Mr. J. R. Savage - General Office

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Mr. H.S. Bergen
Mr. D.A. Olson

MANUFACTURING COST - BROMO AROCLOR

Mr. W. R. Richard
General Office

Manufacturing cost of brominated Aroclor was discussed at our meeting last Thursday and I agreed to check the preliminary estimates. The attached calculation and graph show the relationship of cost to % bromine and bromine price.

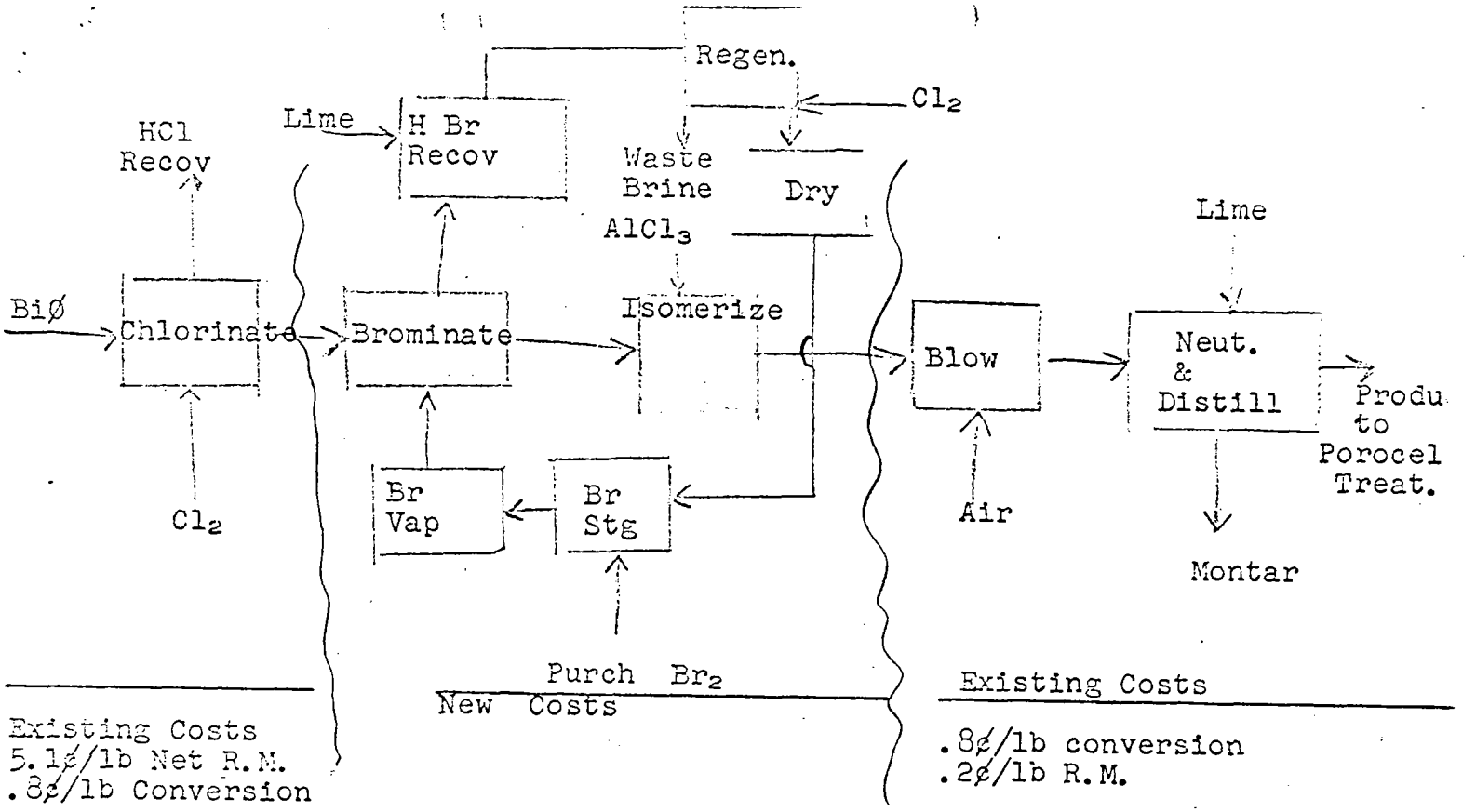
Previous calculations of 10¢/lb. for the dichloro, 1/2 bromo with bromine at 16¢/lb. are confirmed. Precision is about ± 1/2¢/lb due to relationship of volume to conversion cost.

J. R. Savage

md
attachments

DSW 200294

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PREMISE:

Biphenyl & chlorine make equal contributions to cost (nearly true at WGK, somewhat inaccurate at Anniston), thus can improve the xx in the 11xx in calculating cost. (i.e. deliver any crude Aroclor to bromination at 5.9¢/lb.)

RAW MATERIALS:

For each mol Br_2 fed to brominator ($\frac{1}{2}$ mol to product) use 1/4 mol lime to recover HBr, 1/2 mol Cl_2 to regenerate, plus 1/2 mol new bromine.

