UniSource Energy, Inc. Electrical Insulating Oils Typical Properties				
Supplier Name		Specification		**UNISOURCE**
Product Name		D 3487		**UNISHIELD®**
		Type II		**62 TOM**
PHYSICAL PROPERTIES	**ASTM METHOD**			
Aniline Point, ℃(℉)	D 611	63 to 84 Typ.		89.2
Color	D 1500	0.5 max.		L 0.5
Flash Point, COC, ℃(℉)	D 92	145 (293)min.		168 (334)
Interfacial tension @ 25℃,				
dynes/centimeter	D 971	40 min.		43
Pour Point, ℃(℉)	D 97	-40(-40)max.		-57 (-71)
Spec.Gravity @ 15℃/15℃	D 1298	0.910 Max		0.867
Viscosity, SUS (cSt) @	D 88/D 445			
210℉ (100℃)		36 (3.0) max.		34.8 (2.59)
104℉ (40℃)		66 (12) max		59.3 (10.13)
32℉ (0℃)		350 (76) max.		273 (63.9)
Viscosity, cSt @ -40 C				3734
Visual Appearance	D1524	B & C		B & C
CHEMICAL PROPERTIES				
Corrosive sulfur	D 1275B	Non-corrosive		Non-corrosive
Corrosive sulfur, Tarnish Level	D 130			2e
Total Sulfur, ppm	D 4294			1.0
Moisture, ppm	D 1315/D 1533	35 max.		22
Neut. Number, mg KOH/g	D 974	0.03 max.		< 0.01
Oxidation stability				
Method A (acid/sludge)	D 2440			
72 hours				
sludge, mass %		0.1 max.		0.02
Neut. value, mg KOH/g		0.3 max.		< 0.01
164 hours				
sludge, mass %		0.2 max.		0.01
Neut. value, mg KOH/g		0.4 max.		< 0.01
Method B (rotating bomb)	D 2112	195 min.		436
PCB Content	D 4059	ND		ND (< 2 ppm)
ELECTRICAL PROPERTIES				
Dielectric breakdown voltage@ 60 hz				
Disc electrodes, kV	D 877	30 min.		50
VDE electrodes, 0.04 in gap, kV	D 1816(a)	20 min.		30
Dielectric breakdown voltage				
- impulse, 25℃, kV				
Needle Negative to Sphere	D 3300	145 min.		> 300
Grounded, 25.4 mm gap, kV				
Power Factor @ 60 Hz, %	D 924			
@ 25℃		0.05 max.		0.014
@ 100℃		0.30 max.		0.147
Gassing tendency, µl/min,	D 2300	30 Max		-6.9
Chemical Abstract #				64742-55-8
				Oct-07

Product contains < 0.3wt% Inhibitor (2,6-ditertiaryl butyl paracresol) and is an ASTM Type II fluid.