

BURLINGTON SOUTH
1976 - 1990

OCC 8504



OXYCHEM
CORPORATE EMPLOYEE SAFETY

JUL 17 1987

ELMSLIE CONSULTANCY SERVICES, INC.

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PROPERTY LOSS PREVENTION REPORT

**OCCIDENTAL PETROLEUM CORPORATION
OCCIDENTAL CHEMICAL CORPORATION
BURLINGTON SOUTH
P.O. BOX 116
BEVERLY ROAD
BURLINGTON, NJ 08016**

Insp. Date: June 17-18, 1987
Issued Date: July 8, 1987
Report by: E. Roy (233L)
Conf. With:
R. Newgold, Plant Manager
C.F. Wunder, Safety Supv.

Attention: Mr. J. DiPasquale, Insurance Manager

Summary

This is a well maintained and protected poly vinylchloride (PVC) production facility producing both suspension and dispersion PVC resin. Suspension resin is produced using Scientific Design batch technology in 9 reactors, 8-5000 gal and 1-3750 gal. Dispersion resin is produced in 8-40 ft. high, 3 ft. diameter and 6-60 ft., 3 ft. diameter reactors using Warker technology from West Germany.

This updated loss prevention report supersedes all previous reports.

Occidental Petroleum procedures require a written response to Loss Prevention recommendations within 45 days of receipt. Elmslie engineers are available for clarification and assistance.

Recommendations:

Changes Since the Last Inspection:

New Recommendations: 87-6-1 (Revised), 87-6-2

Completed/Removed Recommendations: 86-9-2

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87-6-1 (Revised) (Previous 86-9-1) To prevent weakening of steel structure supports due to fire exposure in the VCM Recovery Area, the existing sprinkler system should be supplemented by attachment of the existing portable monitor to the fire hydrant to the north of the VCM Recovery Area.

Reason: Due to location of equipment and steel supports not all support steel is completely wetted by the existing water spray deluge system. Positioning of the monitor nozzle in the area will allow fire fighters to put additional water spray on equipment and support, greatly reducing possible serious fire damage.

Cost to complete the recommendation is minimal since the monitor nozzle is already on site. Without the additional protection recommended a vessel containing VCM may collapse breaking pipe flanges releasing more fuel to the fire, resulting in a property loss up to \$750,000. Completion of the recommendation will reduce the loss to the normal loss expectancy for this type plant, approximately \$100,000.

87-6-2 To minimize fire exposure to VCM unloading facilities and VCM railcars the four unloading racks should be protected by providing four permanently mounted remotely operated, 750 gpm monitor nozzles within 50 ft. of each unloading spot.

Reason: A fire at a railcar unloading VCM could expose the car involved, as well as, the cars to either side to overheating and possible failure due to flame impingement resulting in the loss of one or two railcars and associated unloading rack and property damage estimated at \$1,000,000. Completion of the recommendation will reduce the property loss to the normal loss expectancy of approximately \$100,000.

Attachment

Sketch to follow
Water Supply Form

cc: C. Elam/Occidental Petroleum Corp.
B. McNally/Occidental Petroleum Corp.
J. Wilkenfeld/Occidental Petroleum Corp.
W. Driscoll/Occidental Chemical Corp., Niagara Falls
TPZ/GSN

ER:pw

(233L)

WATER SUPPLY

CITY	STATE	
BURLINGTON-SOUTH	NJ	

[illegible]

↑ D = DIESEL E = ELECTRIC G = GASOLINE NG = NATURAL GAS S = STEAM O = OTHER

WATER TEST DATA

[illegible]

OCC 8507

TENNECO CHEMICALS, INC.

TO P.R. Scarito
FROM ☒ F.W. Kanzler/W.W. Heal
SUBJECT OSHA Inspection

AT Burlington
AT Burlington

DATE May 18, 1976

COPY TO W.F. Gabel
P M. Reed
F.X. Ritter
G.I. Rozand
A.C. Siegel
F. Toca
File
bcc R.A. Lojewski

Summary

757-5121

The Burlington Plant site has undergone an OSHA industrial hygiene inspection since April 26, 1976 with one more inspection in the Compound Plant - for carbon black particulate testing - outstanding. Inspection dates for the Resin Plant were April 27, 1976, May 3, 1976, May 6, 1976 and May 10, 1976 at which time personal VCM monitoring, dust monitoring and area VCM monitoring were performed. Inspection dates for the Compound Plant were May 27, 1976 and May 29, 1976 at which time personal particulate measurements were taken to characterize lead, cadmium and barium exposures of operating personnel. In addition, an initial meeting with the two OSHA inspectors (OSHA CSHOs) and plant management as well as Compound Union representatives was held on April 26, 1976 and an interim meeting with plant management and Union representatives from the Resin Plant was held on May 7, 1976.

Listed below is an outline of the meetings and inspections for the above dates:

I. Initial Meeting and Plant Tour

On April 26, 1976 Messrs F. Lewis and R. Hanlon, OSHA CSHOs from the United States Department of Labor, Camden Office, visited at the Burlington Plant requesting an industrial hygiene inspection.

As a preliminary to the actual inspection, the CSHOs requested a meeting with Tenneco representatives in the Compound Plant. Messrs W.W. Heal, P.N. Thomas, P.R. Scarito and F.W. Kanzler were present to meet with the CSHOs. The discussion centered primarily around the Tenneco biological testing programs including frequency of testing, type of testing and actions to be taken if an overexposure should occur. Also discussed were respirators and their mandated use by the various plant personnel, general housekeeping practices and safety meetings conducted; the latter item in particular, as related to an instruction on safe handling practices of lead and other powdered stabilizers. Mr. Hanlon requested and was provided with the OSHA log 100 for 1975 and 1976 to date. Formulation recipes were requested by Mr. Hanlon for the compounds run during the time of the expected particulate monitoring.

Following a meeting with a Compound Union representative - R. Horvath - the CSHOs requested a plant tour of the Compound Plant. Both lines, all levels and the exhaust area on the plant roof was inspected.

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After the plant tour, the CSHOs were given the opportunity to meet with the plant physician, Dr. M.C. Venditti, to further discuss the biological testing program and test data.

A second meeting was requested for the Resin Plant with Messrs W.W. Heal, P.R. Scarito, A.C. Siegel and F.W. Kanzler representing Tenneco. Topics covered were (1) a review of deregulated areas including data generated, (2) mode, type and frequency of personal monitoring samples, (3) reviewed in detail the status of the Engineering program at which time Mr. Lewis requested a monthly status report for this program to be sent to the Camden office, and (4) the personal VCM results as listed in the alphabetical personnel roster were reviewed in detail by Mr. Hanlon.

Mr. Lewis was provided with copies of AOPs M-5, M-6, M-7 and M-8. In addition, a copy of EOP 11, the OSHA log 100 for 1975 and 1976 and a copy of the OSHA summary 102 for 1976 was given to the CSHO.

A detailed review of the standard was conducted by Mr. Lewis to clarify possible areas of misinterpretation. The only differences of opinion, as Mr. Lewis pointed out, were found to be in the area of fifteen-minute ceiling samples, which should be taken on a regular basis along with the eight-hour TWA samples; personal exposure samples exceeding 1 ppm should be retaken on the same employee and not for the same job classification with a different employee.

There was no request made by the CSHOs to meet with Resin Plant Union representatives.

