

UniSource Energy, Inc.
Electrical Insulating Oils
Typical Properties



Supplier Name	Specification	UNISOURCE
Product Name	D 3487 Type I	UNISHIELD® 61 TOM

PHYSICAL PROPERTIES	ASTM METHOD		
Aniline Point, °C(°F)	D 611	63 Min.	89.2
Color	D 1500	0.5 max.	L 0.5
Flash Point, COC, °C(°F)	D 92	145 (293)min.	168 (334)
Interfacial tension @ 25°C, dynes/centimeter	D 971	40 min.	43
Pour Point, °C(°F)	D 97	-40(-40)max.	-57 (-71)
Spec.Gravity @ 15°C/15°C	D 1298	0.910 Max	0.867
Viscosity, SUS (cSt) @ 210°F (100°C)	D 88/D 445	36 (3.0) max.	34.8 (2.59)
104°F (40°C)		66 (12) max	59.3 (10.13)
32°F (0°C)		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 %		0.15 max.	0.02
Neut. value, mg KOH/g		0.5 max.	< 0.01
164 hours			
sludge, mass %		0.3 max.	0.01
Neut. value, mg KOH/g		0.6 max.	< 0.01
Method B (rotating bomb)	D 2112		200
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°C, kV			
Needle Negative to Sphere	D 3300	145 min.	> 300
Grounded, 25.4 mm gap, kV			
Power Factor @ 60 Hz, %	D 924		
@ 25°C		0.05 max.	0.014
@ 100°C		0.30 max.	0.147
Gassing tendency, µl/min,	D 2300	30 Max	-6.9

Chemical Abstract #

64742-55-8

Oct-07

Product contains < 0.08 wt% Inhibitor (2,6-ditertiaryl butyl paracresol) and is an ASTM Type I fluid.