Monsanto

AROCLOR* HDK-1

Technical Data Sheet
April 25, 1960

DEVELOPMENT DEPARTMENT
MONSANTO CHEMICAL COMPANY

ORGANIC CHEMICALS DIVISION
ST. LOUIS 66, MISSOURI

TO ASSIST YOU IN THE EVALUATION OF THE ABOVE PRODUCT, WE HAVE OBTAINED THE INFORMATION CONTAINED IN THIS BULLETIN FROM LITERATURE SOURCES AND PRELIMINARY INVESTIGATION IN OUR OWN LABORATORIES. WHILE WE BELIEVE THE INFORMATION IS ACCURATE, WE ASSUME NO RESPONSIBILITY AND DISCLAIM ANY LIABILITY INCURRED IN USING THESE DATA OR SUGGESTIONS. ONLY QUALIFIED TECHNICAL PERSONNEL SHOULD WORK WITH THIS PRODUCT UNTIL SUBSEQUENT STUDIES JUSTIFY ITS USE IN YOUR PRODUCTS OR PROCESSES. OBVIOUSLY NOTHING IN THIS BULLETIN SHOULD BE CONSTRUED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIAL OR ITS USE.

Aroclor HDK-1 is a chlorinated biphenyl product, similar chemically to Monsanto's other Aroclor products in the 1200 series. It was developed to provide the electrical industry with an Aroclor product with a higher dielectric constant than is now available, and was designed to be comparable in all other respects to Aroclor 1242. Listed below is a comparison between the physical and electrical properties (typical) of Aroclor 1242 and Aroclor HDK-1.

	Aroclor 1242	Aroclor HDK-1
Form	Practically colorless mobile oil	Practically colorless mobile oil
Color, APHA Scale	30	10
Total Acid Number, Mg. KOH/g.	0.001	0.002
Inorganic Chlorides, ppm.	NDA	NDA
Refractive Index at 25°C.	1.6249	1.6218
Pour Point, °C.	-19	-20
Water, ppm.	29	35
Distillation, °C., Corrected:		
10% (by weight)	330	322
90% (by weight)	353	341
Monsanto Stability Test, ppm. Cl	0.15	0.18
Hydrolysis Stability Test, ppm. Cl	0.21	0.14
Flash Point - Cleveland Open Cup	348 - 356°F.	340°F.
Total Organic Chlorine, %	42.0	40.0

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	Aroclor 1242	Aroclor HDK-1
Specific Gravity (by hydrometer)		
at 25°C.	1.389	1.357
at 50°C.	1.362	1.336
at 75°C.	1.334	1.316
at 100°C.	1.306	1.288
Viscosity		
at 100°F.	17.2 cs	12.68 cs
at 130°F.	8.0 cs	6.26 cs
at 210°F.	2.5 cs	2.06 cs

Dielectric Constant As A Function Of Temperature And Frequency:

Aroclor 1242

Temp.°C.	60 cy.	1kc.	10 kc.	100 kc.
100	4.90	4.90	4.90	4.90
50	5.52	5.52	5.52	5.52
25	5.85	5.85	5.85	5.85
0	6.20	6.20	6.20	6.20
-20	6.65	6.65	6.00	3.60
-25	6.80	6.40	4.00	3.00
-50	2.95	2.75	2.75	2.75

Aroclor HDK-1

Temp.°C.	60 cy.	1kc.	10 kc.	100 kc.
100	5.55	5.55	5.55	5.55
50	6.31	6.30	6.30	6.30
25	6.77	6.76	6.77	6.77
0	7.34	7.34	7.36	7.36
-20	7.89	7.83	7.81	6.49
-25	8.04	7.96	7.84	5.36
-50	3.15	2.86	2.80	2.79

Power Factor As A Function Of Temperature And Frequency:

Aroclor 1242

Temp.°C.	60 cy.	1kc.	10 kc.	100 kc.
100	6.00	0.50	0.10	0.10
50	3.50	0.30	0.10	0.10
25	2.50	0.10	0.10	0.10
0	0.80	0.30	0.10	1.50
-20	0.40	3.00	19.00	25.00
-25	1.00	12.50	31.50	12.00
-50	5.50	1.00	0.40	0.30

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Aroclor HDK-1

Temp.°C.	60 cy.	1kc.	10 kc.	100 kc.
100	* 6.80	0.80	0.10	0.30
50	3.30	0.20	0.10	0.20
25	2.50	0.10	0.10	0.10
0	0.60	0.30	0.10	0.10
-20	0.89	0.32	3.28	29.30
-25	0.80	1.30	7.00	26.90
-50	12.10	2.90	0.60	0.90

* One additional treatment with 1% Attapulgus earth lowered the power factor to 1.4% and raised the resistivity to 4600 x 10^9 ohm-cm at 100°C.

