cc. Messrs: R. L. Jenkins
E. E. Hardy
J. F. Reeves
F. A. Barker
T. H. Wheelock - St. Louis
P. G. Benignus - St. Louis

From: Monsanto Chemical Company
Anniston, Alabama

To: Mr. Sam R. Clement
Phosphate Sales
At: St. Louis

Date: August 1, 1949

Ref. SRC/RLJ 7-27-49

Subject: Cornell-Dubilier Electric Corp.
South Plainfield, New Jersey

Specifications No. MEV-6023
Standard Telephone & Radio A. G. Zurich

The following comments are made with reference to the submitted tentative specification for Sterol "A" (Aroclor 1254). For ease in following the specifications we will list our statements in the same order as the specifications.

Composition

1.1 O.K.

2. O.K., since we use galvanized drums.

3. Physical Characteristics

3.1 Color limits should read less than 1.0, if this is the upper limit desired. Actually our Aroclor will run less than 0.5 on Lovibond yellow, No. 510 in one inch.

3.2 State. O.K.

3.3 Specific Gravity - Our Aroclor will meet the specification at 25/25°C; but we prefer to measure gravity at 65/15.5°C where our range is 1.495-1.505 and the Aroclor is less viscous.

3.4 Viscosity - SUV at 210°F will have to be wide enough to include our plant specifications which are 44-47 seconds.
SUV at 100°F - O.K.

3.5 Flash and fire point - O.K.

3.6 Coef. of Expansion (25-65°C) - we cannot guarantee this value since we have no history. If you place a range on the coefficient such as 0.00066 ± .00005, it would be satisfactory. Personally I see no need for this item in the specification.

3.7 Volatility - For this specification I would place a top limit only, say 1.28%, because the Aroclor will ordinarily run lower than the 1.08% shown on the low limit of volatility.

4. Chemical Characteristics

4.1 Acidity value - O.K.

4.2 Iodine value - O.K.

4.3 Saponification number - O.K.

4.4 Iron Chloride - O.K.

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5. Electrical Characteristics of Material as received.

5.1 O.K. Our measurements are made at 500 volts D.C. by using a General Radio Megohm Bridge Type 544-BS4. Concentric cells are used to measure the resistance.

5.1.1 This value of 4.6×10^{13} ohm-cm at 25.5°C can be met by our Aroclor, however we prefer to measure at 100°C where the volume resistivity specifications are 500×10^{9} ohm-cm.

5.2 Power factors are not included in our present specifications. However, we can make the measurement at 1000 cycles following the ASTM designation D-150-47T.

5.2.1 Loaded in drums at Anniston the Aroclor will meet the power factor of 0.08% at 25.5°C.

5.3 Dielectric strength measurements are not made as a plant routine test. However, we can make the tests following ASTM D-117-43 and D-149-44.

5.3.1 Aroclor 1254 will pass the minimum of 38 K.V. A.C. at 60 cycles.

5.4 This can be done. Research readings however are made in a constant humidity - constant temperature room.

6. Storage

6.1 O.K. if it applies to us.

7.1 Does not apply to us.

7.2 Does not apply to us.

7.3 Does not apply to us.

7.4 Their sample I presume.

8. Rejections: -
This is up to sales, but I believe a second sample should be required before rejection.

In the foregoing, I have indicated that the Aroclor 1254 produced in the Anniston plant will meet most of the specifications offered. Item 3.4 is one that needs to be widened, not only to include our plant specifications but to give a leeway for the slight differences in viscosimeter readings of unstandardized orifices in commercial viscosimeters.

The changes in items 3.1 on color and 3.7 on volatility merely give us the privilege of shipping Aroclor of a better grade than is indicated by their brackets. We prefer only a top limit with zero or perfect as the other limit.

It is my intention in replying to this inquiry merely to indicate whether or not the Aroclor will pass the suggested tests. If it should be the desire of Cornell-Dubilier to draw up formal specifications, we should be allowed to submit some control specifications in line with our routine analyses and then arrive at some compromise.

