MONSANTO CHEMICAL COMPANY
Monsanto, Illinois

CC: Messrs.
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J. F. Neff - Dept. 246
April 13, 1953 G. E. Russell - North Area
S. M. Kulifay - Laboratory

REF: Neff's Special Work Request to Kulifay, April 8, 1953.

Mr. J. W. Graves (5)
Office

SUB: AROCLOR 1254 - TCB MIXTURES
LABORATORY PILOT BATCH ANALYSES

In the subject work request, you indicated that the General Electric Company is interested in Monsanto's supplying a new Pyranol mixture similar to G. E. 1481. The mixture requested will have an equivalent of 2800 gallons of Aroclor 1254 to 800 gallons of Trichlorbenzene at standard reporting temperatures.

As you requested the W. G. K. Laboratory has made and analyzed pilot batches of this product using the highest and lowest gravity material available in order to produce the widest deviations that might be expected. You indicated that this information is to be used as a basis for working specification limits. For your convenience, a tabulation of the maximum and minimum values for each property obtained is listed with the G. E. 1481 specification. The attached tabulation also consists of data obtained on the analyses of the four pilot batches made in the Laboratory. The four batches represent all possible combinations of high and low gravity materials, listed as follows:

(1) the highest gravity of both 1254 and TCB,
(2) the lowest gravity of both 1254 and TCB,
(3) the highest gravity of 1254 and the lowest gravity of TCB,
(4) The lowest gravity of 1254 and the highest gravity of TCB.

These pilot batches were made up in a ratio of 2800 gallons of 1254 to 800 gallons of TCB (volumes were corrected to standard reporting temperatures). The Aroclor 1254 used had a gravity of 1.495 (Minimum Specification) and 1.505 (Maximum Specification). The TCB available, however, did not have as wide a gravity range. The TCB specification limits are 1.460 to 1.477 and the material used ranged from 1.465 to 1.468. These gravities represent the highest and lowest samples available.

All analyses were made by standard W. G. K. methods.

W. W. Klemme, Jr.

R. Kuster

W. J. Gresham

mr

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RESULTS

PROPERTY	HIGH Gr. 1254 HIGH Gr. TCB	LOW Gr. 1254 LOW Gr. TCB	LOW Gr. 1254 HIGH Gr. TCB	HIGH Gr. 1254 LOW Gr. TCB	MINIMUM AND MAXIMUM VALUES	G. E. 1481 SPECIFICATIONS SKETCH NO. H-9508964
Viscosity @ 100°F. (SUS)	97.4	87.6	89.7	94.9	87.6-97.4	70-80
Sp Gr @ 15.5°C	1.536	1.527	1.528	1.535	1.527-1.536	1.525 - 1.535
Condition	Clear	Clear	Clear	Clear	Clear	Clear
APHA	55	45	70	55	45 - 70	150, Maximum
Acid No. (mg KOH / gm.)	<0.001	0.002	0.002	0.002	<0.001-0.002	0.014, Max.
Pour Point	-18°C	-20°C	-16°C	-24°C	-24 to -16	-15°C Max.
Ref. Index @ 25°C	1.6231	1.6223	1.6225	1.6228	1.6223-1.6231	1.6205-1.6215
Resis. @ 100°C (ohm /cm^3, Min.)	6700 x 10^9	800 x 10^9	500 x 10^9	1750 x 10^9	500-6700 x 10^9	100 x 10^9 Min.
D. C. @ 100°C 1000 cycles	4.23	4.49	4.28	4.28	4.23-4.49	4.3 - 4.5
H_2O (ppm)	30	35	25	25	25 - 35	35 Maximum
Inorg. Cl. (ppm)	<0.10	<0.10	<0.10	<0.10	<0.10	0.10 Maximum
Corrosion	None *	None *	None *	None *	None *	None*
Condition	Clear	Clear	Clear	Clear	Clear	Clear
APHA	65	55	80	55	55-80	200 Maximum
Acid No (mg KOH / gm)	0.002	0.003	0.004	0.003	0.002-0.004	0.014 Maximum
Inorg Cl (ppm)	<0.10	0.10	<0.10	<0.10	<0.10-0.10	0.10 Maximum
Dist: (by weight)						
First Drop	218°C	218°C	220°C	219°C	218-220°C	205°C Min.
Below 270°C	16 %	15 %	17 %	16 %	15 - 17 %	25 Maximum
90%	381°C	379°C	379°C	382°C	379-381°C	380 - 395°C

* After heating with aluminum for 6 hrs. @ 210°C ± 10°C., the aluminum must not be corroded either on visual or weight inspection and the Pyranol should meet the following specifications:

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