Blcc: F. B. Zienty - MO-3
H. L. Hubbard - Res-2
T. M. Patrick - Res-3
W. B. Dunlap - Anniston

December 6, 1956

Mr. R. C. Odell, Supervisory Engineer
Allis-Chalmers Manufacturing Company
Capacitor Engineering
Transformer Department
P.O. Box 512
Milwaukee 1, Wisconsin

Dear Mr. Odell:

I am in receipt of a letter from W. B. Dunlap at Anniston requesting that I reply to your inquiry of November 8, 1956. The use of a bronze porous filter in your system might work against your attempt to maintain a high resistivity in the Aroclor 1242. Copper and its alloys are corroded in Aroclor at 125°C. to such an extent that a penetration of 0.0014 to 0.014 inches per year is indicated. These data are shown in our Aroclor Bulletin OP-115. Copper has a catalytic effect on the decomposition of organic chlorine compounds, so the copper reacts and goes into solution. At the point in the processing of Aroclor where there is no further contact with an adsorbent clay to remove metallic salts, I would not use bronze.

I understand you have located a stainless steel porous filter. My suggestion is to use the stainless steel and if possible, install type 316.

We have no data on the correlation of resistivity and water content for Aroclor 1242 nor the effect of water content on dielectric strength. Our opinion is that there is no effect in the low water content range. If the water content is below 50 ppm, we would not expect to find any great effect on resistivity or dielectric strength.

In such small concentrations, the water is in solution in the Aroclor. Any effect on resistivity, the more sensitive of the two properties, would depend on the salts or conducting material that the water may combine with. On dielectric strength, no difference can be found in samples varying in water content from 10 to 50 ppm.

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We have not attempted any studies on these relationships because they are mainly of academic interest. After the Aroclor is introduced in a capacitor it is not the same Aroclor due to the pick up of moisture and trace contaminants from the capacitor parts.

If we can be of further assistance, please let us hear from you.

Very truly yours,

A. M. Eilenburg
Research Department

dm

cc: Mr. P. G. Benignus
Monsanto Chemical Co.
Robts. Bldg. - 3

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