Resistivity As A Function Of Temperature:

	Resistivity (ohm-cm)	
Temp.°C.	Aroclor 1242	Aroclor HDK-1*
100	1000 x 10^9	2,500 x 10^9
50	3800 x 10^9	14,000 x 10^9
25	7000 x 10^9	22,000 x 10^9

* Laboratory treated sample.

	Aroclor 1242	Aroclor HDK-1
Dielectric Strength at 25°C.	40-45 KV	43 KV

Toxicity

Physiological properties of this material have not been determined. Animal toxicity data obtained with analogous compounds indicate that repeated and prolonged skin contact should be avoided. Further, if the material is heated so that volatilization occurs, inhalation of vapors should be avoided.

MMcE:eh
4/25/60 - 100

Attachments (2)

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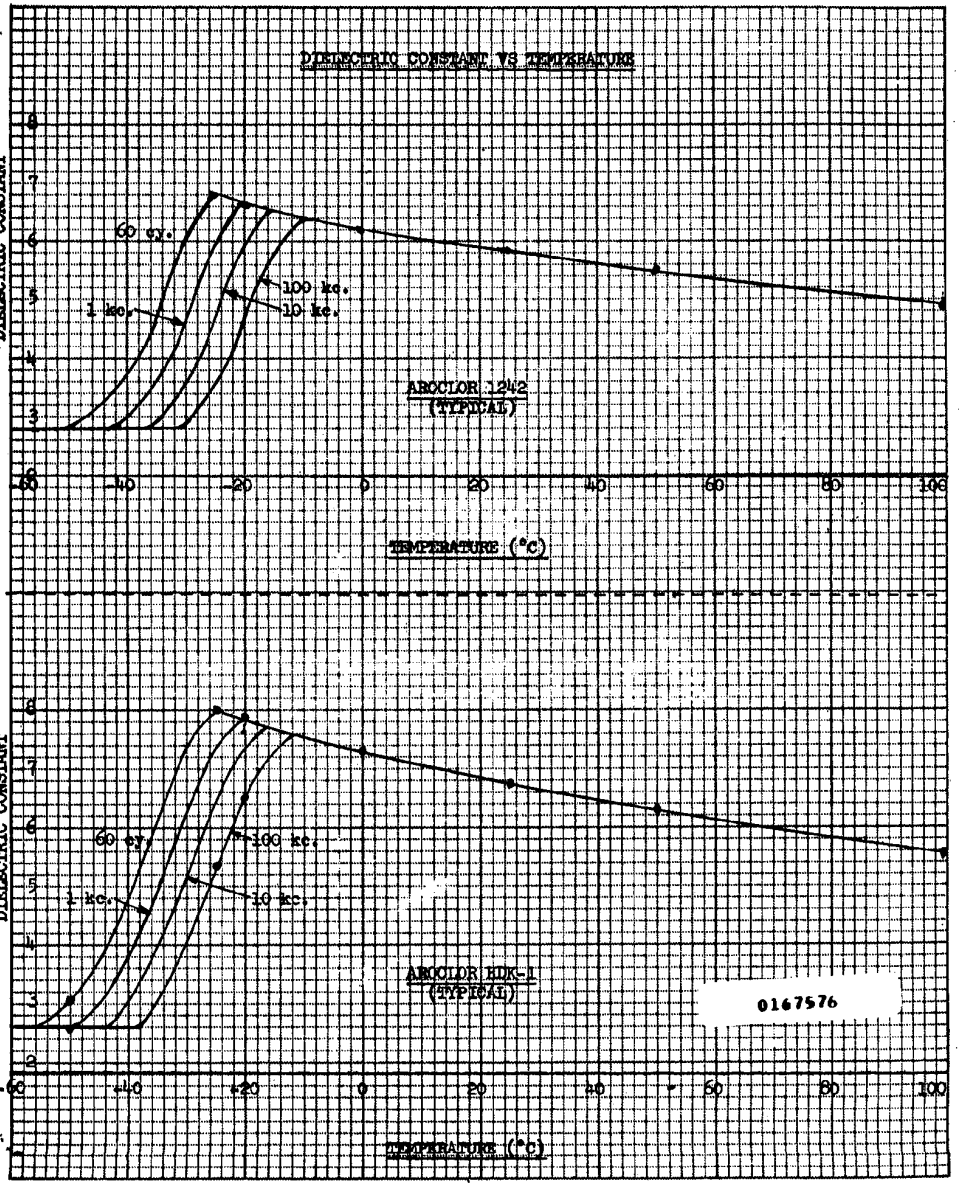

