc.*
Labs., Inc. on "limits of quantification" (100%),
low precision/matrix spike studies and
low recovery/consideration of the *validity*
low validity of data from samples presenting *low*
low recovery.
August 10, 1990

Enclosure:

- (1) Flow Charts on Low Recovery Sample Data.

40-9093472 Chemical Manufacturers Association

(19) 533335

Letter from H. Shah to J. Remmers, *EPA*
August 21, 1990

Enclosure:

- (1) Letter from B. Biles of Arnold and
Porter addressing modifications to
test protocols and timetables for
analytical testing.
August 21, 1990

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093473

Chemical Manufacturers Association

(20)

533336

Letter from H. Shah to L. Marcus, EPA
August 24, 1990

Enclosure:

- (1) Progress Report: Evaluation of a Microcarbon Column (DBDPO Sample Fractionation Procedure).
Triangle Labs., Inc.
August 23, 1990
 - (a) Table 1. - Analytical Results for Sample "Macro-SG-Micro-A".
2A
 - (b) Table 2. - Analytical Results for Sample "Macro-SG-Micro-B".
 - (c) Comparison of the Analytical Results for DBDPO Analyzed by the Two-and Three-Step ~~Proce~~-Procedures.
 - (d) Comparison of Selected Ion Current Profiles for DBDPO After Undergoing "Two-Step" and "Three-Step" Chromatographic Cleanups. Recovery Standard and QC-SICP.

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093407 (continued)

- (2) Letter from C. Mazac to L. Marcus,
EPA
January 16, 1990

(a) Analytical Protocol for the
Determination of Polybromi-
nated Dibenzo-p-Dioxins and
Dibenzofurans by High-Resolu-
tion Gas Chromatography/
Medium High-Resolution Mass
Spectrometry in Tetrabromo-
bisphenol-A-Bisethoxylate.
Triangle Laboratories, Inc.
January 12, 1990

- (3) Letter from C. Mazac to L. Marcus,
EPA
January 16, 1990

(a) Analytical Protocol for the
Determination of Polybromi-
nated Dibenzo-p-Dioxins and
Dibenzofurans by High-Resolu-
tion Gas Chromatography/
Medium High-Resolution Mass
Spectrometry in Allyl Ether
of Tetrabromobisphenol-A.
Triangle Laboratories, Inc.
January 12, 1990

- (4) Letter from C. Mazac to L. Marcus,
EPA
January 16, 1990

(a) Analytical Protocol for the
Determination of Polybromi-
nated Dibenzo-p-Dioxins and
Dibenzofurans by High-Resolu-
tion Gas Chromatography/
Medium High-Resolution Mass
Spectrometry in 2,4,6-
Tribromophenol. *Triangle*
~~Triangle~~ Laboratories, Inc.
January 12, 1990

H_{1.3}-19

274

20744

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093407 (continued)

- (5) Letter from C. Mazac to L. Marcus,
EPA
January 16, 1990

(a) Analytical Protocol for the
Determination of Polybromi-
nated Dibenzo-p-Dioxins and
Dibenzofurans by High-Resolu-
tion Gas Chromatography/
Medium High-Resolution Mass
Spectrometry in Decabromo-
diphenyloxide. Triangle
Laboratories, Inc.
January 12, 1990

- (6) Letter from C. Mazac to L. Marcus,
EPA
January 16, 1990

(a) Analytical Protocol for the
Determination of Polybromi-
nated Dibenzo-p-Dioxins and
Dibenzofurans by High-Resolu-
tion Gas Chromatography/
Medium High-Resolution Mass
Spectrometry in Octabromo-
diphenyloxide. Triangle
Laboratories, Inc.
January 12, 1990

- (7) Letter from C. Mazac to L. Marcus,
EPA
January 16, 1990

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093407 (continued)

(a) Analytical Protocol for the Determination of Polybrominated Dibenzo-p-Dioxins and Dibenzofurans by High-Resolution Gas Chromatography/Medium High-Resolution Mass Spectrometry in Tetrabromobisphenol-A. Triangle Laboratories, Inc.
January 12, 1990

(8) Letter from C. Mazac to L. Marcus,
EPA
January 16, 1990

(a) Analytical Protocol for the Determination of Polybrominated Dibenzo-p-Dioxins and Dibenzofurans by High-Resolution Gas Chromatography/Medium High-Resolution Mass Spectrometry in Pentabromodiphenyloxide. Triangle Laboratories, Inc.
January 12, 1990

