

ESTIMATED SALES AND PRODUCTION
OF ALL PRODUCTS
CONNECTED WITH AROCLORS
1950 - 1960

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MONSANTO CHEMICAL CO.
PHOSPHATE DIVISION
ST. LOUIS, MO.
12/5/52

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DSW 550840

STLCOPCB4089257

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AROCLOR SALES
1940 - 1950

Sales of Aroclors, Biphenyl and Terphenyl types were as follows for 1940 through 1950:

1940	6,771,821 Pounds	✓
1941	12,690,693	"
1942	17,548,294	" ✓
1943	15,503,095	"
1944	13,013,183	"
1945	11,533,000	"
1946	12,345,000	"
1947	15,368,000	"
1948	16,806,820	"
1949	15,439,949	"
1950	18,074,432	"

This shows sales of Aroclors increased 2.66 times 1940 figures.

Sales as follows:

Electrical Industry	73.9%
All Others	26.1%

ESTIMATED AROCLOR SALES 1950 - 1960

Estimated sales of Aroclors, Biphenyl and Terphenyl types, in 1950 through 1960 are as follows:

1950	18,074,432 Pounds (Actual Sales)
1951	24,258,423 "
1952	24,184,200 " 24,564,155
1953	28,400,000 - "
1954	31,900,000* "
1955	32,400,000 "
1956	34,400,000 "
1957	36,400,000 "
1958	38,400,000 "
1959	40,400,000 "
1960 ✓	42,400,000 "

* General Electric has AEC Transformer Contract requiring 1,500,000 pounds extra 1260 for 1954. (Non-recurring use.)

These figures are based on facts obtained from our own organization, Westinghouse, General Electric, U. S. Government, Alabama Power Co., and the electrical industry in general.

CHLORINE REQUIREMENTS
1950 - 1960

Chlorine requirements based on estimated sales of
Aroclor for 1950 through 1960 are as follows:

365
25
1825
730
9,125
1000⁰⁰
10,875

1950	21,688,800 Pounds
1951	29,109,600 "
1952	28,021,040 "
1953	34,080,000 "
1954	38,280,000 "
1955	38,800,000 "
1956	41,280,000 "
1957	43,680,000 "
1958	46,080,000 "
1959	48,480,000 "
1960	50,880,000 "

PLANT B | ANNISTON

13,600,000	20,400,000
15,280,000	22,900,000
15,520,000	23,280,000
16,510,000	24,768,000
17,472,000	26,208,000
18,432,000	27,648,000
19,392,000	29,088,000
20,352,000	30,528,000
	15

These figures are based on the average use of 1.2 pounds
of Chlorine to 1 pound of Aroclor, Terphenyl and Biphenyl.

Part
? this will be
made at
Plant B

Ratio

1,800,000 # Dist Capacity Anniston
1,100,000 # PLANT B

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BENZOL REQUIREMENTS
1953 - 1960

Estimated use of Benzol based on estimated sales of
Aroclors for 1950 through 1960 is as follows:

✓

1953	2,143,800	Gallons
1954	2,497,000	"
1955	2,492,800	"
1956	2,618,380	"
1957	2,750,100	"
1958	2,899,620	"
1959	3,061,600	"
1960	3,204,000	"

The above figures are based on present operations of
Biphenyl at conversion rate of 17%.

The factor of 0.178 gallons Benzol to 1 pound Biphenyl
is used.

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MURIATIC ACID 20° PRODUCTION
1950 - 1960

Estimated quantity of Muriatic Acid 20° produced at Anniston based on the amount of chlorine employed for 1950 through 1960 is as follows: -

1950	32,532,800 Pounds	✓
1951	43,663,500 "	
1952	42,126,000 "	
1953	51,120,000 "	
1954	57,420,000 "	
1955	58,200,000 "	
1956	61,920,000 "	
1957	65,520,000 "	
1958	69,120,000 "	
1959	72,720,000 "	
1960	76,320,000 "	

The factor of 1.5 pounds of Muriatic Acid 20° to 1 pound of Chlorine is used.