II. Hygiene Inspection - Resin Plant

A. Copolymer - VCM

On April 27, 1976 a personal VCM monitoring survey was conducted by Mr. Lewis in the Copolymer Plant. Mr. F.W. Kanzler took parallel samples for Tenneco. The CSHO used Sipin pumps at a flow rate of about 50 ml/minute. SKC pumps with the same flow rates were used for the Tenneco samples. Eight-hour TWA, as well as fifteen-minute ceiling samples, were taken. The following is a listing of the personnel monitored:

<u>Name</u>	<u>Job Classification</u>	<u>Number of Samples</u>			
		<u>Eight-Hour TWA</u>		<u>Fifteen-Minute Ceiling</u>	
		<u>OSHA</u>	<u>Tenneco</u>	<u>OSHA</u>	<u>Tenneco</u>
J. Webster	reactor oper - chg	1	1	3	3
I. Raymond	reactor oper - dmp	1	1	4	4
H. Wallace	bagger - cleaner	1	1	4	4

(Tenneco results are summarized in the attached Table I.)

No other type of inspection was made, neither was any attempt made to establish work patterns for the people monitored.

The Union representative present all day was Mr. W. Comegno who had very animated conversations with Mr. Lewis throughout the day.

B. Homopolymer - VCM

On May 3, 1976 a personal VCM monitoring survey was conducted by Mr. Lewis in the Homopolymer Plant. Mr. Kanzler took parallel samples for Tenneco. The CSHO used new DuPont pumps at a flow rate of about 50 ml/minute, while SKC pumps were used by Tenneco. Again, eight-hour TWA, as well as fifteen-minute ceiling samples were taken. Due to a pump malfunction, only a limited amount of fifteen-minute ceiling parallel samples could be taken. All Tenneco pumps were in use for the Homopolymer Plant survey and the "A" Plant survey - see below. The following is a listing of the personnel monitored:

Name	Job Classification	Number of Samples			
		Eight-Hour TWA		Fifteen-Minute Ceiling	
		OSHA	Tenneco	OSHA	Tenneco
R. McFadden	reactor oper - chg	1	1	4	3
R. Espenschied	reactor oper - dmp	1	1	4	1
A. Anicic	bagger - cleaner	1	1	4	2

(Tenneco results are summarized in the attached Table II.)

No other type of inspection was made. No work pattern was established by the CSHO. The Union representative present for all day was Mr. F. Roessler.

C. Dispersion - "A" Plant

Also on May 3, 1976 a personal VCM monitoring survey was conducted by Mr. Hanlon in the Dispersion "A" Plant. Mr. W.W. Heal was present as the company liaison and Mr. R. Laws to take the parallel samples. Mr. Hanlon used Sipin pumps at a 50 ml/minute flow rate and SKC pumps were used by Tenneco to conduct the survey. A shortage of pumps allowed only a limited amount of fifteen-minute ceiling parallel samples to be taken. The following is a listing of the personnel monitored:

Name	Job Classification	Number of Samples			
		Eight-Hour TWA		Fifteen-Minute Ceiling	
		OSHA	Tenneco	OSHA	Tenneco
J. Canterbury	tower oper - chg	1	1	3	2
W. Simpkins	tower oper - dmp	1	1	4	3
W. Navarro	tower clnr - jet clnr	1	1	3	2

(Tenneco results are summarized in the attached table III.)

While no work patterns were established by Mr. Hanlon, he requested information on the types of chemicals charged to the batch mix tank including the catalyst types.

The Union representative present for all day was Mr. F. Roessler alternating between the Copolymer and Dispersion Plants. It may be of interest to note that prior to proceeding to the plant, Mr. W. Comegno accused both CSHOs of failing to have an opening meeting with the Union. Mr. Lewis pointed out that an opening meeting was held with the Union at the inspection on December 24, 1975.

D. Bagging, Dryer, Warehouse and Atomizer - Dust

On May 6, 1976 a personal dust monitoring survey was performed by Mr. Lewis covering operating personnel in the bagging, dryer, warehouse and atomizer areas. Representing Tenneco were Dr. F. Toca and Mr. W.W. Heal. OSHA took respirable dust samples utilizing MSA pumps at a flow rate of 1.8 l/minute fitted with a 0.5 micro filter and a cyclone attachment. Due to a lack of availability of a cyclone attachment, parallel samples taken by Tenneco represent total dust samples using a Bendix pump set at a flow rate of 1.5 l/minute fitted with a 0.8 micron open-face filter. The CSHO used four pumps, while only three pumps were available for Tenneco. The following is a listing of the personnel monitored:

<u>Name</u>	<u>Job Classification</u>	<u>Number of Samples</u>	
		<u>Eight-Hour TWA</u>	
		<u>OSHA</u>	<u>Tenneco</u>
R. Paxton	plastisol bagger	1	1
E. Dever	atomizer operator	1	1
J. York	suspension dryer operator	1	1
D. Motta	warehouseman	1	-

(Tenneco results are summarized in the attached table IV.)

A general inspection was conducted by Mr. Lewis in all the above areas. The following pictures (attached) were taken during this inspection tour:

1. plastisol bagging area
2. plastisol bagging machine
3. plastisol bagger wearing sampling pump
4. two pictures of the general warehouse area
5. suspension dryer panelboard with operator wearing sampling pump
6. plastisol bagging machine, east view
7. plastisol bagger wearing dust mask

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The Union was represented by Mr. F. Roessler for the whole day.

E. Atomizer Room - VCM

On May 10, 1976 Mr. Lewis made an area VCM monitoring survey of the atomizer room to confirm justification of deregulation of this area. Eight-hour area TWA samples were taken at the north and south ends of the atomizer room. In addition, three fifteen-minute ceiling samples were taken at the south end and one at the north end of the atomizer room. Mr. Kanzler took parallel samples for Tenneco which are summarized in Table V. In addition, the CSHO used a Gastec grab sampler. Both the OSHA sample and the Tenneco sample taken with the same type of sampler showed a VCM level of 0.2 ppm.

The Union representative for the day was Mr. W. Mayer. An apparent complaint by the Union, using asbestos insulation on blend tanks, was investigated. A picture was taken of blend tank #3 (attached), showing exposed asbestos insulation at the outside bottom of the blend tank. Additional pictures were taken of the sample pump locations at the north and south areas of the atomizer room. Also, the "A" fine products bin and the primary screw areas were photographed.

III. Hygiene Inspection - Compound PlantA. Compound Plant - Airborne Particulates

On April 27, 1976 Messrs F. Lewis and R. Hanlon (OSHA-CSHO) with Messrs F.W. Kanzler and W.W. Heal proceeded to sample the following personnel for lead:

<u>Name</u>	<u>Job Classification</u>	<u>Sampled for Lead</u>	
		<u>Eight-Hour TWA</u>	
		<u>OSHA</u>	<u>Tenneco</u>
K. Elberson	mixer - line #1	1	1
R. Tomaszewski	mixer - line #2	1	-
B. Cunningham	mill operator - line #1	1	-
F. Anstey	line operator - line #1	1	-
R. Lessard	utility services operator	1	1
J. Fate	short weight operator	1	-

(Tenneco results are summarized in the attached table VI.)

The equipment used by OSHA was MSA pumps set at 1.5 liters per minute using 0.8 micron filters. Tenneco used Bendix pumps set at 1.5 liters per minute using 0.8 micron filters. Both OSHA and Tenneco used closed-face filter cartridges (button sample).

