

HyVolt I

Dielectric Fluid Oil Marketing Specification

This Type B, TVBU uninhibited electrical insulating oil is produced from a severely hydrotreated naphthenic oil exceeding the general specifications of uninhibited standard grade oils as defined in IEC 60296, ed. 5, 2020.

TEST DESCRIPTION	TEST METHOD	SPECIFICATIONS		TYPICAL VALUES
Function		MIN	MAX	
Viscosity, mm ² /s at 40°C	ISO 3104		12.0	9.7
Viscosity, mm ² /s at -30°C	ISO 3104		1800	941
Pour Point, °C	ASTM D5950		-40	-49
Water Content, mg/kg	IEC 60814		30	13
Breakdown Voltage, kV, Before Treatment, 2.5 mm	IEC 60156	30		52
Breakdown Voltage, kV, After Treatment, 2.5 mm	IEC 60156	70		72
Density at 20°C, kg/m ³	ISO 12185		0.895	0.871
DDF at 90°C	IEC 60247		0.005	0.001
Refining/Stability				
Color	ISO 2049		1.5	L0.5
Appearance	IEC 60296	PASS		PASS
Acidity, mg KOH/g	IEC 62021-1		0.01	<0.01
Interfacial Tension, mN/m	ASTM D971	40		47
Corrosive Sulfur	DIN 51353	Noncorrosive		Noncorrosive
Corrosive Sulfur	ASTM D1275	Noncorrosive		Noncorrosive
Potentially Corrosive Sulfur	IEC 62535	Noncorrosive		Noncorrosive
DBDS, mg/kg	IEC 62697-1	Not detected (<5)		Not detected
Inhibitors, %	IEC 60666	Not detected (<0.01)		Not detected
Metal Passivator Additives, mg/kg	IEC 60666	Not detected (<5)		Not detected
Other Additives	IEC 60296	See ^a		Not detected
Furfural Content, mg/kg	IEC 61198	Not detected (<0.05)		Not detected
Performance				
Oxidation Stability at 120°C, 164 hours	IEC 61125, C			
Total Acidity, mg KOH/g			1.2	0.7
Sludge, %			0.8	0.2
DDF at 90°C			0.500	0.044
Health, Safety and Environment				
Flash Point, PMCC, °C	ISO 2719	135		144
PCA Content, %	IP 346		3	<3
PCB Content, mg/kg	IEC 61619	Not detected (<2)		Not detected

HyVolt I is a product of Ergon Refining, Inc.

^a As per IEC 60296, ed. 5, 2020, this product contains no undeclared additives.
August 8, 2024

HyVolt III

Dielectric Fluid Marketing Specification

This Type A, TVAL inhibited dielectric fluid is produced from a severely hydrotreated naphthenic oil meeting the general specifications of Table 3 for high grade oils as defined in IEC 60296, ed. 5, 2020.

TEST DESCRIPTION	TEST METHOD	SPECIFICATIONS		TYPICAL VALUES
Function		MIN	MAX	
Viscosity, mm²/s at 40°C	ISO 3104		12.0	9.6
Viscosity, mm²/s at -30°C	ISO 3104		1800	885
Pour Point, °C	ASTM D5950		-40	-53
Water Content, mg/kg	IEC 60814		30	14
Breakdown Voltage, kV, Before Treatment, 2.5 mm	IEC 60156	30		55
Breakdown Voltage, kV, After Treatment, 2.5 mm	IEC 60156	70		75
Density at 20°C, kg/m³	ISO 12185		0.895	0.869
DDF at 90°C	IEC 60247		0.005	0.0004
Refining/Stability				
Color	ISO 2049		L0.5	L0.5
Appearance	IEC 60296	PASS		PASS
Acidity, mg KOH/g	IEC 62021-1		0.01	<0.01
Interfacial Tension, mN/m	ASTM D971	43		48
Corrosive Sulfur	DIN 51353	Noncorrosive		Noncorrosive
Corrosive Sulfur	ASTM D1275	Noncorrosive		Noncorrosive
Potentially Corrosive Sulfur	IEC 62535	Noncorrosive		Noncorrosive
DBDS, mg/kg	IEC 62697-1	Not detected (<5)		Not detected
Inhibitors, %	IEC 60666	0.08	0.40	0.38
Metal Passivator Additives, mg/kg	IEC 60666	Not detected (<5)		Not detected
Other Additives	IEC 60296	See ^a		Not detected
Sulfur, wt%	ISO 14596		0.05	0.001
Furfural Content, mg/kg	IEC 61198	Not detected (<0.05)		Not detected
Stray Gassing	IEC 60296 Clause A.4 ^b			
Hydrogen, µl/l		Non-stray gassing (<50)		<5
Methane, µl/l		Non-stray gassing (<50)		<5
Ethane, µl/l		Non-stray gassing (<50)		<1
Performance				
Oxidation Stability at 120°C, 500 hours	IEC 61125, C			
Total Acidity, mg KOH/g			0.30	0.05
Sludge, %			0.05	0.01
DDF at 90°C			0.050	0.013
Health, Safety and Environment				
Flash Point, PMCC, °C	ISO 2719	135		146
PCA Content, %	IP 346		3	<3
PCB Content, mg/kg	IEC 61619	Not detected (<2)		Not detected

HyVolt III is a product of Ergon Refining, Inc.

^a As per IEC 60296, ed. 5, 2020, this product contains no undeclared additives.

^b Oil saturated with air in the presence of copper.

August 15, 2024