Inasmuch as it will only be possible to sell approximately 1,000 tons in the south per month, we suggest we immediately take steps to recover Chlorine or Trichlorobenzene from the estimated remaining 24,000 tons annually. As you know, Hercules is successfully recovering Chlorine from Anhydrous HCl at Brunswick, Georgia from the Chlorinated Toxaphene Operation.

25,000
1.5
25
25
1/3 27,500,000
9,000 Ton

Plant B
figures
are included here

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BIPHENYL REQUIREMENTS
1951 - 1960

Quantities necessary to supply Organic Division
4,000,000 pounds annually and fruit preservation
need of ~~4,000,000~~ ^{400,000} pounds annually.

3

The amounts needed for Biphenyl Aroclors are as follows:

	<u>Biphenyl Aroclors</u>	<u>TOTAL Organic Div. & Fruit Program & Biphenyl Aroclors</u>
1953	12,100,000 lbs.	15,200,000
1954	13,650,000 "	16,450,000
1955	13,760,000 "	17,700,000
1956	14,710,000 "	18,950,000
1957	15,450,000 "	20,200,000
1958	16,290,000 "	21,450,000
1959	17,200,000 "	22,700,000
1960	18,000,000 "	23,950,000
		25,700,000
		27,950,000
		30,450,000
		31,700,000
		32,950,000

Ammonia has made thru 6/30 9,000,000

	Biphenyl	Organic	Fruit	Dow	Total
1953	15,200,000	4,000,000	1,000,000	1,500,000	21,700,000
1954	16,450,000	4,000,000	2,000,000	1,500,000	23,950,000
1955	17,700,000	4,000,000	2,500,000	2,000,000	26,200,000
1956	18,950,000	4,000,000	3,000,000	2,000,000	27,950,000
1957	20,200,000	4,000,000	3,000,000	2,000,000	29,200,000
1958	21,450,000	4,000,000	3,000,000	2,000,000	30,450,000
1959	22,700,000	4,000,000	3,000,000	2,000,000	31,700,000
1960	23,950,000	4,000,000	3,000,000	2,000,000	32,950,000

Current capacity at Anniston for

Biphenyl 21,000,000

Possible production with some variations in equipment 24,000,000 lbs. Biphenyl

Revised as of 6/23/53

pages 6, 8, 11

REVISED

BIPHENYL REQUIREMENTS
1953 - 1960

Quantities necessary to supply Organic Division
4,000,000 pounds annually and fruit preservation
need of 2,500,000 pounds annually.

The amounts needed for Biphenyl Aroclors are as
follows:

	<u>Biphenyl Aroclors</u>	<u>TOTAL Organic Div. & Fruit Program & Biphenyl Aroclors</u>
1953	15,200,000	21,700,000
1954	16,450,000	23,950,000
1955	17,700,000	26,200,000
1956	18,950,000	27,950,000
1957	20,200,000	29,200,000
1958	21,450,000	30,450,000
1959	22,700,000	31,700,000
1960	23,950,000	32,950,000

6/24/53

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BIPHENYL PLANT CAPACITY

BIPHENYL PLANT CAPACITY

Present Production Rate.....17,000,000 lbs. ✓
Possible Production at 17% Conver...19,000,000 " ✓
Possible Production at 23% Conver...21,000,000 " ✓
(P. G. Benignus Report on HB-40 11/6/52)

Possible Production as per H. O. Tittel 11/20/52 ✓
24,000,000 lbs. ✓

AROCLOR PLANT CAPACITY

Krummrich can now distill.....1,250,000 lbs. per month ✓
Anniston can now distill.....1,800,000 " " "
Total Monthly Distillation Capac. 3,050,000 " " "

Mr. H. O. Tittel stated 11/20/52 that, with adjustments, Anniston could distill 2,000,000 pounds per month. This means Anniston and plant maximum distillation capacity is 39,000,000 pounds Aroclor annually.

We now recommend Anniston proceed to the 2,000,000 pound monthly distillation promptly.