Messrs Lewis and Hanlon introduced themselves to the Union representative, Mr. Anstey and explained to him what they would be doing. He chose not to stay with the group.

Once the initial pumps were placed on the personnel, CSHO Lewis and Mr. Kanzler returned to the Resin Plant to monitor for vinyl chloride.

While the personnel monitoring was taking place, CSHO Hanlon took the following pictures (Tenneco was unable to take parallel pictures):

1. three pictures of mixer on line #1 dumping bags of resin into blender
2. lead weighing booth - line #1
3. #2 blender, south view - line #1
4. short weights setting on pallet
5. blenders, north view - line #1
6. clean room, from door
7. blenders, east view - line #2
8. blenders, northeast view - line #2

The lunchroom, shower room and locker room were inspected. CSHO Hanlon's comment during this inspection was he felt that the employees should not travel through the lunchroom to get to the locker room and shower area with contaminated clothing on. He also stated that the washing up facilities should be separate from the lunchroom.

CSHO Hanlon also indicated that these facilities should be cleaned up on a per-shift basis, rather than once every twenty-four hours.

B. Compound Plant - Airborne Particulates

On April 29, 1976 Messrs F. Lewis and R. Hanlon returned and indicated they would be sampling for the following: lead, barium and cadmium. W.W. Heal was present representing Tenneco.

The following personnel were sampled:

<u>Name</u>	<u>Job Classification</u>	<u>Eight-Hour TWA</u>	
		<u>OSHA</u>	<u>Tenneco</u>
K. Elberson	mixer - line #1	1	1
R. Tomaszewski	mixer - line #2	1	1
B. Cunningham	mill operator - line #1	1	-
K. Jenkins	mill operator - line #2	1	-
F. Anstey	line operator - line #1	1	-
R. Lessard	utility services operator	1	-

(Tenneco results are summarized in the attached Table VI.)

Equipment used by OSHA was MSA pumps set at 1.5 liters per minute, using 0.8 micron filters. Tenneco used Bendix pumps set at 1.5 liters per minute using 0.8 micron filters. Both OSHA and Tenneco used closed-face filters (button samples).

Wipe samples were taken using Whatman #41 filter paper, ashless 11.0 cm diameter. This paper was moistened with deionized water before sampling. The following areas were sampled:

1. Lunchroom

- a. top of lunch tables 40-48 μ g
- b. catch tray in cigarette machine 225
- c. catch tray in snack machine 44
- d. catch tray in bottled soda machine 120
- e. shelving in refrigerator, plus crisper and meat drawers 108 56
- f. shelves in refrigerator door 78
- g. faucets on bottled water fountain and inside cup dispenser 36
- h. can opener, wiped cutting edges 320
- i. top of bottled water on fountain 510
- j. top of refrigerator 1600

2. Clean Room

- a. top of operator's desk 655
- b. telephone mouth piece NOT ANALYZED 76
- c. bottled drinking fountain, faucet and bottle top - also inside cup dispenser 305
- d. dispensing unit for salt tablets 580

The CSHOs were given the opportunity to listen to the taped talk Dr. Venditti had given to all Compound personnel as related to personal hygiene while working with lead.

The effectiveness of the ventilation was checked for the following exhaust ducts with smoke tubes.

- 1. lead weighing booth - line #1
- 2. #1 and #2 blender exhaust ducts - line #2
- 3. lead weighing facility at line #2

Checked ventilation of the following exhaust systems with a velometer:

- 1. lead booth - line #1

2. exhaust duct, #1 blender - line #1
3. #1 blender at fill grate - line #1
4. lead scale - line #2

A drawing was made of each scoop, sections were drawn in and velometer readings were entered for that given area.

The CSHO took pictures during the time of the velometer readings from the following areas:

1. clean room through the door, two pictures
2. lead weighing facilities, line #2
3. storage of raw materials on line #2 mixing floor
4. lead weighing facility including lead short weights at line #2
5. air conditioner intake for clean room in relation to exhaust discharge from #1 mill line at roof area
6. line operator and mill - line #1
7. mill operator and mill - line #1
8. mill operator on forklift at line #2

The following pictures were taken at the lunchroom:

1. vending machines and refrigerator
2. soda machine
3. line operator at lunch table
4. general picture of lunchroom including both lunch tables

Tenneco was unable to take pictures at that time.

IV. Interim Meeting and Inspection of Hygiene and Analytical Facilities

On May 7, 1976 Messrs Hanlon and Lewis met with Messrs P.R. Scarito and W.W. Heal to give a status report on the inspection to that date. No comments were made whether any citations will be issued. With the exception of the dust data taken on May 6, 1976 in the Resin Plant, no analytical data was available from OSHA. In the case of the dust, no numbers were released to Tenneco, however, the CSHO indicated the dust readings were well below the standard.

The CSHOs then met with representatives from the Union - Messrs H. Stellwag and F. Roessler.

Following the meeting, the CSHOs requested a tour of the mask washing facility and the Analytical Laboratory. Mr. Lewis requested to be provided with the following forms: daily respirator inspection record, weekly mask cleaning record and monthly charcoal tube report form. In addition, a copy of the analytical charcoal tube method was requested.

F.W. Kanzler W.W. Heal

F.W. Kanzler/W.W. Heal

Attachments

FWK-WWH/jst

TABLE I

OSHA INSPECTIONPARALLEL SAMPLESCOPOLYMER PLANTEight-Hour TWA - VCM

<u>Job Classification</u>	<u>Date Sampled</u>	<u>Time in Air, min</u>	<u>TWA, ppm VCM</u>	<u>Standard, ppm VCM</u>
Reactor Oper - chg	4/27/76	0	0.65 2.2	1.0
Reactor Oper - dmp	4/27/76	1	0.63 3.2	1.0
Bagger - Cleaner	4/27/76	120	11.1 36.5 ↑ OSHA DATA SAMPLING REPEATED 5/26/76	1.0

Fifteen-Minute Ceiling

<u>Job Classification</u>	<u>Date Sampled</u>	<u>Time in Air, min</u>	<u>ppm VCM</u>	<u>Standard, ppm VCM</u>
Reactor Oper - chg	4/27/76	0	1.9	5.0
		0	0.4	5.0
		0	0.5	5.0
Reactor Oper - dmp	4/27/76	0	1.2	5.0
		0	0.9	5.0
		0	0.5	5.0
		0	0.6	5.0
Bagger - Cleaner	4/27/76	15	64.0	5.0
		15	38.0	5.0
		0	0.5	5.0
		0	0.8	5.0

F.W. Kanzler
5/17/76

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TABLE II

OSHA INSPECTIONPARALLEL SAMPLESHOMOPOLYMER PLANTEight-Hour TWA - VCM

<u>Job Classification</u>	<u>Date Sampled</u>	<u>Time in Air, min</u>	<u>TWA, VCM ppm</u>	<u>Standard, ppm VCM</u>
Reactor Oper - chg	5/3/76	14	0.54 .87	1.0
Reactor Oper - dmp	5/3/76	16	0.31 3.71	1.0
Bagger - Cleaner	5/3/76	20	3.1 .64	1.0

