

MITSUBISHI MONSANTO CHEMICAL COMPANY

FROM LOCATION : Tokyo

DATE : June 21, 1967

SUBJECT : AROCLOR MARKET TECHNICAL
SERVICE

REFERENCE :

TO : Mr. P. G. Benignus
St. Louis, Mo.

cc Messrs.

G. R. Buchanan-St. Louis

~~J. Cross~~

D. Danna- "

W. T. Dickens- "

J. R. Durland-Tokyo

D. T. Mowry-MJL

~~Shiromizu-Tokyo~~

H. Shiromizu- "

Recently, we made several calls at major potential customers in the electrical field for Aroclor. A lot of questions, as listed in the attachment, were raised by them and they are very anxious to discuss on these questions with you face to face at the time of your visit to Japan.

We would appreciate it, if you would prepare for these questions prior to your departure.

We appreciate very much your visit to Japan next month, and we believe it will be a great contribution to the implementation of our Aroclor project.

Best regards.

S. Matsuno
S. Matsuno
Director of Planning

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Attachment

DSW 200746

STLCOPCB4058810

Questions to Mr. P. G. Benignus

Shizuki Electric Co. (Capacitor)

1. Type and quality of paper used for capacitors in the U.S.?
2. What refining methods are actually adopted by customer companies in the U.S.?
3. Though some blends of trichloro- and tetrachloro-biphenyl are said to be used in Europe and in the U.S., what are their merits in cost and quality, compared with use of trichloro-biphenyl or tetrachloro-biphenyl alone?
4. It would be very much appreciated, if a sample of typical paper commonly used for Aroclor and its related data could be available. One roll (about 43m/m x 20m) of the sample will be enough.

Toshiba Electric Co. (Capacitor and Transformer)

1. Do you have any data on properties of askarel at low temperatures (-45°C - -50°C), such as electrical and viscosity properties, etc.?
2. Do you have any data on the Cl_2 absorbing capacity of the stabilizer, PPO, in case of heat deterioration of askarel?
3. Do you have any comparative data on such properties as temperature-tan δ , and others of Pyranol 1467, of which formulation is similar to Toshiba's one, and Inerteen PPO?
4. Are there any better stabilizers than PPO?
5. It would be very helpful to us, if you could provide us with one set of testing methods (ASTM) of dielectric fluid.

Mitsubishi Electric Co. (Transformer)

1. On the standards for maintenance of askarel used for transformers;
 - a) When is the askarel needed to be refined or changed, namely the limit of power factor and volume resistivity of askarel allowed for use?
 - b) What items to be checked and what testing methods do you recommend for periodic fluid inspection?
 - c) Though it is said in the catalogue (P 13), Monsanto ASKAREL Inspection and Maintenance Guide, that heavy contamination (as when arced) does not lower the resistivity below the order of 10^9 ohm-cm. at 100°C , what is the basis for this?
 - d) What do you think about the use and the effect of a heat de-gasing apparatus when filling transformers with askarel?

2. On Additives;

Do you have or know any literature on the effects of various additives?

3. On blending of askarel with other askarel or oil;

- a) Is askarel never permitted to be mixed with mineral oil? Please show the mixing limit, if you can.
- b) Do you have any data showing the maximum allowance for mixing one type of askarel with another?
- c) Do you have any data showing the maximum allowance for mixing askarel with cleaning solvents?
- d) Do you have any refining method of askarel which is used for cleaning (please see page 15 of the catalogue mentioned above)?

4. On power factor, volume resistivity, and dielectric strength of impregnated insulation board;

Do you have any data showing surface flush over voltage and puncture voltage of the insulation material immersed in the askarel with its $\tan \delta$ and Meg deteriorated by contamination, and corona starting voltage of the askarel itself, etc? Does the askarel lose its heat-stability when contamination causes the deterioration of $\tan \delta$ and Meg?