Monsanto
CHEMICALS LTD

file Aroclor Quality

FROM (LOCATION) C.R. COLEMAN - RUABON.

DATE : 10th June, 1971.

SUBJECT : Aroclor 1016 Specifications.

REFERENCE : CRC/bjo'g.

TO : R.H. MUNCH - TECHNOLOGY DEPT., SOUTH 2ND ST. LOUIS.

CC: J.R. Savage, St. Louis.
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With regard to your memo of 1st June on this subject, I would like to see the following additional properties specified:-

1) Density at 20°C.
2) Viscosity at 20°C (in centistokes).
3) Refractive index at 20°C.

The first two of these properties are those usually specified in Europe for the less viscous askarels, and the third follows IEC recommendations for refractive index.

For Aroclor 1242 made at Newport the appropriate values are:-

Property	Value	Method
1) Density at 20°C(kg/m^3)	1380 to 1390	ISO R649 and ASTM D1810
2) Viscosity at 20°C (cSt)	55 to 71	ASTM D445
3) Refractive Index at 20°C	1.6250 to 1.6270	ASTM D1807

In addition, it will be necessary for us in Europe to specify dielectric constant (or relative permittivity) and power (or dissipation) factor at 50Hz instead of 60Hz, since 50Hz is the commercial frequency in Europe. The value of the dielectric constant will remain unchanged by this change in frequency, but for a given sample we might expect the dissipation factor to be 1.2 times higher. In practice, however, this difference could easily be swamped by sampling and testing errors.

In conclusion, I would like to point out that the IEC has recommended that permittivity, dissipation factor and resistivity be measured at a temperature of 90°C instead of 100°C which is current practice in the USA and UK. The values set by the IEC for Capacitor Askarel Type C1A (our Aroclor 1242) are as follows:

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Property.	Value.
Volume resistivity at 90°C (TΩ cm)	1 (minimum)
Dissipation factor at 90°C, 50-60Hz	0.02 (maximum)
Permittivity at 90°C, 50-60Hz	4.8 to 5.1

The agreed test methods for these electrical properties are still to be finalized.

At the present time, I believe that in Europe we should retain the temperature of 100°C for measuring resistivity and dissipation factor whilst attaining the values given above, a slightly harder task. We should also keep 100°C for the measurement of permittivity and apply a correction factor if customers insist on this value at 90°C. I have taken this different attitude for the electrical properties compared with that for the physical properties because there is a fairly equal division between 90°C and 100°C among our customers whereas there is an overwhelming preference for 20°C for measuring the density and viscosity of Aroclor 1242 and the transformer askarels.

CRC.

COLIN R. COLEMAN.

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