OSHA
 DATA
 POSSIBLE
 SAMPLE
 MIX UP

Fifteen-Minute Ceiling

<u>Job Classification</u>	<u>Date Sampled</u>	<u>Time in Air, min</u>	<u>ppm VCM</u>	<u>Standard, ppm VCM</u>
Reactor Oper - chg	5/3/76	0	0.9	5.0
		0	0.7	5.0
		0	1.0	5.0
Reactor Oper - dmp	5/3/76	2	0.5	5.0
Bagger - Cleaner	5/3/76	15	46.0	5.0
		0	0.4	5.0

F.W. Kanzler
5/17/76

OCC 8518

TABLE III

OSHA INSPECTIONPARALLEL SAMPLESDISPERSION - "A" PLANTEight-Hour TWA - VCM

<u>Job Classification</u>	<u>Date Sampled</u>	<u>Time in Air, min</u>	<u>TWA, ppm VCM</u>	<u>Standard, ppm VCM</u>
Tower Oper - chg	5/3/76	24	0.29 .38	1.0
Tower Oper - dmp	5/3/76	40	0.45 .62	1.0
Tower Cln - jet cln	5/3/76	210	0.73 1.32 ↑ OSHA DATA	1.0

Fifteen-Minute Ceiling

<u>Job Classification</u>	<u>Date Sampled</u>	<u>Time in Air, min</u>	<u>ppm VCM</u>	<u>Standard, ppm VCM</u>
Tower Oper - chg	5/3/76	0	0.3	5.0
		12	0.5	5.0
Tower Oper - dmp	5/3/76	10	1.0	5.0
		0	1.7	5.0
		0	1.3	5.0
Tower Cln - jet cln	5/3/76	15	0.5	5.0
		15	0.3	5.0

F.W. Kanzler
5/17/76

OCC 8519

TABLE IV

OSHA INSPECTIONPARALLEL SAMPLESRESIN PLANTEight-Hour TWA - Inert or Nuisance Dust (Total Dust)

<u>Job Classification</u>	<u>Date Sampled</u>	<u>TWA, mg/m³</u>	<u>RESP.</u>	<u>Standard, mg/m³</u>
Plastisol Bagger	5/6/76	0.126	.095	15.0
Atomizer Operator	5/6/76	2.799	.278	15.0
Dryer Operator	5/6/76	0.208	.178	15.0

W.W. Heal
5/17/76

TABLE V

OSHA INSPECTIONPARALLEL SAMPLESRESIN PLANT - ATOMIZER ROOMEight-Hour TWA - VCM

<u>Area</u>	<u>Date Sampled</u>	<u>TWA, ppm VCM</u>	<u>Standard, ppm VCM</u>
Atomizer Room - N	5/10/76	0.05 2.24	1.0
Atomizer Room - S	5/10/76	0.12 2.33 ↑ OSHA DATA	1.0

Fifteen-Minute Ceiling

<u>Area</u>	<u>Date Sampled</u>	<u>ppm VCM</u>	<u>Standard, ppm VCM</u>
Atomizer Room - N	5/10/76	0.5 .49	5.0
Atomizer Room - S	5/10/76	0.4 .6 0.4 .25 0.1 .45 ↑ OSHA DATA	5.0 5.0 5.0

F.W. Kanzler
5/17/76

TABLE VI

OSHA INSPECTIONPARALLEL SAMPLESCOMPOUND PLANTEight-Hour TWA - Lead

<u>Job Classification</u>	<u>Date Sampled</u>	<u>TWA, mg/m³</u>	<u>Standard, mg/m³</u>
Mixer - line #1	4/27/76	0.543	0.2
Utility Services		0.159	0.2
Mixer - line #1	4/29/76	0.342	0.2
Mixer - line #2		0.286	0.2

Eight-Hour TWA - Barium

<u>Job Classification</u>	<u>Date Sampled</u>	<u>TWA, mg/m³</u>	<u>Standard, mg/m³</u>
Mixer - line #2	4/29/76	0.061	0.5

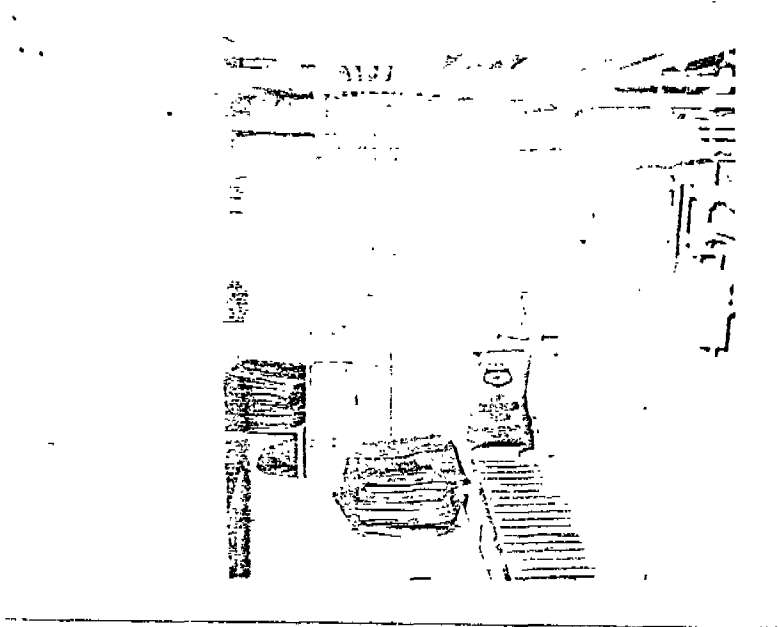
Eight-Hour TWA - Cadmium

<u>Job Classification</u>	<u>Date Sampled</u>	<u>TWA, mg/m³</u>	<u>Standard, mg/m³</u>
Mixer - line #2	4/29/76	0.016	0.2

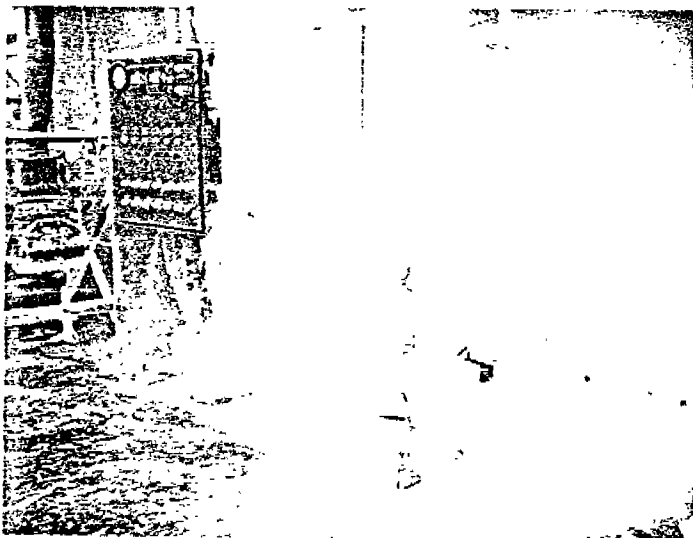
W.W. Heal
5/17/76

OCC 8522

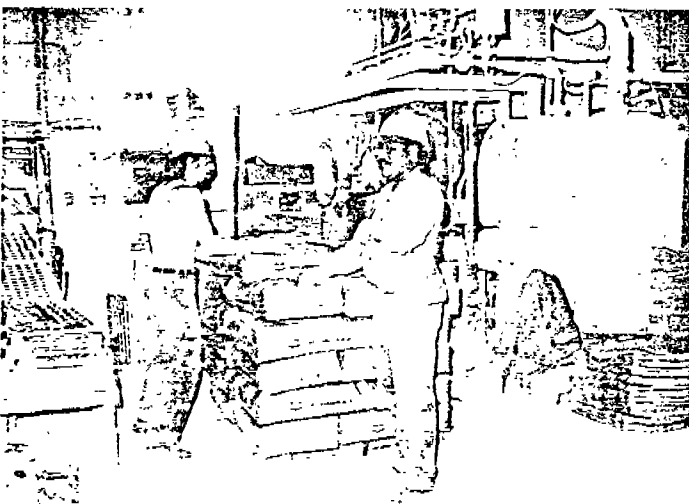
PICTURES TO II.D.



