PROPERTIES OF DIELECTRIC FLUIDS AND SYSTEMS

	Aroclor 1016	MCS 1489	MCS 1475
	Data on Fluids		
Spg. 25°c/25°C	1.368	1.348	.988
DK 25°C	5.9	8.1	6.2
100°C	4.85	6.5	5.0
tan δ 60 Hz 100°C	.0025	.05	.1
R_s 100°C x $10^9\Omega$ cm	150,000	2,000	500
Viscosity, cs @ 100°F	14.27	21.5	26.36
@ 210°F	2.12	2.54	4.33
Flash Point °F	358°	358°	432°
Fire Point °F	None to BP (620)	610	495
AIT °F	1185	1125	730
	Data on 2 μF Capacitors* Impregnated with Above Fluid		
Capacitance @ 25°C	1.95	2.20	1.95
Dissipation Factor @ 25°C	.00336	.00395	.00339
Capacitance @ 90°C	1.83	2.07	1.84
Dissipation Factor @ 90°C	.0032	.0033	.0032

* Standard 2 μF, 585 VAC Capacitors, 2 layers 0.00066, 0.90 density paper, 0.3% Unox 221 added.

MONS 077315

CAPACITOR FLUIDS

MCS 1043 (A mono, di, trichlorobiphenyl blend)

Advantages:

Life test results in capacitors at G.E. are superior to even Aroclor 1016

Biodegradability:	MCS 1043	56% ± 16%
	Aroclor 1016	33% ± 14%
	Aroclor 1242	26% ± 15%

Could be produced in present plant whenever there is a need.

Disadvantages:

Less fire resistant than Aroclor 1016

Still a chlorinated biphenyl

Assessment:

This product was designed to have the same excellent electrical performance as Aroclor 1016. It could be made available on short notice and might well be the best logical choice if 1016 is ruled out.

MCS 1238 (Sulfone - Hydrocarbon)

Advantages:

Shows good life test results in paper capacitors at G.E. and at other outside labs, and in both paper and polypropylene film capacitors here.

Contains no halogen

Biodegradation 70%

Disadvantages:

Not fire resistant

Cost is greater than ester blends

Assessment:

Probably the best all round non-PCB substiture for Aroclor 1016 except for price.

MCS 1475 (Sulfone-Phthalate Ester Blend)

Advantages:

- Shows good life test results here and at outside labs.
- Contains no halogen
- Same design can be used as is used for Aroclor 1016
- Biodegradable 60%
- Not likely to be concentrated in food chain
- Lowest cost replacement for 1016

Disadvantages:

- Not fire resistant
- Life test perhaps not quite as good as Aroclor 1016

Assessment:

For most users should be preferable to DOP and all other currently available fluids if they must use a non-PCB material with lowest cost at only slight sacrifice in life.

MCS 1489 (Sulfone-Aroclor 1016 Blend)

Advantages:

- Shows good life test results in paper capacitors here and at outside labs
- Permits reducing paper and foil by 11%
- Permits 6% material cost saving in 30 μF motor start-run capacitors
- Should be an important factor in conserving scarce paper and foil

Disadvantages:

- 90% PCB

Assessment:

This product is designed to produce the lowest possible cost impregnated paper capacitors with same excellent performance that Aroclor 1016 has.

MCS 1043

TYPICAL PROPERTIES

Color (APHA)	10
Condition	Clear
Sp. Gr. @ 25/15.5°C.	1.243
Total Acid Number, mg. KOH/g.	0.001
Inorganic Chlorides, ppm	0.03
Dielectric Constant @ 100°C., 60 Cycles	4.9
Resistivity @ 100°C., ohm/c/ @ 500 VDC 1 min. Electrification 0.1 inch gap	> 500
Refractive Index @ 25°C.	1.6151
Pour Point, °C.	-28
Water, ppm	25
Distillation, °C., Corrected:	
10% (by weight)	297°C
90% (by weight)	310°C
ASTM D1936	0.15
ASTM D1820	0.26
ASTM D2441	0.44
Thermal Chemical Chlorides	0.14
Viscosity @ 100°F (SUS)	44.2
Dielectric Strength @ 25°C	>50 KV

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MCS 1043