{ No 1260 requires .43# diphenyl
{ No 1854 " .51# "

TERPHENYL AROCLOR ESTIMATED SALES
1952 - 1960
(AROCLORS 4465 - 5460)

1952	3,045,001 Pounds	3,748,894
1953	3,551,403 "	4,048,894
1954	3,827,400 "	4,348,894
1955	4,103,000 "	4,650,000
1956	4,379,000 "	4,950,000
1957	4,655,000 "	5,250,000
1958	4,931,000 "	5,550,000
1959	5,207,000 "	5,850,000
1960	5,483,000 "	

REVISED

TERPHENYL AROCLOR ESTIMATED SALES
1952 - 1960
(AROCLORS 4465 - 5460)

1952	3,045,001	Pounds
1953	3,748,894	"
1954	4,048,894	"
1955	4,348,894	"
1956	4,650,000	"
1957	4,950,000	"
1958	5,250,000	"
1959	5,550,000	"
1960	5,850,000	"

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6/24/53

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ESTIMATED HB-40 PRODUCTION
AT 23% CONVERSION
1953 - 1958

Estimated HB-40 quantity we can produce, if we go to 23% conversion, is as follows:

1953 —	2,669,000 Pounds
1954	2,942,000 "
1955	2,840,000 "
1956	2,971,000 "
1957 ✓	3,030,000 "
1958 ✓	3,112,000. "

(This is total amount and does not include Dow Material)

*This not changed
to take Terphenyl
from HB40 to
make 5460 or
include Dow
Terphenyl
JBT
6/23/53*

The quantity of HB-40 we can sell is far above the amount we can produce. It was necessary to figure HB-40 backwards in relation to Terphenyl Aroclors and at 23% conversion (21,000,000 pounds Biphenyl annually) we would have reached plant capacity by 1958.

From **MONSANTO CHEMICAL COMPANY**

cc

At **St. Louis**

Date **December 1, 1953**

To **J. B. Trotter**

Reference

At **St. Louis**

Subject **Tank Cars**

Following is current listing of tank cars in service at Anniston and WGK Plant in Aroclor, Pyranol, HB 20 AND HB 40 service.

Anniston

Car No.	Service	Gallonage
MONX 810	Aroclor	8,000
820	"	8,000
821	"	8,000
832	"	8,000
834	"	8,000
835	"	8,000
836	"	8,000
GATX 32451	"	8,000 temp. loan to WGK
32454	"	8,000
32455	"	8,000
32456	"	8,000
32457	"	8,000
2988	"	8,000 TEMP LOAN from DuPont
2944	"	8,000 Temp.loan from DuPont
UTLX 58662	HB20 & HB 40	4,000
GAXT 52519	"	4,000
SHPX 4570	"	4,500 (compartment car)
GATX 50801	"	8,000
GATX 56066	"	8,000

W.G.K.

Car No.	Service	Gallonage
MONX 413	Pyranol	4,000
MONX 418	"	4,000
GATX 60147	"	4,000
MONX 802	"	8,000
MONX 803	"	8,000
MONX 809	"	8,000
MONX 819	"	8,000
MONX 833	"	8,000
MONX 530	"	7,000

Monx 810 and 834 are currently at WGK Plant for repairs and are to be returned to Anniston when repairs are completed.

Chas. *Williams*

DSW 550854

From **MONSANTO CHEMICAL COMPANY**

cc

Messrs.

T. K. Smith Jr.-M.O.
S. R. Clement- M.O.
C. M. Williams- M.O.
P. Benignus
D. B. Hosmer
W. H. Burrell

At Monsanto, Illinois

Date December 23, 1952

To Mr. J. B. Trotter

Reference

At St. Louis Office

Subject AROCLOR TANK CARS - Life Expectancy

Some time ago you requested the plant examine the tank cars in Aroclor service at the W. G. K. Plant and let you know the life expectancy.