Plastisol Bagging Area

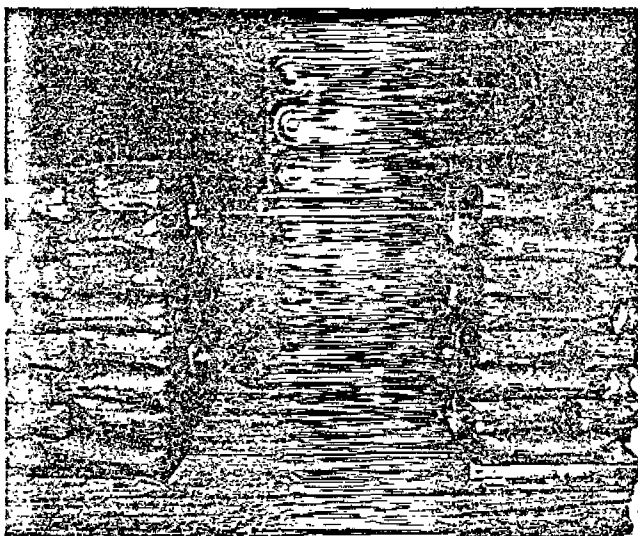
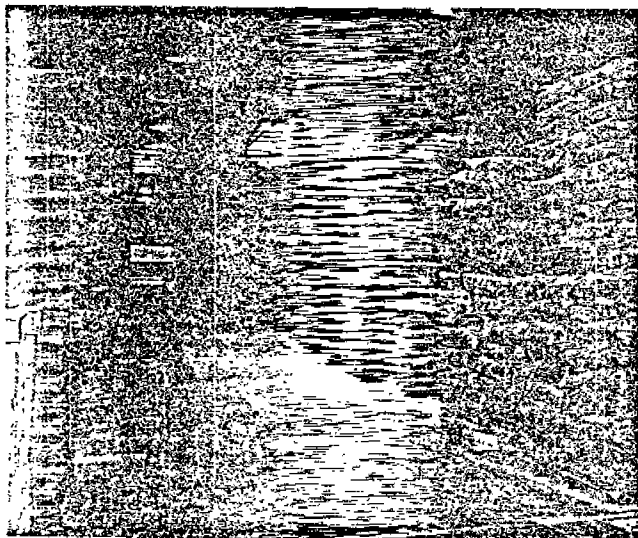