40-9093409 Great Lakes Chemical Corporation (27) 524943

Cover letter from C. Mazac to L. *Marcus*,
~~Marcus~~, EPA
January 16, 1990

Enclosures:

(1) Letter from C. Mazac to L. Marcus,
EPA
January 16, 1990

H_{1.3}-21

20746
276

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093409 (continued)

- (a) Sampling Protocol for the
Determination of Halogenated
Dibenzo-p-Dioxins and Dibenzofurans in 1,2-Bis(Trifluoromethylphenoxy)Ethane. *Triangle*
Triangle Laboratories, Inc.
January 8, 1990
- (2) Letter from C. Mazac to L. Marcus,
EPA
January 16, 1990
- (a) Sampling Protocol for the
Determination of Halogenated
Dibenzo-p-Dioxins and Dibenzofurans in Tetrabromobisphenol-A-Bisethoxylate. *Triangle*
Triangle Laboratories, Inc.
January 8, 1990
- (3) Letter from C. Mazac to L. Marcus,
EPA
January 16, 1990
- (a) Sampling Protocol for the
Determination of Halogenated
Dibenzo-p-Dioxins and Dibenzofurans in Allyl Ether of
Tetrabromobisphenol-A.
Triangle Laboratories, Inc.
January 8, 1990
- (4) Letter from C. Mazac to L. Marcus,
EPA
January 16, 1990
- (a) Analytical Protocol for the
Determination of Halogenated
Dibenzo-p-Dioxins and Dibenzofurans in 2,4,6-Tribromophenol. *Triangle*
Triangle Laboratories, Inc.
January 8, 1990

H_{1.3}-22

20747
277

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093409 (continued)

- (5) Letter from C. Mazac to L. Marcus,
EPA
January 16, 1990

(a) Sampling Protocol for the
Determination of Halogenated
Dibenzo-p-Dioxins and Dibenzo-
furans in Decabromodiphenyl-
etheroxide. Triangle *Lab.atories,*
Laboratories, Inc.
January 8, 1990

- (6) Letter from C. Mazac to L. Marcus,
EPA
January 16, 1990

(a) Sampling Protocol for the
Determination of Halogenated
Dibenzo-p-Dioxins and Dibenzo-
furans in Octabromodiphenyl-
etheroxide. Triangle *Lab.atories,*
Laboratories, Inc.
January 8, 1990

- (7) Letter from C. Mazac to L. Marcus,
EPA
January 16, 1990

(a) Sampling Protocol for the
Determination of Halogenated
Dibenzo-p-Dioxins and Dibenzo-
furans in Tetrabromobisphenol-
A. Triangle *Lab.atories,*
Laboratories, Inc.
January 8, 1990

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093409 (continued)

(8) Letter from C. Mazac to L. Marcus,
EPA
January 16, 1990

(a) Sampling Protocol for the
Determination of Halogenated
Dibenzo-*p*-Dioxins and Dibenzofurans
in Pentabromodiphenyl ether -
phenyl oxide. Triangle Laboratories, Inc.
January 8, 1990

40-9093413 Great Lakes Chemical Corporation (28) 524944

Fax letter from C. Mazac to J. Johnson,
EPA concerning the adequacy of the
sampling protocols.
January 25, 1990

40-9093415 Great Lakes Chemical Corporation (29) 524945

Letter from C. Mazac to T. Murray, EPA
requesting an early evaluation of the
analytical protocol for Tetrabromo-
bisphenol-A.
February 6, 1990

40-9093416 Great Lakes Chemical Corporation (30) 524946

Letter from C. Mazac to L. Marcus, EPA
February 8, 1990

Enclosures:

(1) Progress Report No. 3 from R.
Varcoe, Triangle Laboratories,
Inc. to C. Mazac of Great Lakes
Chemical Corp. on the BFRIP
protocols.
February 9, 1990

H_{1.3}-24

279
20749

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093416 (continued)

- (2) Progress Report GLC No. 2 from R. Varcoe, Triangle Laboratories, Inc. *Chemical*
~~Inc.~~ to C. Mazac of Great Lakes *73 (2,4,6 -*
~~Chemical~~ Corp. on protocol for PH-*73 (2,4,6 -*
~~73 (2,4,6 -~~ Tribromophenol).
February 9, 1990

40-9093434 Great Lakes Chemical Corporation (31) 524947

Letter from C. Mazac to L. Marcus, EPA
enclosing the second revision of the
sampling protocol.
April 16, 1990

Enclosure:

- (1) Letter from C. Mazac of Great *Lakes*
~~Lakes~~ Chemical Corp. to L. Marcus, *EPA*
~~EPA~~
April 16, 1990

- (a) Sampling Protocol for the
Determination of Halogenated
Dibenzo-p-Dioxins and Dibenzo-
furans in Allyl Ether of
Tetrabromobisphenol A (BE-51).
Triangle Labs., Inc.
April 1990

40-9093435 Pfister Chemical (32) 524948

Letter from R. Huth to L. Marcus, EPA
May 4, 1990

Enclosure:

- (1) Sampling Protocol for the Determi-
nation of Halogenated Dibenzo-p-
Dioxins and Dibenzo Furans in
3,4',5-Tribromosalicylanilide.

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #83002 - POLYHALOGENATED DIBENZO-*p*-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

Fiche #

40-9093475

Pfister Chemical, Inc.

(33) 533340

Letter from R. Huth to L. Marcus, EPA
September 10, 1990

Enclosure:

- (1) Sampling Protocol for the *Determi-*
Determination of Halogenated *Dibenzo - p -*
Dibenzo-*p*-Dioxins and Dibenzofurans in *Dibenzofurans in*
Dibenzofurans in 3,4',5-
Tribromosilylonitrile. *in*
September 5, 1990 *slide*
a
(a) Curriculum Vitae for Pfister
Chemical and Triangle Labs.
personnel.

40-9093492

Pfister Chemical, Inc.

(33a) 533341

Letter from R.C. Brady to Document
Control Office, EPA
October 18, 1990

Enclosure:

- (1) Analytical Protocol for the *Deter -*
Determination of Polybrominated *Dibenzo -*
Dibenzo-*p*-Dioxins and Dibenzofurans by *Dibenzofurans by*
High-Resolution Gas
Chromatography/Medium High-
Resolution Mass Spectrometry in
3,4',5-Tribromosilylonitrile.
Triangle Laboratories, Inc.
October 5, 1990 *l* *a*

TSCA SECTION 8(d) AND 4(a)
HEALTH AND SAFETY DATA REPORTING
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
#83002 - POLYHALOGENATED DIBENZO-p-DIOXINS/DIBENZOFURANS
DOCUMENTS RECEIVED FOLLOWING DECISION OF JUNE 5, 1987
(DOCKET #83002C) - FOR 1990 ONLY
H_{1.3}-FILE

		Fiche	#
1	Ethyl Corporation	(24)	52494

Letter from L. Wen to L. Marcus, EPA
January 16, 1990

Enclosures:

- (1) Letter from L. Wen, Ethyl Corp. to
L. Marcus, EPA
January 11, 1990

- (a) Sampling Protocol for the
Determination of Brominated
Dibenzo-p-Dioxins and Diben-
zofurans in Decabromodi-
phenyl-oxide. Triangle
Laboratories, Inc.
January 4, 1990
- (b) Sampling Protocol for the
Determination of Brominated
Dibenzo-p-Dioxins and Diben-
zofurans in Tetrabromobis-
phenol-A. Triangle Labora-
tories, Inc.
January 4, 1990
- (c) Sampling Protocol for the
Determination of Brominated
Dibenzo-p-Dioxins and Diben-
zofurans in Octabromodiphenyl-
oxide. Triangle Laboratories,
Inc.
January 4, 1990

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
-FILE

H1-4

(13)

Fiche #

40-9193555

Chemical Manufacturers
Association

~~(13)~~ 533375

Letter from H. Shalita
J. Casra, EPA
October 2, 1991

Enclosures:

(1) Table I. BFRIP

Protocol Corrections

(2) Analytical Protocol
for the Determination
of Polybrominated Biphenyls - p -
Diopins and Biphenylfurans
by High-Resolution Gas
Chromatography / Medium High
Resolution Mass Spectrometry in
Decabromodiphenyl oxide. Triangle

Labs. Inc. for the BFRIP Panel.
January 29, 1992 Revised January 29, 1991
Protocol.

September 20, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
-FILE

Fiche #

40-919355 (Continued) 171.1

(3) same as (2)

in Octabromodiphenyl oxide.

(4) same as (2)

in Pentabromodiphenyl oxide.

(5) same as (2)

in Tetrabromobiphenyl A.

(6) same as (2)

in Tribromophenol.

(7) same as (2)

in Tetrabromobiphenyl - A -
Bisethoxylate.

(8) same as (2)

in ^{hex}Tetrabromobiphenyl A ~~Bis~~
Bis (Allyl Ether).

