April 7, 1944

Mr. Howerton

IMPREGNATION TESTS

The following is the information which I have about the now famous Impregnation Test advocated by Mr. Clark of General Electric.

(1) Capacitors are impregnated with Aroclor 1254 as a dielectric medium. (These are special test capacitors and they would be furnished by General Electric.

(2) Before impregnation the capacitors are dried and prepared for impregnation. (The exact procedure is not known).

(3) After impregnation the capacitor is heated (?) and degassed under vacuum.

(4) The power factor of the prepared unit is finally determined with a capacitance bridge. The wheatstone bridge set-ups, which we employ for K. (Dielectric Constant) determinations, are not sufficiently accurate for the job.

(5) Mr. Clark of General Electric and Mr. Welch of Leeds and Northrup have informed me that a Schering Bridge is well suited to this purpose. I am not acquainted with the Wein bridge.

(6) Considerable information on the power factor testing of electrical insulating materials is presented in the A.S.T.M. standards. Please refer Mr. Barker to A.S.T.M. standards - 1942 - Part III - Resignation D-150-42T for a pretty good discussion of power factor determinations. There are several other A.S.T.M. designations which do not appear to be generally applicable to testing #1254 but may be of interest. See: A.S.T.M.-D-176-42T - pp. 1136, 1137 and 1138, and D-48-42T - pp. 1061 and 1062. The latter designations appear to emphasize the importance of sample preparation before testing.

It is thought that many of Mr. Barker's questions will be clarified somewhat after he has read the above.

Of course, we should get all of the requisite information in detail if this test is to be made by Monsanto.

D. B. Hosmer

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