The requested information is as follows:

<u>Car No.</u>	<u>Year Built</u>	<u>Capacity</u>	<u>Life Expectancy</u>
MONX 413	1940	4,000 gal.	9 years
MONX 418	1946	4,000 gal.	15 years
MONX 530	1939	7,000 gal.	9 years
MONX 802	1934	8,000 gal.	7 years
MONX 803	1935	8,000 gal.	7 years
MONX 809	1936	8,000 gal.	10 years
MONX 819	1941	8,000 gal.	14 years


C. B. Sigler

ps

DSW 550855

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St. Louis

Nov. 4, 1952

Mr. J. W. Graves - Krum.
Mr. D. B. Hosmer - "
Mr. P. Benignus
Mr. C. M. Williams
Mr. S. R. Clement
Mr. T. K. Smith, Jr.

Mr. C. B. Sigler

Krumrich

Arcoelor Tankcars in Service at Krumrich

It is my understanding you have the following tankcars in service for transportation of Arcoelors and Askarels.

Krumrich	Year Built	Capacity	Life Expectancy
MONX 413	1940	4,000 gal.	
MONX 418	1946	4,000 gal.	
MONX 530	1939	7,000 gal.	
MONX 802	1934	8,000 gal.	
MONX 803	1935	8,000 gal.	
MONX 809	1936	8,000 gal.	
MONX 819	1941	8,000 gal.	

GATX 60147

1953

4000 "

These tankcars should last for an indefinite period. Please examine each tankcar and let me know its present condition promptly inserting under Life Expectancy date of needed replacement. Muriatic Acid and other corrosive material tankcar life expectancy is 25 years.

JWT:dth

John B. Trotter

III 16 B

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St. Louis

Mr. H. F. Weaver
Mr. T. K. Smith, Jr.
Mr. S. R. Clement
Mr. C. Williams

November 4, 1952

Mr. H. O. Tittel

Anniston

Aroclor Tankcars in Service in Annis.

It is my understanding you have the following tankcars in service for transportation of Aroclors and Askarels.

Anniston	Year Built	Capacity	Life Expectancy
MONX 810	1936	8,000 gal.	1963
MONX 820	1941	8,000 gal.	1968
MONX 821	1941	8,000 gal.	1963
MONX 832	1948	8,000 gal.	1976
MONX 833	1948	8,000 gal.	1978
MONX 834	1948	8,000 gal.	1978
MONX 835	1949	8,000 gal.	1978
MONX 836	1949	8,000 gal.	1978

DSW 550857

These tankcars should last for an indefinite period. Please examine each tankcar and let me know its present condition promptly inserting under Life Expectancy date of needed replacement. Muriatic Acid and other corrosives tankcar life expectancy is 25 years

John B. Trotter III 16 A

From **MONSANTO CHEMICAL COMPANY**

At Anniston, Alabama

cc H. F. Weaver - St. Louis
T. K. Smith - St. Louis
S. R. Clement - St. Louis
C. M. Williams - St. Louis

Date December 12, 1952

To Mr. J. B. Trotter

Reference

At St. Louis

Subject

MONX 810, built in 1936, should last at least ten more years. MONX 820 and 821, built in 1941, should remain in a serviceable condition for at least fifteen years. MONX 832, 833, 834, 835, and 836 will probably last twenty to twenty-five more years.

GAT X 32451 Anniston March or April

H. O. Tittel
H. O. Tittel

HOT:mcs

WESTINGHOUSE MAKES INEERTEEN
 CABREL 4 TANK CARS HERB
 YEAVER ORDERED

ESTIMATED TANKCAR REQUIREMENT
 KRUMMRICH AND ANNISTON
 1950 - 1960

Estimated tankcars required for Arcclor and Arcclor
 Mixtures from 1950 to 1960 are as follows:

ANNISTON
 (To Pittsfield, Hudson Falls, and others)

1950	8 - 8,000 gal. cars.
1951	8 - 8,000 "
1952	8 - 8,000 "
1953	10 - 8,000 "
1954	14 - 8,000 "
1955	15 - 8,000 "
1956	16 - 8,000 "
1957	16 - 8,000 "
1958	18 - 8,000 "
1959	18 - 8,000 "
1960	20 - 8,000 "