Plastisol Bagging Machine

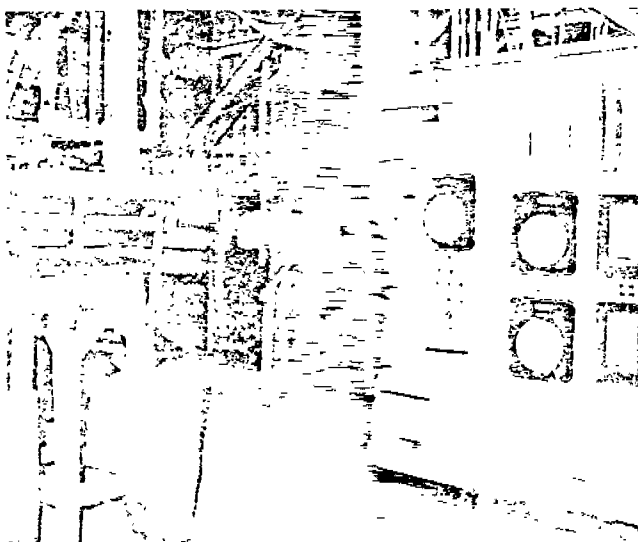


Plastisol Bagger Wearing
Sampling Pump

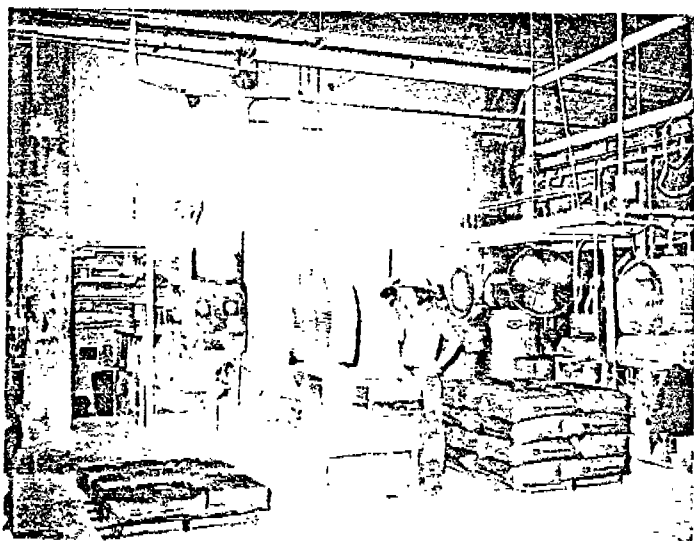
OCC 8523



General Warehouse Areas

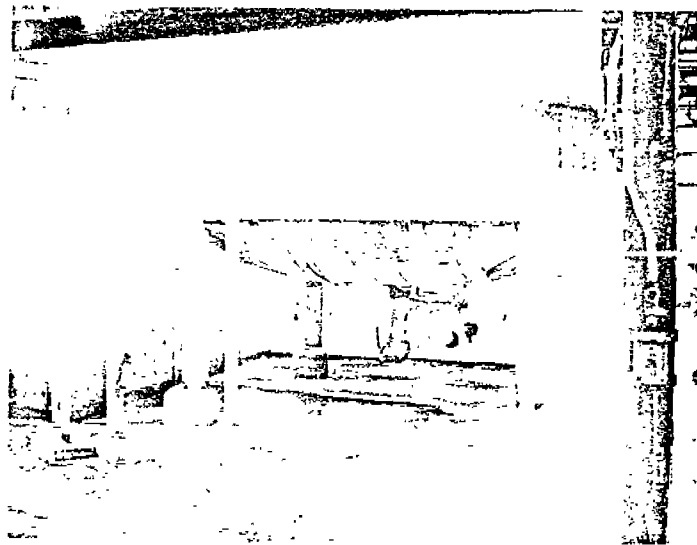


Suspension Dryer Panelboard with
Operator Wearing Sampling Pump

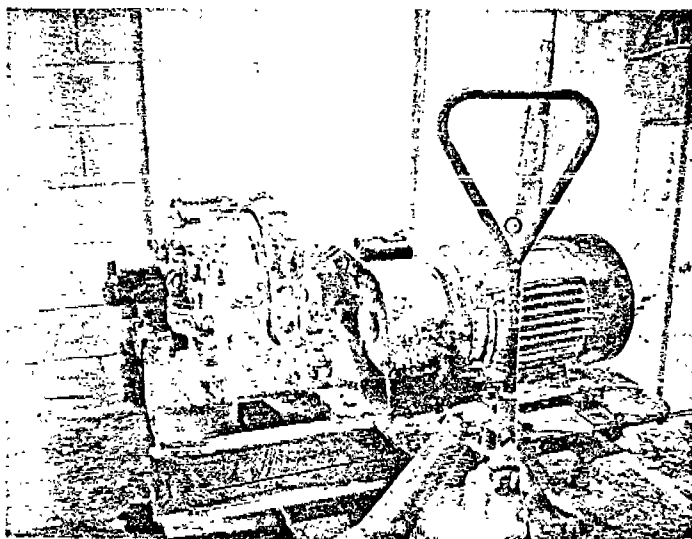


Plastisol Bagging Machine and
Plastisol Bagger Wearing
Dust Mask

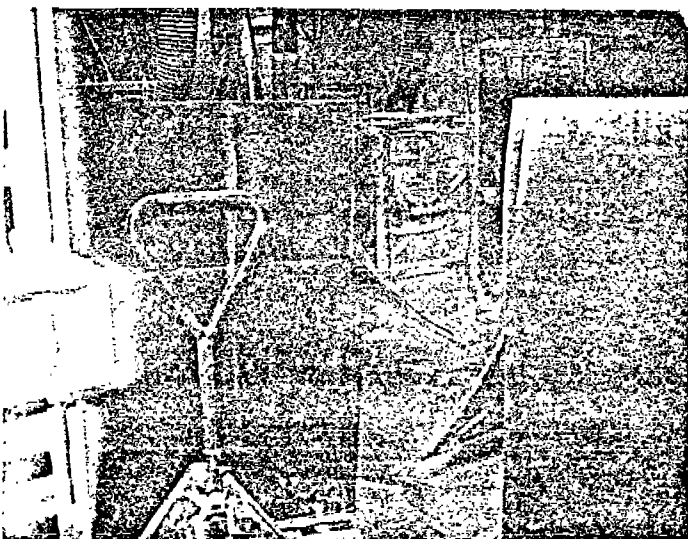
PICTURES TO II.E.



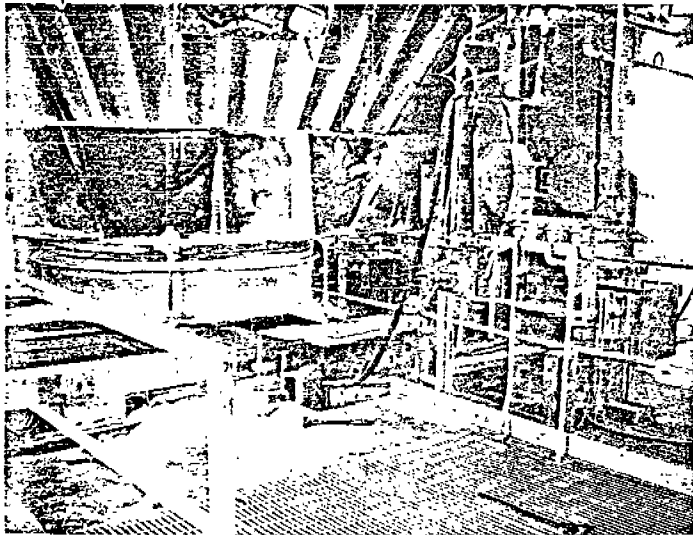
Blend Tank #3



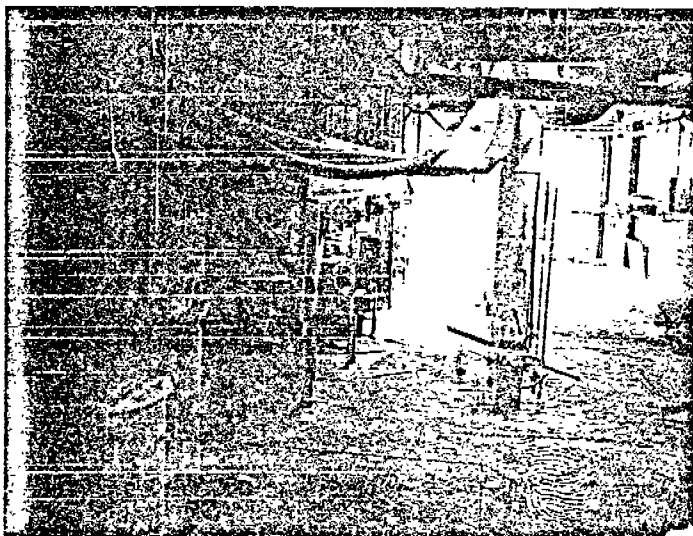
North End Atomizer Room
Personal Monitoring Pump Location



South End Atomizer Room
Personal Monitoring Pump Location



Fine Product Bin



Screw Feeder Area
"A" Plant

Send Fred Kutzler copy of TL V labels *

10/21/77

5/21/77
Dul S

increase to E2 & Melt Exp. Records.

1. a. VCM + Pb. -

b.

OK.

in prod.

c.

change.

2. a. VCM + Pb. - 40 min. -

b. Fred - ^{VCM} ~~40~~ 40 min. - Chub - Pb. -

c.

always.

3. a. 2 OMA merge demographics & death cert.

b. Send him if study results were received.

check w/ ER
not info.

3. 1. need procedure

2. 3 4 & 5 -

check w/ ER

Notif 1.

2.

check w/ ER & check.
OK on how
could be better

ICM

A. 1. yes

2. Run sample

only 2.1 OK
some time @ 2.0

B. - 1. charcoal tube 150 mg. - 2 in series. -

2. Monitor all heater open, 1 each in other classifications. (atom, GSO, GSO down, dryer)

1 super basket 25% point (425)

not activation done. -

& added from then.
some from Tamm *

3. need to do for sampling core & ^{STEL} unloading core & opening reactor.
& let, sampling.

4. need for prep.

1. all reactor bldg & tank for.

2. all in room & still support.

2. check.

OCC 8528

check w/ ER
?

shak w/charlie
shak w/plenty

1

7

4

1

7

4

3

OCC 8529

1. dupes -- needed. put on plot, post, sign.

*

2. content --

*

calibration back.

K. 1. 6. sample from.

analyzed results -- in copy.

found med. @ Tanager for Tanager prior to sale.

6. OK.

2. a. OK.

h. OK. from -- ~~map~~ even from Tanager. -

12/17/75 vis.

1. 1. check file

Aug. 3/21/76

OK. 7

2. criteria - Band 7/10 ppm & 'el present 1 in Aug 76

OK. 8

- immediate med. exam

~~10/22~~ last in 283

21 in 76-84

& call other.

11 in 76-79 84 no last.

10 in 1/1/80

Orig. 1st Med. 1984 4/ 25-30 Heldness, S.S. Evidence of Ca among VC + PVC units

Lead. A. 102 lead statatizer in copy.

3. identified

B. 1. OK

2. need some more for shro alt. + ^{mon} validity + chips diff for mup

4 Sb.

*

B. mixer. ST. wt

only mixer (2) > 50

♀ validity

C. 1. OK

2. OK

3. NA

D.

OCC 8530

1. Mix @ 2 Vent + Resp.

2. NA

F. 1. Mix @ 2

2. ?

3. ?