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
EPA-FILE

40-9193556

H1.4
Chemical Manufacturers
Association

Fiche #

(~~14~~) 533376

Letter from H. Shah to
J. Harrison, EPA on additional
data on Pentabromodiphenyl
Epoxy.

October 2, 1991

Enclosure:

- (1) Attachment H: Analysis
of Pentabromodiphenyl Epoxy
Plant Samples

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
H ~~1~~ 1.4 -FILE

Fiche #

40 - 9193557

Chemical Manufacturers
Association

(37) 15
(152)
533377

Letter from C. Strickland
to J. Casra, EPA in
response to his August 30,
1991 letter concerning the
analytical protocol for
1,2-Bis (Trichlorophenyl)-
Ethane.

October 4, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES

DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF

~~FILE~~ -FILE

H). 4

(16)
~~(16)~~

Fiche #

40 - 9193560

Chemical Manufacturers
Association

533 378

Letter from H. Shah
to R. Marcus, EPA Concerning
reports inadvertently omitted from the October 2, 1991
October 17, 1991 submission

Enclosures:

(1) Evaluation of a Protocol
for the Determination of

PBDD/PBDF in

Tetrabromobisphenol-A-

Bis(Thiophylate) - Great

Lakes Chemical Corp.;

Battelle.

March 11, 1991

(2)

same as (1) in

Tetrabromobisphenol-A-Bis(Allyl
Ether).

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
-FILE

H_{1.4}

Fiche #

40-9193567

Chemical Manufacturers (17)
Association

Letter from H. Shah to
J. Carra, EPA in response
to ~~the letter~~ of August 30, 1991/
~~the same~~
EPA's letter:

December 2, 1991

Enclosure:

- (1) Analytical Protocol for the
Determination of Polybrominated
Dibenzop-D-Dioxins and Dibenzofurans
by High-Resolution Gas Chromatography/
Medium Resolution Mass Spectrometry in
1,2-Dioxin (Tribromophenyl) Ethane.
Battelle Labs. for Brominated
Flame Retardant Industry Panel.
November 25, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
-FILE

H. 4

(18)

Fiche #

40-9193 568 Chemical Manufacturers
Association

Letter from H. Shah
to Document Control Office,
EPA ~~Documentary~~ on the
voluntary study plan for
Tetrabromobiphenyl A, Penta-
bromodiphenyl oxide and 2,4,6-
tribromophenol.

December 10, 1991

Enclosures:

(1) Curriculum Vitae for
personnel from Triangle
Labs., Inc.

(2) Analytical Protocol for the
Determination of Polybrominated
Biphenyl - p - Biphenyl and
Biphenylfurans by High -

Resolution Gas Chromatography / Medium
High - Resolution Mass Spectrometry in
Tetrabromobiphenyl A . Triangle Labs.

D.C. for Brominated Flame Retardant Industry
January 29, 1991

Panel. 289

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
~~FILE~~ FILE

40-9193568 (continued) #1.4

Fiche #

(3) same as (2)

in Pentabromodiphenylpic.

Same - - - - -

January 29, 1991

(4) same as (2)

in Tribromophenol.

same

January 29, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
FILE

H, 14

Fiche

3569 ~~Letter~~ Chemical Manufacturers Association (19)

Letter from H. Stahl to
Document Control Office,
EPA on the ^{run} ~~rebuttal~~ study
plan for Decabromodiphenyl oxide,
Octabromodiphenyl oxide, Tetra-
bromobisphenol-A-Bisethers and
and Allyl Ether of tetrabromo-
bisphenol A.

December 10, 1991

Enclosures:

- (1) ~~Curriculum~~ Vitae for
personnel from
Battelle Memorial Institute
- (2) Analytical Protocol for the
Determination of Polybrominated
Dibenzop-p-dioxins and Dibenzofurans
by High-Resolution ~~Gas~~ Chromatography/
Medium High-Resolution Mass Spectrometry
in Decabromodiphenyl oxide. Triangle
for the Brominated Flame Retardant
29, 1991 Industry Panel.

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
-FILE

H 1-4

40-9193 562 (The) Dow Chemical Company (~~7~~²⁰) 533379 Fiche #

Letter from R. L. Hagerman
to E. Gross in response to an
amission in their October 5, 1987 letter (H.O. (3)).
November 8, 1991

Enclosure:

(1) Analysis of 2,4-dichlorophenol

for the presence of 2,3,7,8 -

tetrachlorodibenzo-p-dioxin.