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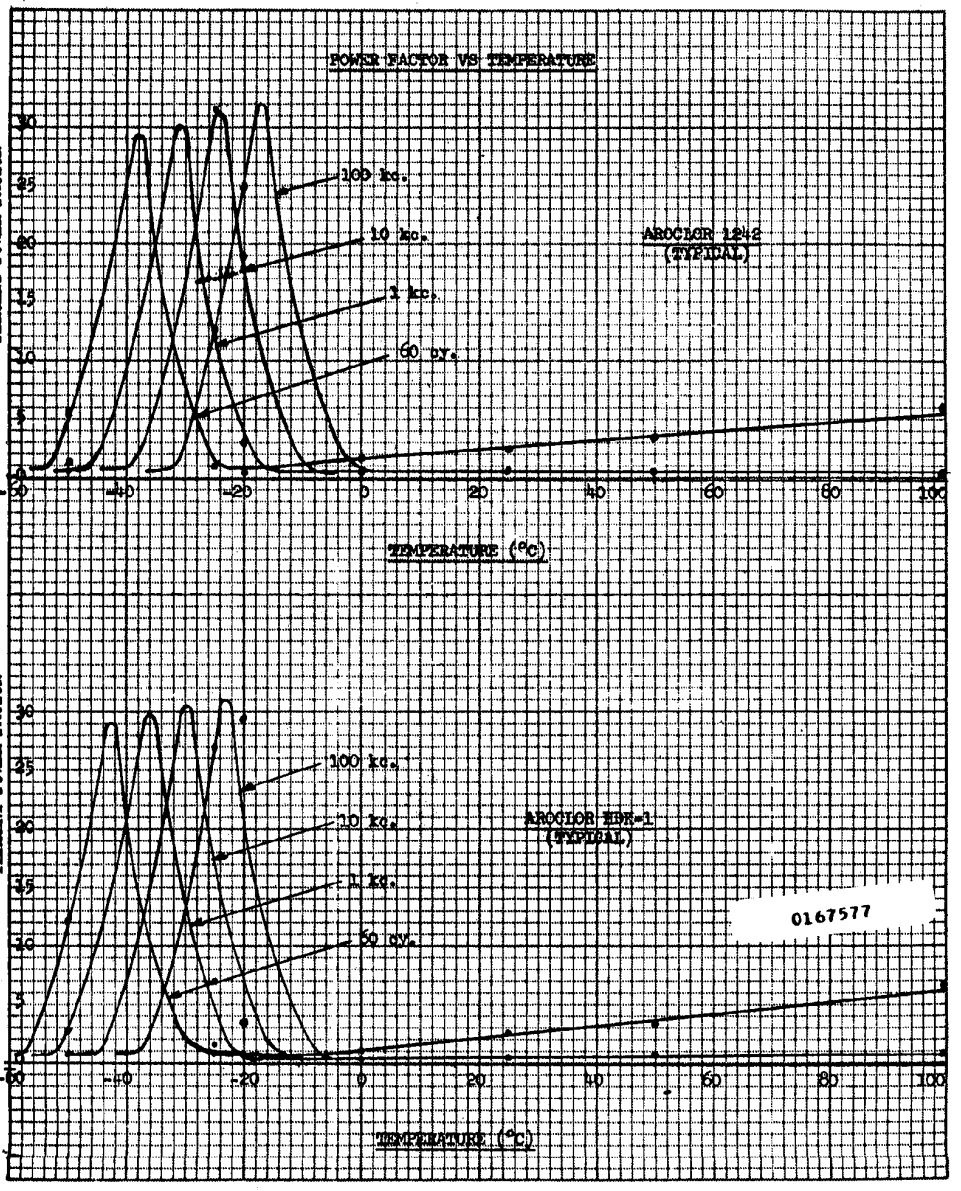

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