TOER II (Electrical Insulating Oil)

This electrical insulating oil is produced from a severely hydrotreated naphthenic oil to meet the specification requirements defined in ASTM D 3487. Products have very low pour points and excellent oxidation stability.

	TEST DESCRIPTION			TEST METHOD	SPECIFICATIONS		MARKETING VALUES
					Min	Max	
	Physical Properties						
1	Viscosity,SUS at 37.8℃			ASTM D 445		66.0	59.2
2	Viscosity,SUS at 98.9℃			ASTM D 445		36.0	34.0
3	Viscosity,cSt at 0℃			ASTM D 445		76.0	64.2
4	Viscosity,cSt at 40℃			ASTM D 341		12.0	9.3
5	Viscosity,cSt at 100℃			ASTM D 341		3.0	2.3
6	Specific Gravity,15.6℃			ASTM D 4052		0.9100	0.8862
7	Flash Point,COC,℃			ASTM D 92	145		155
8	Color,ASTM			ASTM D 6045		0.5	L0.5
9	Pour Point,℃			ASTM D 5949		-40	-64
10	Aniline Point,℃			ASTM D 611	63.0	84.0	74.7
11	Interfacial Tension,25℃,dynes,cm			ASTM D 971	40		51
12	Visual Examination			ASTM D 1524	Clear&Bright		Clear&Bright
	Electrical Properties						
1	Dielectric Breakdown at 60Hz,Disk electrodes,kV			ASTM D 877	30		40
2	Dielectric Breakdown at 60Hz,VDE,kV(2.03-mm) gap			ASTM D 1816	35		47
3	Power Factor at 60 Hz,25℃,%			ASTM D 924		0.05	0.005
4	Power Factor at 60 Hz,100℃,%			ASTM D 924		0.30	0.075
5	Gassing Tendency, μL/min			ASTM D 2300		30	12
	Chemical Properties						
1	Oxidation Stability	72 hr	Sludge,% by mass	ASTM D 2440		0.1	<0.01
			Total Acid Number,mg KOH/g			0.3	<0.01
		164 hr	Sludge,% by mass			0.2	<0.01
			Total Acid Number,mg KOH/g			0.4	<0.01
2	Oxidation Stability (Rotating Bomb Test), minutes			ASTM D 2112	195		248
3	Oxidation inhibitor Content,wt%			ASTM D 2668	0.15	0.30	0.26
4	Corrosive Sulfur			ASTM D 1275 (B)	Noncorrosive		Noncorrosive
5	Water Content,ppm			ASTM D 1533		35	9
6	Neutralization Number,mg KOH/g			ASTM D 974		0.03	<0.01
7	PCB Content,ppm			ASTM D 4059		Not detected	Not detected
	Health, Safety and Environment						
1	Polycyclic Aromatic Compounds,wt%			IP 346		3	<3
2	Modified Ames Assay			ASTM E 1687	PASS		PASS
3	FDA Regulation			21 CFR 178.3620 (C)	PASS		PASS