For 100 lb Br_2 added to produce (taking 95% yields):

	Lb.	Cost, $/Cwt	
		10¢ Br	15¢ Br
Bromine	105	10.50	16.50
Chlorine	47	1.08	1.08
Lime (slaked)	49	.59	.59
		12.17	18.17

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Assume 1¢/lb conversion cost in the new area. Then cost of bromo Aroclor containing x % bromine is:

$C = x\ (12.17) + (1-x)\ \ (5.9)\ + 2.0$ (for 10¢ bromine)

$C = x\ (18.17) + (1-x)\ \ (5.9)\ + 2.0$ (for 15¢ bromine)

Some cases:

	10¢ Bromine	15¢ Bromine
10% Bromine	8.52¢/lb.	9.12*
15% Bromine	8.83	9.72
20% Bromine	9.13	10.34
25% Bromine	9.46	10.98

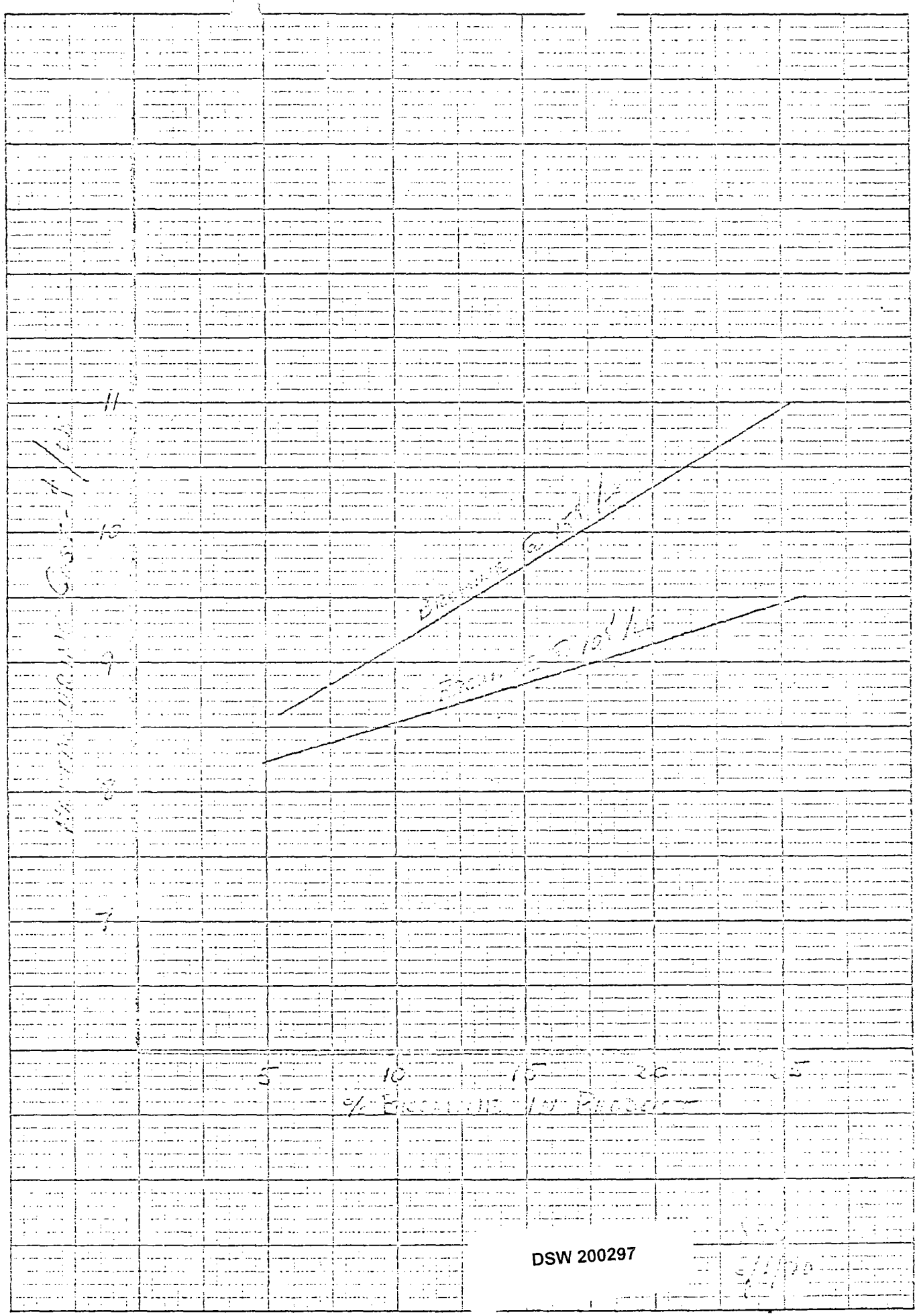
*A likely case

CRITIQUE:

This calculation does not include cost for isomerization catalyst or bromine drying agent. Also the 1¢/lb new conversion cost may be low, considering the amount of equipment, particularly if volume is small.

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