I believe you can see from my comments that a set of specifications like these would mean that the laboratory would make routine tests at one temperature for our control tests and them bs required to run other tests at different temperature conditions for many of the items included herein.

In order that you may have our reply I am sending it on to you, with the suggestion that the plant manager and chief chemist be included in this approval by giving them the opportunity to agree to any specifications that

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may be desired. I am merely saying in my write-up that tests indicate the Aroclors will pass these tentative specifications with the recommended changes.

History certainly would be needed at the new test conditions before any agreements can be reached. Before you agree to their specifications as test conditions for the Aroclor 1254, I hope that we can negotiate some of our control tests into the specifications. Mr. Wheelock has our plant specifications and should be able to arrive at an agreement satisfactory to all.

A. M. Ellenburg

A. M. Ellenburg

pm

attach.

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C O P Y

Composition

1.1 Sterol "A" is a mixture of chlorinated diphenyls, predominantly pentachlor diphenyl, and containing approx. 54% of combined chlorine.

2. Drums shall be new, clean, "one time shippers," of sheet steel showing no rust.

3. Physical characteristics.

3.1 Color - Pale yellow, equal to Lovibond yellow, No.510. In one inch of Sterol A equals 0.5 to 1.0.

3.2 State: Viscous liquid at 20°C.

3.3 Specific Gravity at 25/25°C equals 1.543 to 1.550.

3.4 Viscosity -S.U.V. a 210°F equals 46-47 seconds
a 100°F equals 1800-2400 seconds

3.5 Flash & fire points - none.

3.6 Coef of Exp. (25-65°C) - 0.00066 cc/cc/°C.

3.7 Volatility - A.S.T.M. test D6-33 shows value 1.08 to 1.28 of loss.

4. Chemical Characteristics

4.1 Acid value as determined by A.S.T.M. D-188-27T shall be less than 0.10 mg. of KOH/gm sample.

4.2 Iodine value shall be nil.

4.3 Saponification number shall be nil. (A.S.T.M. Spec. D-94-28)

4.4 Iron Chloride (Ferrous and Ferric Chloride) shall be absent.

5. Electrical Characteristics of materials as received.
The electrical value shall be determined as soon as possible after taking of sample.

5.1 Insulation resistance: The insulation resistance may be measured by the A.S.T.M. D257-33. The volume resistivity is of principal interest and for this, the liquid is measured between co-axial cylinders, the conversion factor for which is known. The electrical equipment used, for accurate work, shall be a galvanameter with suitable shunts, a source of constant potential, and the other necessary accessory equipment. For general control work, an accurately calibrated vacuum tube voltmeter type "Megger" may be used.

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(Datum) 5.3.49

(Geschrieben) Cr
(Genehmigt) GM

Sterol "A" (Tentative) MEV-6023

STANDARD TELEPHON AND RADIO A. G. ZURICH (Blatt NR 1 2 Blatter)

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5.1.1 The minimum value of insulation resistance shall be 4.6×10^{13} ohm-cm at 25.5°C.

5.2 Power Factors: - The power factor shall be measured on a 1000 cycle bridge. The A.S.T.M. Designation D-150-36T shall be followed as closely as possible.

5.2.1 The P.F. Maximum shall be 0.08% (0.0008) at 25.5°C for the material.

5.3 Dielectric Strength: - The dielectric strength test shall be made, following A.S.T.M. Designation D-117-36.

5.3.1 Minimum dielectric strength shall be 38 K.V. A.C. 60 cycles.

5.4 Report of all electrical measurements shall be accompanied by relative humidity readings taken simultaneously.

6. Storage

6.1 All drums shall be stored indoors and shall be kept dry.

7.1 Samples from the Sterol A drums shall be taken from the tanks directly and as soon as possible after receipt.

7.2 A glass or aluminum thief shall be used.

7.3 The temperature of the sample shall be preferable above room temperature to avoid surface condensation of moisture.

7.4 A representative sample shall be taken of each drum load.

8. Rejections: -
If the material as received does not meet specifications it shall be rejected at the discretion of the inspectors.

C O P Y

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