W. A. Hagerman

February 4, 1985

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
~~FILE~~-FILE

H1.4

Fiche #

40-9193570 Ethyl Corporation (21)

Letter from P. Ranker to
M. Bauer, Battelle Labs. Inc.,
informing them of the testing
of Decabromodiphenyl Oxide
and Octabromodiphenyl
Oxide.
November 26, 1991

40-9193571 Ethyl Corporation (22)

~~Letter~~ Like 21

of Tetrabromodiphenyl A.
November 26, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
~~FILE~~-FILE

H1.4

Fiche #

40-9193572 Great Lakes Chemical (23)
Corporation

Letter from C. Mazur
to F. Varcoe, Triangle
Labs. notifying them of
the testing of Tetrabromo-
biphenyl A, 2, 4, 6-Tribromo-
phenol and ~~Perate~~ Pentabromo-
diphenyl Oxide

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
EPA-FILE

H1.4

Fiche #

40-9193573

ICI American, Inc. (24)

Letter from J. F. Jadlocki
to Document Control Office,
EPA concerning the
presence of dioxins and
furans in Chloranil.

February 4, 1991

Enclosures:

(1) Letter from J. Carra, EPA
on the investigation
of Chloranil for dioxin
contamination.

December 31, 1990

(2) Detailed Process Description
of the manufacture of Chloranil.
(CBI)

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
EPA-FILE

H-4

Fiche #

40-9193523 Pfister Chemical, Inc.

(25)
(17)

533380

Letter from R. Brauer to
L. Warner, EPA

January 15, 1991

Enclosures:

(1) Sampling Protocol for the
Determination of Halogenated
Dibenzo-p-Dioxins and
Dibenzofurans in 3, 4', 5-
Tribromosalicilic acids.

January 15, 1991

(2) Curriculum Vitae for Triangle
Lab. personnel.

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
H. FILE

40-9193527

Pfister Chemical, Inc.

(26) #

Fiche #

533381

Letter from R. Brown
to L. Marcus, EPA
Jan. April 11, 1991
Enclosure:

(1) Letter from R. Brown,
Pfister Chemical, Inc.
to L. Marcus, EPA
January 15, 1991

(a) Sampling Protocol
for the Determination
of Halogenated Biphenyl-p-
Diopins and Diphenylfurans
in 3,4,5-Tribromosalicyl-
Anilide.

(b) Curriculum Vitae for
Triangle Labs. personnel.

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
~~FILE~~

H, 1-4

~~(1)~~ (1) Fiche #

40-9193 529 Pfister Chemical, Inc. (87) ~~#~~ 533382

Letter from R. Braun
to J. Harris, EPA

April 18, 1991

Enclosure:

(1) Letter from R. Vascoe of Triangle
Labx. to R. Braun of Pfister
Chemical Co. summarizing the
method of ~~the~~ testing of TBS.
April 18, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
N-FILE

40-9193547

141.4
Pfeister Chemical, Inc (38)
Fiche # 533383

Letter from R. Braun
to R. Marcus, EPA
August 8, 1991

Enclosure #2

Enclosure #1
(1) Sampling Protocol for the
Determination of Halogenated
Benzene-p-Disinfectants and
Benzene Furans in 3, 4', 5-
Tribromosalicylanilide :
(Revised)

August 6, 1991

August 19, 1944

(a) Curriculum Vitae for
Peter Chemical personnel.

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
H₂-FILE

H₁.4

(29)

Fiche #

40-9193528 Rhone-Poulenc, Inc. ~~(28)~~ 533384

Letter ~~from~~ to Document
Control Office, EPA on
the substantiation of confi-
dentiality of the analytical
method.

April 12, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
-FILE

H. 4

40-9193541 Rhone-Paulenc, Inc.

(30) Fiche #

~~53338~~

Letter from M. Roue
to Document Processing
Center, EPA indicating
intent to test Chloranil.
June 26, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
X₁-FILE

H. 4

Fiche #

40-9193558

Rhone-Poulenc, Inc.

~~100~~
(31) 533386

Letter from W. Rouse
to Document Control
Office, EPA
October 14, 1991

Enclosure:

(1) Raw data on Chloranil
referenced in their April 12
and May 21, 1991 submissions. (Gentry)
October 14, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
-FILE

H₁.4

(32)

Fiche #

40-9193559

Rhone-Poulenc, Inc.

533307

Letter from R. Rouss
to Document Control Office,
EPA

October 14, 1991

Enclosures:

(1) Chloranil - Process

Comparison. (Analytical
Methods, Data and Quality
Assurance Plans.

