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Fire-Resistant Requirements
For Capacitor Dielectrics

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The subject is "moot" and difficult to assess in the search for new and especially for replacement dielectrics for Aroclor 1242.

My purpose in writing is primarily to document two pending changes at GE and Westinghouse to adopt specialized use of Aroclor 1232 and 1221. Both are less fire resistant than Aroclor 1242.

At this point it seems apropos to insert that Westinghouse and other makers of Aroclor 1242 capacitors have been involved with occasional user complaints that the capacitors were on fire. Westinghouse got "off the hook" by indicating that Aroclor 1242 is not a fire extinguisher.

It is also well for us to have in mind that the capacitor makers do not have the background experience nor the capability that Monsanto has in the area of our fire testing laboratory. By and large the capacitor makers think merely in terms of the flash point and fire point of the fluid and try to correlate this with what the Underwriters said many years ago about what an askarel should be.

Pursuant to our effort for better understanding of the subject question, I questioned Don McClain of Westinghouse and Dr. Boudreau of GE for their views about fire resistant requirements relative to use of Aroclor 1221 and 1232 in the two new applications. Both immediately sensed the reason for my probe - both smiled, as based on the following:

I. Westinghouse: They may use about 250,000 lbs/yr of Aroclor 1232 for coupling capacitors. The criterion for selecting Aroclor 1232 is that it provides the flat capacitance response required at lower temperatures in this application. As the capacitors are located out-doors and as the Aroclor 1232 replaced mineral oil, fire resistance was not a critical consideration. Of course, it is felt that Aroclor 1232 provides better fire resistance than mineral oil.

II. General Electric: They intend to use one or two hundred thousand pounds per year of Aroclor 1221

as a simple ("out of our catalogue") expedient to get Aroclor 1254 completely out of their capacitor operations, in conformance with the PCB pollution problem requirements. The Aroclor 1254 was blended with 25% of TCB as the dielectric used for many years in DC capacitors. On switching to Aroclor 1221 for this specialized application, GE felt that Aroclor 1221 would give at least some fire-resistance. Now that we know of their interest in Aroclor 1221 it seems likely that we can offer them a fluid that would be functionally more attractive than Aroclor 1221.

Conclusions

I. Both GE and Westinghouse demonstrated willingness to use dielectric fluids less fire resistant than Aroclor 1242 -- but only as expedients in small specialty applications.

II. For the large "across the board" Aroclor type capacitor applications they strive to adhere to the equivalent fire resistance of Aroclor 1242. Both are inclined to "bend a little" as may be needed. The problem that remains is that this cannot be interpreted in finite terms until the fire-resistance of Aroclor 2242 is posted in more conclusive terms than merely flash and fire points, so that comparisons can be made against other fluids on a more realistic basis.

III. However, all of this serves to underwrite the correctness of our judgements to make and offer MCS 1016, relative to both fire-resistant and ecological views.

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