KRUMMRICH

1950	4 - 8,000 gal.	2 - 4,000 gal.	1 - 7,000 gal.
1951	4 - 8,000 "	2 - 4,000 "	1 - 7,000 "
1952	4 - 8,000 "	2 - 4,000 "	1 - 7,000 "
1953	5 - 8,000 "	3 - 4,000 "	1 - 7,000 "
1954	5 - 8,000 "	3 - 4,000 "	1 - 7,000 "
1955	6 - 8,000 "	3 - 4,000 "	1 - 7,000 "
1956	7 - 8,000 "	2 - 4,000 "	1 - 7,000 "
1957	8 - 8,000 "	3 - 4,000 "	1 - 7,000 "
1958	8 - 8,000 "	3 - 4,000 "	1 - 7,000 "
1959	9 - 8,000 "	3 - 4,000 "	1 - 7,000 "
1960	9 - 8,000 "	3 - 4,000 "	1 - 7,000 "

$$\begin{array}{r} 815 \\ \hline 39,000,000 \\ 44,000,000 \end{array}$$

$$\begin{array}{r} 22 \\ \hline 22 \\ \hline 39,000,000 \end{array}$$

$$\begin{array}{r} 22 \\ \hline 22 \\ \hline 44,000,000 \end{array}$$

$$\begin{array}{r} 18 \\ \hline 33,000,000 \end{array}$$

$$\begin{array}{r} 33 \\ 67 \\ \hline 39,7 \end{array}$$

$$\begin{array}{r} 33 \\ 15 \\ \hline 44,000,000 \end{array}$$

$$\begin{array}{r} 1800 \\ 12 \\ 36 \\ 18 \\ \hline 216 \end{array}$$

$$\begin{array}{r} 17 \\ \hline 20,400,000 \\ 15,000,000 \end{array}$$

$$\begin{array}{r} 14700,000 \\ 34 \\ \hline 15,000,000 \end{array}$$

$$\begin{array}{r} 1250 \\ 216 \\ \hline 36,600,000 \end{array}$$

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ESTIMATED SALES OF ALL AROCIORS
1953 - 1960

YEAR	ALL AROCIORS	TERPHENYL AROCIORS	BIPHENYL AROCIORS
1953	28,400,000 lbs. 30,600,000	3,551,401 lbs. 3,748,994	24,848,599 lbs. 26,651,000
1954	31,900,000 "	3,827,400 "	28,072,600 "
1955	32,400,000 "	4,103,000 "	28,297,000 "
1956*	34,400,000 "	4,379,000 "	30,021,000 "
1957	36,400,000 "	4,655,000 "	31,745,000 "
1958	38,400,000 "	4,931,000 "	33,469,000 "
1959	40,400,000 "	5,207,000 "	35,293,000 "
1960	42,400,000 "	5,483,000 "	36,917,000 "

* It is recommended we provide additional Biphenyl Production Capacity and Aroclor Distillation Facilities in 1956 (Distillation Facilities to be in excess of 39,000,000 pounds.)

REVISED
ESTIMATED SALES OF ALL AROCIORS
1953 - 1960

<u>YEAR</u>	<u>ALL AROCIORS</u>	<u>TERPHENYL AROCIORS</u>	<u>BIPHENYL AROCIORS</u>
1953	30,400,000 lbs.	3,748,894 lbs.	26,651,000 lbs.
1954	32,900,000 "	4,048,894 "	28,851,000 "
1955	35,400,000 "	4,348,894 "	31,051,000 "
1956	37,900,000 "	4,650,000 "	33,250,000 "
1957	40,400,000 "	4,950,000 "	35,450,000 "
1958	42,900,000 "	5,250,000 "	37,650,000 "
1959	45,400,000 "	5,550,000 "	39,850,000 "
1960	47,900,000 "	5,850,000 "	42,050,000 "

You will note from the above figures that we are now in urgent need of additional Biphenyl and Aroclor production. It should also be noted that we have included 4,000,000 pounds annually of Biphenyl for the Organic Division and approximately 2,500,000 pounds annually for the requirements of Dow and the fruit program.

6/24/53

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