H. C. Carder - General Offices

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Electrical Aroclors -
Pricing to G.E.
Memo PGB/DBH of 6/7/67

Mr. P. G. Benignus
PBENI

In your reference memo to Mr. Hosmer, you asked for an analysis of the cost components other than raw materials for liquid aroclors comparing the 1939-1940 period to present day costs. You can appreciate with our policy of destroying all documents over five years old, reconstructing manufacturing costs for 1940 is something of a job. Nonetheless after considerable digging, we do have cost information for this period that we think is reasonably valid.

Looking just at the liquid aroclor cost sheet, the following figures have been developed:

Liquid Aroclors

	1940	1967 (1)
Raw material		
Direct conversion	.753	1.893
Indirect conversion	.298	.390

(1) Year-to-date through May

Placing biphenyl and aroclor in the same black box and analyzing the cost components (excluding raw materials) on a unit cost basis, the following comments are pertinent:

Utilities

Unit utility costs have been reduced over the years. This has been due to two factors - improved gas efficiency by going from batch to continuous biphenyl operation, and reduced electrical rates because of the higher usage due to the installation of the chlorine plant. Price of gas has gone up from $.193/M cu.ft. in 1940 to $.304/M cu. ft. in 1967. The cost of electricity has gone down from $1.00/C KWH to $.64/C KWH in 1967.

Manpower

Direct labor and associated costs such as payroll overhead have remained essentially the same per cwt. of finished

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goods. However, the following labor rate information should be useful:

Direct Labor Rates
($/hr.)

	1942	1967
Chief operator	$1.00	$3.35
Operator	.90	3.12
Mechanic	1.00	3.35

Mechanical Expense

There has been a 54% increase in the unit mechanical expense during this 27 year period.

Laboratory

Increased number and sophistication of laboratory tests has caused a 57% increase in unit lab costs.

Total Technical Effort

There has been a ten-fold increase in technical effort as represented by lab, TSD and research unit costs. This amounts to more than $.53/cwt. of biphenyl and aroclor in 1967.

Total Direct Conversions

There has been an overall 47% increase in total unit direct conversion costs. Actually, there has been a slight reduction in biphenyl direct conversions while the aroclor direct conversions costs have more than doubled.

Depreciation

Our direct capital involved in the manufacture of biphenyl and aroclor has increased by a factor of 15. Unit depreciation costs are double our 1940 depreciation costs.

Factory Indirects

These have remained about the same. My calculations show the following percentage increases from 1940 to 1967:

Manufacturing costs (with by-product credit)	- 28%
Manufacturing costs (without by-product credit)	- 37%
Sales price	- 44%
Price to G.E.	- 30%

Original signed by HOMER C. CARDER

Homer C. Carder

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