

## HyVolt I US

### Dielectric Fluid Marketing Specification

This dielectric fluid is produced from a severely hydrotreated naphthenic oil to meet the specification requirements defined in ASTM D3487, Type I standard. HyVolt products have very low pour points and excellent oxidation stability.

TEST DESCRIPTION	TEST METHOD	SPECIFICATIONS		TYPICAL VALUES
		MIN	MAX	
<b>Physical Properties</b>				
Viscosity, cSt at 100°C	ASTM D445		3.0	2.4
Viscosity, cSt at 40°C	ASTM D445		12.0	9.6
Viscosity, cSt at 0°C	ASTM D445		76.0	65.2
Specific Gravity, 15°C/15°C	ASTM D4052		0.9100	0.8836
Flash Point, COC, °C	ASTM D92	145		155
Color, ASTM	ASTM D6045		0.5	L0.5
Pour Point, °C	ASTM D5950		-40	-48
Aniline Point, °C	ASTM D611	63		78
Interfacial Tension, 25°C, dynes/cm	ASTM D971	40		48
Visual Examination, 25°C	ASTM D1524	Clear & Bright		Clear & Bright
<b>Electrical Properties</b>				
Dielectric Breakdown at 60 Hz, Disk electrodes, kV	ASTM D877	30		42
Dielectric Breakdown at 60 Hz, VDE, kV (1.0-mm) gap	ASTM D1816	20		25
Dielectric Breakdown at 60 Hz, VDE, kV (2.0-mm) gap	ASTM D1816	35		46
Impulse Breakdown Voltage, kV at 25°C	ASTM D3300	145		>300
Power Factor at 60 Hz, 25°C, %	ASTM D924		0.05	0.010
Power Factor at 60 Hz, 100°C, %	ASTM D924		0.30	0.088
Gassing Tendency, µL/min	ASTM D2300		30	12
<b>Chemical Properties</b>				
Oxidation Stability, 110°C	ASTM D2440			
72 hr: Sludge, % by mass			0.15	<0.01
Total Acid Number, mg KOH/g			0.50	<0.01
164 hr: Sludge, % by mass			0.30	0.01
Total Acid Number, mg KOH/g			0.60	0.03
Oxidation Inhibitor Content, wt%	ASTM D2668		0.08	0.07
Corrosive Sulfur	ASTM D1275	Noncorrosive		Noncorrosive
Water Content, ppm	ASTM D1533		35	14
Neutralization Number, mg KOH/g	ASTM D974		0.03	<0.01
PCB Content, ppm	ASTM D4059	Not Detected		Not Detected
Furanic Compounds, µg/L	ASTM D5837		25	1
<b>Health and Safety Properties (not an ASTM D3487 requirement)</b>				
Polycyclic Aromatic Compounds, wt%	IP 346		3	<3
Modified Ames Assay, MI	ASTM E1687		1	<1
FDA Regulation	21 CFR 178.3620 (C)	PASS		PASS