

# HyVolt SE

## Synthetic Ester Dielectric Fluid Marketing Specification

HyVolt SE is a high-performance synthetic ester fluid developed for use as a dielectric and cooling medium in new and existing power and distribution electrical apparatuses such as transformers and other equipment. HyVolt SE is a readily biodegradable high fire point fluid exceeding the requirements defined in IEC 61099 and ASTM D8240 standards.

TEST DESCRIPTION	TEST METHODS		SPECIFICATIONS		TYPICAL VALUES
	IEC 61099	ASTM D8240	MIN	MAX	
<b>Physical Properties</b>					
Viscosity at 100°C, mm <sup>2</sup> /s		ASTM D445		10	5.1
Viscosity, cSt at 40°C, mm <sup>2</sup> /s	ISO 3104	ASTM D445		35.0	<30
Viscosity, cSt at -20°C, mm <sup>2</sup> /s	ISO 3104	ASTM D445		3000	<1500
Density at 20°C, kg/dm <sup>3</sup>	ISO 12185/ISO 3675			1	0.97
Flash Point, °C		ASTM D92	250		>260
Flash Point, °C	ISO 2719		250		>250
Fire Point, °C	ISO 2592	ASTM D92	300		316
Color	ISO 2211	ASTM D2129		200 Hazen	125
Pour Point, °C	ISO 3016	ASTM D5950		-45	-56
Appearance	Visual	ASTM D1524	Clear & Bright		Clear & Bright
Biodegradability	OECD 301B	OECD 301B	Readily Biodegradable		Readily Biodegradable
Crystallization	IEC 61099 (2010 Annex A)		No Crystals		No Crystals
Specific Gravity		ASTM D1298		1	0.96
<b>Electrical Properties</b>					
Dielectric Breakdown, Voltage at 60 Hz, kV	IEC 60156		45		>75
Power Factor at 50 Hz, 90°C	IEC 60247			0.03	<0.008
Power Factor at 60 Hz, 25°C, %		ASTM D924		0.10	0.06
Power Factor at 60 Hz, 100°C, %		ASTM D924		3.00	1.40
DC Resistivity at 90°C, GΩm	IEC 60247		2		>10
Dielectric Breakdown, Voltage, VDE electrodes, kV		ASTM D1816			
1.0-mm gap			20		34
2.0-mm gap			35		52
Impulse Breakdown Voltage, kV		ASTM D3300	110		135
<b>Chemical Properties</b>					
Water Content, ppm	IEC 60814	ASTM D1533		200	50
Neutralization Number, mg KOH/g	IEC 62021-1 or IEC 62021-2	ASTM D974		0.03	<0.03
Oxidation Stability (164 hours)	IEC 61125 C				
Total Acidity (mg KOH/g)				0.3	0.02
Total Sludge (% mass)				0.01	<0.01
Corrosive Sulfur		ASTM D1275	Noncorrosive		Noncorrosive
PCB Content, mg/kg		ASTM D4059	Not Detected		Not Detected