G. 1. @ St. West + Mixer

Orben - Vacatun growing up.
Cd. Sb initial
Pb mix 2 off chip
reval data for budget. me.
Noin expense -

TENNECO POLYMERS, INC.

AUTHORIZED OPERATING PROCEDURES
DISPERSION PRODUCTION

AOP No: M-1

Date: 4/25/85

OPERATION: RESPIRATORY EQUIPMENT

AUTHORIZED BY: Supt. - Dispersion Resins - R. H. Mathis, Jr. *R. H. Mathis Jr.*
Production Manager - W. Miringoff *W. Miringoff*
Plant Manager - R. R. Neugold *R. R. Neugold*

PURPOSE:

1. To establish the use of respiratory equipment.
2. To Establish a maintenance program for respiratory equipment.
3. To establish a cleaning program for respiratory equipment.

HEALTH HAZARD: VINYL CHLORIDE (VCM) IS A CANCER-SUSPECT AGENT.

The OSHA standard sets an exposure limit of 1 ppm averaged over any 8-hour period, and a ceiling of 5 ppm averaged over any period not exceeding 15 minutes. Type "C" airline respirator or self-contained breathing apparatus must be worn in areas where VCM concentrations are greater than 5ppm.

A monomer detection system located throughout the plant will be utilized to warn all employees when the VCM concentrations reach the OSHA limit.

All employees are alerted to the need to avoid contamination of the environment, person, or clothing by monomer from such sources as slurry or latex spills, accumulations of any monomer containing resinous material, or monomer releases. Protective clothing is available in addition to all other protective equipment where its use is indicated.

If additional information is desired, refer to the Material Safety Data Sheet (MSDS) Book located in the Production Foreman's office.

DEFINITION OF A
RESPIRATOR:

A device worn over the nose and the mouth for protection of the respiratory tract.

OCC 8533

SAFETY PROCEDURES ARE INCLUDED IN THE STEPS BELOW:

PROCEDURE:

1. Until vinyl chloride levels throughout the regulated area are brought to less than 1ppm, it will be necessary for personnel to make use of one of the various types of respiratory equipment as follows:

- a. 1 - 1,000ppm

A type "C" air supplied respirator must be worn in concentrations of 1 - 1,000ppm; the maximum length of air line hose that can be worn on a breathing air line respirator is 350 ft.

- b. 1,000 - 36,000ppm

Open circuit, self-contained breathing apparatus (air paks) must be worn in concentrations of 1,000 - 36,000ppm.

- c. 36,000 - Unknown ppm

Entry into unknown concentrations or concentrations greater than 36,000 ppm may be made with the use of self-contained breathing apparatus strictly for the purpose of life rescue or to secure equipment as to prevent a greater hazard from the release of vinyl chloride.

2. Breathing Air Supplied Respirators

- a. Areas that breathing air supplied respirators must be worn:

Any area that has airborne contamination of 5ppm or more of vinyl chloride vapor.

- b. Operations where breathing air supplied respirators are required.

- 1) Suspension Reactor Building

- a) Opening any manway cover which had contained vinyl chloride until the 8" copper hose has been installed.
 - b) While O₂ content of a blend tank is being checked or when maintenance is being performed on top of the blend tank while any port or connecting pipe line is open.
 - c) Entering any vessel that had contained vinyl chloride.
 - d) Production or Maintenance personnel disconnecting any line that had contained vinyl chloride.

- e) Maintenance personnel performing repairs on any line that had contained vinyl chloride until such time by either the Bendix or HNU the VCM drops below 1ppm.

2) Dispersion Process Building

- a) Opening homogenizing systems for maintenance or cleaning orifice plates.
- b) While any maintenance is being performed on top of latex blend tanks when any port or connecting pipe line is open.
- c) Entering any stripper, batch mix tank, wet cake bin, or tower.
- d) Maintenance or Production personnel disconnecting any line that had contained vinyl chloride.
- e) Washing out and rodding out wet cake bins through an open manway.
- f) Maintenance personnel performing repairs on any piece of equipment that had contained vinyl chloride until such time by either the Bendix or HNU the VCM drops below 1ppm.
- g) Opening cake breakers and maintenance on same.
- h) While flushing exhaust system or dump header through an open line.

3. Maintenance of Breathing Air Respirators

- a. It will be the responsibility of the wearer to inspect his own respirator. This inspections must be done each time a mask respirator is worn.
- b. The respirator will be inspected by each employee for the following:
 - 1) Tightness of connections, rubber parts to be checked for wear and deterioration, such as breathing tube, face mask, and head bands, and lenses in place.
- c. When a malfunction is discovered in a breathing air supplied respirator, it will be the wearer's responsibility to turn in same for replacement or repair.
- d. Defective respirators will be repaired by qualified personnel. Any respirator that cannot be repaired on site will be sent to the manufacturer for repair or replacement.

4. Cleaning and Inspection of Breathing Air Respirators

- a. At the end of the day, the soiled respirators will be dropped into the receptacles provided in the process buildings and Foremen's office.

- b. The soiled respirators will be washed in a dishwasher using detergent soap, sanitized and rinsed for removal of dirt with water temperature of no more than 120°F.
- d. Air dry in a dust-free room.
- e. Inspect valves, headstraps, face piece and hose for defects. Defective parts will be replaced.
- f. Placed in a plastic bag and sealed to keep clean.
- g. Air paks used for emergencies shall be inspected, washed and sanitized after they have been used. It shall be the Company's responsibility to keep records of repairs and inspections.

5. Particulate Respirators (Dust)

- a. Areas the dust respirators must be worn in. MSA Comfo II with F type filter.
 - 1) At the bagging machines for:
 - a) Dispersion
 - b) Copolymer
 - c) Homopolymer
 - 2) Checking or replacing collector bags.
 - 3) Loading bulk truck and hopper cars.
 - 4) Any area where dust might be created.
- b. Maintenance:
 - 1) It will be the responsibility of the wearer to inspect his own respirator each time it is put into use.
 - 2) If a malfunction is discovered, it will be turned in for repair or replacement.
 - 3) Cleaning of particulate respirators:
 - a) Respirators used shall be collected, cleaned and disinfected to insure proper protection is provided for the wearer (See Section D.).
 - b) The procedure for cleaning shall be the same as used for breathing air supplied respirators (See Section D.)

TENNECO POLYMERS, INC.

AUTHORIZED OPERATING PROCEDURES
DISPERSION PRODUCTION

AOP No: M-3

Date: 4/25/85

OPERATION: EMPLOYEE PROTECTION FOR VCM ATMOSPHERE

AUTHORIZED BY: Supt. - Dispersion Resins - R. H. Mathis, Jr. R. H. Mathis, Jr.
Production Manager - W. Miringoff W. Miringoff
Plant Manager - R. R. Neugold R. R. Neugold

PURPOSE: Implementation of Federal VCM Standards (1910.1017)

HEALTH HAZARD: VINYL CHLORIDE (VCM) IS A CANCER-SUSPECT AGENT.

The OSHA standard sets an exposure limit of 1 ppm averaged over any 8-hour period, and a ceiling of 5 ppm averaged over any period not exceeding 15 minutes. Type "C" airline respirator or self-contained breathing apparatus must be worn in areas where VCM concentrations are greater than 5ppm.

A monomer detection system located throughout the plant will be utilized to warn all employees when the VCM concentrations reach the OSHA limit.