Section 1:

(2) Section 2:

(a) Text of ~~unpublished~~
unpublished health
and safety ~~data~~ studies
submitted previously.

(b) Information provided
to the Office of Pesticide
Programs in support
of product registration
264-427, 264-491
and 264-227.

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
~~F1~~-FILE

H_{1.4}

Fiche #

40-9193559 (Continued)

(C) Skin Corrosion Study
with 2,4-Dichlorophenol
in Rabbits. Toxicology -
Pathology Lab.; Rhodia, Inc.
August 1, 1978

(3) Section 3: Civil Trial
on allegations against
Law Chemical Company, Riverdale
Chemical Co., Amvac Chemical
Corp., Vertac Chemical Corp.
and Rhone-Paulenc, Inc.
March 19, 1990

(4) Section 4: Substantiation
of Confidentiality Claims.

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
FILE

H1.4

Fiche #

(33)

40-9193574 Rhone-Poulenc, Inc.

Letter from M. Roux to
Document Control Office,
EPA on the analytical
methodology, results and
data from the analysis of
Chloranil.

December 5, 1991

Enclosures:

- (1) Substantiation of
Confidentiality Claims.
- (2) Chloranil-Determination
of Octachlorinated Dibenzo-
p-Dioxin and Dibenzofuran.

(Sanitized)

November 20, 1991

~~157~~

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
~~FILE~~-FILE

#1.4

Fiche #

46-9193575

Rhone-Paulenc, Inc.

(34)

Letter from

repeat (33)

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES

DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF June 5, 1987

~~E~~-FILE
H1.4

(Docket # 130020) - Fiche #

48-9193513

U.S. EPA

~~For 1991 Only~~
(35) 533388

Letter from J. Carra
to R. Huth, Pfister
Chemical, Inc. containing
the review of the first
revision of the sampling
plan for 3, 4's 5 - Tribromosalicylanilide.
January 2, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
#1-FILE

Fiche #

40-9193525- U.S. EPA

(36) ~~(25)~~
533389

Letter from M. Greenwood
to R. Huth, Pfister Chemical,
Inc. concerning the
inadequacy of the analytical
protocol for TBS.
March 15, 1991

Enclosure:

(1) Correlation of Structure
with Retention Index for
Bromo- and Bromochloro-
Biphenyl-p-Nitrophenol and
Bromodiphenylfuran.
J.A. Mansueti Rockwell
Engineering and Sciences
Co.

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
~~FILE~~-FILE

H. 4

(37)
~~(24)~~ Fiche #
533390

40-919353/

U.S. EPA

Letter from J. Corra to
G. Cox, CMA on the
approval of changes
in the analytical
protocols for five chemicals.
May 6, 1991

Enclosure:

(1) Review Comments for
the Analytical Protocols.

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
FILE

H. 4

40-91935³³ ~~47~~ U. S. EPA

(38)
~~(38)~~ Fiche #
~~(38)~~ 533 39/

Letter from J. Corra to
6. Cap on the approval
of changes in the analytical
protocols for two chemicals.

June 4, 1991

Enclosures:

(1) Review Comments for
the Analytical Protocols (Revision 3)
Submitted for two chemicals the Allyl Ether
of Tetrabromobiphenyl-A Under the
Dioxin/Furan Rule.

(2) same as (1)
for Tetrabromobiphenyl-A-Bisethers

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
~~E₁~~-FILE

H₁.4

Fiche #

40-9193545

U. S. EPA

~~(39)~~ 533392
(39)

Letter from J. Cassa
to R. Braun, Pfister
Chemical, Inc. on the
review of sampling
plan for TBS.
July 9, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
H₁-FILE

H₁.4

(40) Fiche #
~~53~~ 533393

40-919355-2

U.S. EPA

Letter from J. Carra
to H. Shah, CMA
in response to their
August 13, 1991 letter
requesting protocol
corrections.
August 30, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
EPA-FILE

H 1.4

(41)
~~533394~~ 533394
Fiche #

40-9193553

U.S. EPA

Letter from J. Carra t
H. Shah, CMA on the
revised analytical protocols
submitted with their letter
of June 3, 1991.
August 30, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
H-FILE

H1.4

40-9193554

U. S. EPA

(42) Fiche #
~~53~~ 533395

Letter from J. Carra to
H. Shah, CMA on the
reviewing the analytical
protocols submitted June 27, 1991.
August 30, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES

DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF

~~FILE~~ -FILE (Docket # 83002C - for 1991 Only)
H_{1.4} Fiche #

40-9193 564 Ameribrom, Inc.

