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MONSANTO CHEMICAL COMPANY

RESEARCH DEPARTMENT - PHOSPHATE DIVISION

SHORT FORM REPORT

Report No. 2887

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TITLE: Fenclor (Chlorinated Biphenyl) From Soc. Elettrochimica del Caffaro, Milan, Italy.

INTRODUCTION:

A recent request from Sales indicated that the Italian Fenclor had improved in quality lately and was equivalent to Aroclor. Our Sales prople were not able to argue the merits of Aroclor over Fenclor. All this apparently has come about since we agreed to sell biphenyl to Caffaro. The quality of their biphenyl has been improved or they are using our biphenyl to produce Fenclor.

Research was asked to analyze a sample of recent production of Fenclor and to compare it with our Aroclor.

SUMMARY:

The eight ounces of Fenclor similar to our Aroclor 1254 was received and examined. Sample was obviously contaminated with water and rust. As received the power factor of the sample was greater than 1% at 1 kc. and 25°C. Our Aroclor has $< 0.1\%$ power factor at these test conditions.

After treating with Attapulgus earth, the Fenclor was comparable to our Aroclor 1254.

CONCLUSIONS:

The Fenclor as received was of inferior grade, but after a simple earth treatment it was equal to our Aroclor 1254 in the tests made on the small sample.

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RECOMMENDATIONS:

Our Sales people should be informed that the Fenclor has been improved to the point where the quality is on a par with Aroclor 1254.

A. M. Ellenburg

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AME:kd
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REFERENCE TO PREVIOUS WORK:

Research Department, Phosphate Division, Short Form Report 2527, "Fenclor 54, Chlorinated Biphenyl, Made in Milan, Italy" by R. J. Good, September 6, 1950.

EXPERIMENTAL DATA:

Notebook Reference: 92518.

Sample was received in a pint tin can marked "Fenclor" from Pietro Carini, Milan, Italy.

Water and rust were visible in the sample. Contaminants were no doubt introduced at the time the can was filled.

Tests showed power factor of >1% at 25 and 1 kc and a low resistivity.

Sample treated with 0.2% Attapulgus earth for 4 hours at 80-90°C. After filtering out the earth, the Fenclor was very light in color.

Analytical Tests are compared to our standard Aroclor.

	Fenclor	Aroclor 1254
% Chlorine	54.4	55 ± 0.5
Refractive Index at 25°C.	1.6387	1.6380 ± .001
Inorganic Chlorides, ppm.	0.10	< 0.10
Corrosion Test		
Inorganic Chlorides, ppm.	0.10	<0.10
Acidity, mg. KOH/gm.	0.004	0.004
Dielectric Constant at 25°C., 60 cycles	4.97	5.0
Dielectric Constant at 100°C., 60 cycles	4.26	4.3
Power Factor at 100°C., 60 cycles	1.28%	1.0%
Resistivity at 100°C., ohm-cm.	4500×10^9	5000×10^9

DISCUSSION:

The scarcity of sample prevented any more intensive testing of the Fenclor. Even though the sample as received showed poor electrical properties, after a simple earth treatment the Fenclor appears to be equivalent to our Aroclor 1254 in properties.

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