All employees are alerted to the need to avoid contamination of the environment, person, or clothing by monomer from such sources as slurry or latex spills, accumulations of any monomer containing resinous material, or monomer releases. Protective clothing is available in addition to all other protective equipment where its use is indicated.

If additional information is desired, refer to the Material Safety Data Sheet (MSDS) Book located in the Production Foreman's office.

INTRODUCTION: In order to effectively provide for the implementation of the Federal Standards on April 1, 1976, Tenneco installed a very sophisticated and sensitive system to detect very low levels of VCM in the atmosphere. However, in order to obtain the greatest employee protection, each employee must utilize this equipment to the fullest extent. To accomplish this task, the following operating procedure has been developed.

By law, adherence is mandatory.

OCC 8537

SAFETY PROCEDURES ARE INCLUDED IN THE STEPS BELOW:

PROCEDURE:

1. Constant flow airline respirators are available in cabinets on the 2nd floor of the Copolymer reactor building, 3rd floor of Dispersion "B" Plant, and at the Foremen's office. Each employee has been issued a control valve for this respirator.
2. Upon entering any monitored area, all employees are to first check the rotating beacon and the Bendix panel board.
 - a. If no alarm condition exists, enter your work area.
 - b. If an alarm condition does exist, you must protect yourself upon entry with the proper respiratory equipment, as per A.O.P. #M-1.
3. After entry and the alarm comes on, determine where the alarm is by using the following procedure:
 - a. Immediately check the Bendix panel to determine if the alarm condition exists at your work station. If the alarm condition does exist at your work station, it will be necessary to put on your airline respirator with the attached length of hose to reach your area (maximum 350 ft.) in order to continue your operation.
 - b. When check the Bendix panel and the alarm condition does not exist at your work station, continue your operation and avoid the alarm area.
4. Should four (4) or more adjacent alarm points light up simultaneously and the readings are 100 ppm, you should don a self-contained breathing apparatus (air pak) if necessary to enter the area until extent of excursions has been determined and corrected.

NOTE: ALL EMPLOYEES HAVE THE RESPONSIBILITY UPON SEEING A BENDIX ALARM LIGHT OR HEARING THE BENDIX ALARM HORN OF NOTIFYING ANYONE IN THE EFFECTED AREA OF THE EXCURSION SO THAT ANYONE EXPOSED CAN PROPERLY PROTECT HIMSELF/HERSELF OR LEAVE THE AREA.

NOTE: While cleaning reactors or towers, the Buddy will not leave during an alarm condition. He/She will put on his airline respirator and continue acting as a Buddy until he/she is notified that the area is safe to remove his/her airline respirator or until the situation calls for other action.

NOTE: THE ABOVE PROCEDURE IN NO WAY SUPERSEDES E.O.P. #11 WHICH INVOLVES A MAJOR RELEASE OF VINYL CHLORIDE MONOMER.

5. Location of the alarm panels and lights are as follows:

- a. PLA-1 Located next to the operator's desk in "A" Plant, Dispersion. Indicates 9 points in "A" Plant, 1 point in the Nash Building.
- b. PLB-1 Located next to the tower panel board in "B" Plant, Dispersion. Indicates 5 points in "A" Plant and 5 points in "B" Plant.
- c. PLB-2 Located next to the tower panel board in "B" Plant, Dispersion. Indicates 9 points in "B" Plant, 1 point in the Nash Building.
- d. CO-1 Located near the operator's desk in Copolymer. Indicates 5 points in Copolymer and 5 points in the outside areas.
- e. CO-2 Located near the operator's desk in Copolymer. Indicates 8 points in Copolymer, 2 points outside the Copolymer recovery area.
- f. HO-1 Located near the operator's desk in Homopolymer. Indicates 10 points in Homopolymer.
- g. LA-1 Located in the Copolymer Lab. Indicates 10 points, 4 points in Lab area, the 3 dragout pits, ARDO building, and 12 points at the Effluent Plant.
- h. B/V-G Local panel located outside the lunchroom. Indicates 10 points, including the Tank Farm, Maintenance Shop, bulk bins, east and west fence line and lunchroom.
- i. G Local panel located near Suspension dryer panel board. Indicates for 5 points, bagging areas, panel board, and atomizer room.

6. There are rotating beacons located on the operating floors of the Suspension reactor building and the Dispersion building. These beacons operate when a 5 ppm alarm condition exists in that building. Visitors and/or non-operating personnel are not to enter while this condition exists. Operating personnel must follow the Procedure Items #1 thru #5 as outlined in this A.O.P. M-3.

1-184

FROM

Only two classifications, reactor operator - charging and reactor operator - dumping, were monitored. The attached table lists the TWA samples and the 15-minute ceiling samples taken by Tenneco as parallel samples.

Arvid N. Kargin.

FWK/jst

TABLE I
OSHA INSPECTION
PARALLEL SAMPLES

8-Hour TWA

<u>Job Classification</u>	<u>Individual Data (Time in Air, min)</u>	<u>TWA</u> <i>0.36</i>
reactor oper - chg - copolymer	0.3 (0), 0.3 (0), 0.4 (0), 0.2 (0), 0.5 (0)	0.36 <i>.55</i>
reactor oper - dmp - copolymer	0.6 (0), ND (0), 0.1 (0), 0.1 (0)	0.21 <i>.18</i>

15-Minute Ceiling - 5 ppm Max.

<u>Job Classification</u>	<u>Individual Data (Time in Air, min)</u>
reactor oper - chg - copolymer	0.6 (0), 0.4 (0), 0.1 (0), 0.6 (0)
reactor oper - dmp - copolymer	0.2 (0), 0.6 (0), 0.5 (0), 0.6 (0)

F.W. Kanzler
6/3/76

Occidental Chemical Corp.

Attn: Personnel

Dear Sir:

I have conducted a physical examination of _____
an Occidental Chemical Corp. employee at Burlington, N.J. on _____
as required pursuant to the standard issued by the Occupational Safety
and Health Administration, U. S. Department of Labor, 29CFR 1910.1017,
Paragraph (K) and have concluded that, as of the date thereof, the said
employee is suitable for exposure to Vinyl Chloride Monomer or Poly-
vinyl Chloride Resin, including the use of protective equipment and
respirators, in accordance with the Standard.

The employee has been informed of any medical condition which may
require further examination or treatment.

Michael C. Venditti, M.D.

Date

OCC 8542

CHARCOAL TUBE 8-HOUR TWA

READINGS GREATER THAN 1.0 PPM VCM

Name

Job Classification

Date Sampled

Date Analyzed

Results

Mask Time

Notification Date

Employee signature

/Date

Notifying Supervisor

Remarks

OCC 8543

Revised 3/11/83



Occidental Chemical Corporation

PVC Resins/PVC Fabricated Products

MEMO

To Distribution Date _____

From A.L. Dickerson

Subject Personal Monitoring

Charcoal Tube 8-Hour TWA

CC: C.C. Cattell
R.S. Cole
F.W. Kanzler
R.A. Lojewski
R.H. Mathis
C.F. Wunder
File

The following is a summary of personal monitoring results showing
levels greater than 1.0 ppm for the month of _____.

<u>Name</u>	<u>Job Classification</u>	<u>Date Sampled</u>	<u>Date Analyzed</u>	<u>Results VCM ppm</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

A.L. Dickerson

ALD/jst

OCC 8544