(1)

Letter from M. Eldan to
M. Bauer Battelle Rebr.
Inc. notifying them of the contract
~~testing~~ testing of Decabromo-
diphenyl Oxide and Octabromo-
diphenyl Oxide to be conducted
at their lab.
November 26, 1991

40-9193565 Ameribrom, Inc.

(2)

Letter from M. Eldan to
F. Vascoe Triangle Laboratories,
Inc. . . notifying them of the
contract testing of Tetrabromo-
biphenyl A and Pentabromo-
diphenyl Oxide to be conducted
at their lab.
November 26, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
~~FILE~~

H_{1.4}

Fiche #

40-9193566 Akzo Chemicals, Inc. (3)

Letter from L. Rausch
to J. Harris, EPA Clarifying
letter of December 4, 1991
regarding the method of
manufacture of Pentabromo-
diphenyl Oxide. (Sanitized)
December 6, 1991

Enclosures:

- (1) Letter from L. Rausch, Akzo
Chemicals Inc. to J. Harris,
EPA containing information
on the manufacture of Penta-
bromodiphenyl Oxide. (Sanitized)
December 4, 1991
- (2) Letter from L. Rausch, Akzo
Chemicals, Inc. to G. S. Gillman,
EPA on the preparation of a
sampling protocol for PBDDs. (Sanitized)
November 13, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
FILE

Fiche #

410 - 9193 566 (continued)

H1.4

(3) Letter from E. Beringer Jr.
to Document Control Office,
EPA ~~transmitting~~ transmitting
a protocol as a result of
Stauffer Chemical Corp.'s (acquired
Akzo Chemical, Inc.)
response to the Decision Rule.

August 16, 1989
intent to test PBDDPO

(4) Letter from E. Beringer, Jr. to
Akzo Chemical, Inc. to Document
Control Office, EPA concerning the compl.
of their company to the testing of PBDDPO.
March 16, 1990

(5) Letter from L. Rausch, ~~to L. Marcus~~
Inc. to L. Marcus, EPA concerning
this letter of March 16, 1990.
March 27, 1990

(6) Letter from M. Wood, EPA to E.
Beringer, Jr. Akzo Chemical, Inc.
in response to their August 16, 1989
letter.
April 25, 1990

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
~~FILE~~

H. Y

Fiche #

40-9193566 (Continued)

(7) Letter from M. Wood, EPA
to E. Beisinger, Jr. (Duplicate
of April 25, 1990 Letter).
May 15, 1990

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
EPA-FILE

H.1.4

Fiche #

40-9193514

Chemical Manufacturers
Association

~~533366~~
(4)

Letter from G. Coyt
L. Marcus, EPA
January 31, 1991

Enclosures:

(1) Background and

Issue Paper:

(2) Analytical Protocol for the
Determination of Polybrominated

Dibenzop-p-Dioxin and

Dibenzofurans by

High-Resolution Gas Chromatography/

Medium High-Resolution Mass

Spectrometry in

Tetrabromobisphenol A. Triangle

Labs., Inc.

January 29, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
EPA-FILE

41.4

Fiche #

40-9193 514 (continued)

(3) First 7 lines same
--- in Tribromophenol.

Triangle Labs., Inc.
January 29, 1991

(4) First 7 lines same
--- in Decabromodiphenyl oxide.

Triangle Labs., Inc.
January 29, 1991

(5) First 7 lines same
--- in Octabromodiphenyl oxide.

Triangle Labs., Inc.
January 29, 1991

(6) First 7 lines same
--- in Pentabromodiphenyl oxide.

Triangle Labs., Inc.
January 29, 1991

(7) First 7 lines same
--- in Tetrabromodiphenyl-A-Bisphenol-A.

Triangle Labs., Inc.
January 29, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
FILE

40-4193514 (Continued)

H1.4

Fiche #

(8) First 7 lines same
... in Tetrabromo biphenyl A
Bis (Allyl Ether). Frengle

Lab., Inc.
January 29, 1991

(9) Protocol and Quality
Assurance Plan for the
Determination of Polybrominated
Dibenzop-*p*-Hespiene and Polybrominated
Dibenzofurans in 1,2-Bis(Tribromo-
phenyl) Ethane. Battelle.
January 28, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
S-FILE

H. 4

Fiche #

40-9193515-

Chemical Manufacturers
Association

533367

(5)

Letter from H. Shah to

L. Marxer, EPA

February 5, 1991

Enclosures:

- (1) Corrected page 44
for the Tetrabromobisphenol
A - Bisethoxylate Analytical
Protocol.
- (2) Corrected page 44 for the
Tetrabromobisphenol A
Bis (Allyl Ether) Analytical
Protocol.

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
H-FILE

H.4

40-9193524 Chemical Manufacturers
Association

(6) Fiche #

533368

Letter from G. Cox to
R. Martin, EPA

March 13, 1991

Enclosures:

(1) Report on "Evaluation of
a Protocol for the Determination
of PBDD/PBDF in Tetrabromo-
bisphenol-A-Bisethoxylate -"
Great Lakes Chemical Corp.;
Battelle.

March 11, 1991

(2) Report on "Evaluation of a Protocol
for the Determination of PBDD/PBDF
in Tetrabromobisphenol-A-Bis
(Allyl & the). Great Lakes
Chemical Corp.; Battelle.
March 11, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
H₁₋₄ FILE

40-9193530

Chemical Manufacturers
Association

(7) #

Fiche #

533369

Letter from G. Caf to
J. Carra, EPA

May 2, 1991

Enclosure:

- (1) Analytical Testing of
Certain Brominated
Compounds.

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
FILE

141.4

Fiche #

40-9193532

Chemical Manufacturers
Association

(13)
(8)

(5) 533376

Letter from H. Shah
to J. Carra, EPA
June 3, 1991

Enclosures:

- (1) Revisions for five
analytical protocols
submitted to EPA
January 31, 1991.
May 30, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
FILE

H. 4

(9) Fiche #

40-9193542 Chemical Manufacturers
Association

(9) 533371

Letter from H. Shah to
J. Corra, EPA on revisions
to the analytical protocols.

June 27, 1991

Enclosures:

(1) Analytical Methods (Tetrabromobisphenol A Bisethers)
Triangle Laboratories, Inc.:

(2) Analytical Methods
(Tetrabromobisphenol A
Bis (Allyl Ether)).

(3) Table 2: Initial Calibration
Relative Response Factors.

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
FILE

H.1.4

(10)

Fiche #

40-919354⁴

Chemical Manufacturers
Association

533372

Letter from H. Shah to
R. Marcus, EPA on
the analytical testing
for diopina in
blood samples of certain
workers.
July 16, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
EPA-FILE

H1.4

(11) Fiche #

~~533373~~ 533373

40-9193546

Chemical Manufacturers
Association

Letter from H. Shah
to J. Carra, EPA
July 17, 1991

Enclosure:

(1) Analytical Protocol

for the Determination of
Polybrominated Dibenzo-p
Acidins and Dibenzofuran
by High Resolution Gas
Chromatography / Medium
Resolution Mass Spectrometry
in 1,2-Bis (Tribromophenyl)
Ethane . BFR I Panel.

July 17, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
-FILE

40-9193548

H. 4
Chemical Manufacturers
Association

Letter from H. Shah to
J. Carra, EPA

August 13, 1991

Enclosures:

- (1) List of chemicals
- (2) Corrections to
Protocol submitted

(12)

Fiche #

533374

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
E1-FILE

171.4

46-9193555

U.S. EPA

Fiche #

(43) 533396

Letter from J. Carra to
H. Shah, CMA

August 30, 1991

Enclosure:

- (1) Review Comments for the
Analytical Protocol (Revision
- 3) submitted Under the
Diopin/Furan Test Rule
May 1, 1991

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
-FILE

H₁.4

Fiche #

40-9193576 U.S. EPA

(49)

Letter from J. Carra
& G. Strickland, CMA
Approving the seven
Analytical Protocols, granting
a request for an extension
of time for submitting final
reports and outlining the modification
procedure. ~~MA~~
November 22, 1991

Enclosure:

- (1) Discrepancies in Changes Made
in Protocols and the Description
of Those Changes in CMA's
Transmittal Letter of October 2, 1991.

TSCA SECTION 4
TESTING OF CHEMICAL SUBSTANCES AND MIXTURES
DOCKET #
DOCUMENTS RECEIVED FOLLOWING DECISION OF
FILE

41.4

Fiche #

40-9193577

U.S. EPA

(45)

Letter from G. Timin
to H. Shah concerning the
review of ~~the~~ "Example
Final Report for the Analysis
of Polybrominated Dibenzo-p
Xylenes and Polybrominated
Dibenzofurans in Decabromo-
diphenyl ether submitted
September 4, 1991".
December 12, 1991