



ENVIROTEMP™ SYNTHETIC ESTER FLUID

Envirotemp™ 200 fluid

THE SYNTHETIC ESTER SOLUTION.

Envirotemp 200 synthetic ester fluid is a less flammable dielectric liquid ideally suited for use in free-breathing transformers (both new and retrofill) and is also proven in traction transformers. Envirotemp 200 fluid has been thoroughly evaluated and conforms to IEC 61099 “Specifications for Unused Synthetic Organic Esters for Electrical Purposes”.

Envirotemp 200 is a robust fluid that provides long-term stability even when exposed to extreme temperature variations. It offers increased fire safety, high temperature performance, superior moisture tolerance and greater environmental protection.

Enhanced transformer performance

Envirotemp 200 is uniquely formulated to enhance transformer performance under all types of conditions.

- Excellent thermal and lubricity properties at both high and normal operating temperatures.
- Unique formulation with a pour point below -50°C enables application in extremely cold climates.

Thoroughly evaluated and certified

Envirotemp 200 has been thoroughly evaluated, and conforms to IEC 61099 “Specifications for Unused Synthetic Organic Esters for Electrical Purposes.”

- Keeps the cellulose paper drier – slowing the aging rate of the solid insulation system.
- Enables application within compact transformers.

Improved environmental protection

Envirotemp 200 is an environmentally superior alternative to mineral oil and silicone because it is classified as readily biodegradable (OECD 301) and non-hazardous in water and soil.

Superior moisture tolerance

Envirotemp 200 can absorb significantly more water than mineral oil before reaching saturation while still maintaining its dielectric strength.

- Keeps the cellulose paper drier – slowing the aging rate of the solid insulation system.
- Enables application within compact transformers.

High fire point delivers increased fire safety

Envirotemp 200 fluid is ideally used in applications such as densely populated areas where fire safety is a top priority, including enclosed spaces and transformers positioned in close proximity to people and/or other equipment.

- Its high fire point (310°C vs 160°C for mineral oil) and excellent heat transfer characteristics make it an inherently ignition-resistant fluid.
- Enables organizations reduce or even eliminate fire mitigation systems.

Long-term stability under extreme temps

Envirotemp 200 is a robust fluid that provides long-term stability even when exposed to extreme temperature variations.

It also possesses excellent oxidation stability.

Envirotemp™ 200 fluid values and specification units

PROPERTY	TEST METHOD	IEC 61099 PERMISSIBLE VALUES	TYPICAL
PHYSICAL			
Colour	ISO 2211 ISO 2049	≤ 200 Hazen	≤ 200 Hazen 0,5
Appearance	Visual clear, free from water, suspended matter and sediment		
Density at 20 °C (kg/dm ³)	ISO 3675, ISO 12185	≤ 1000	972
Kinematic viscosity (mm ² /s)	ISO 3104		
100 °C			5,6
40 °C		≤ 35	31
-20 °C		≤ 3000	1500
Flash-point (°C)	ISO 2719	≥ 250	>250
Fire-point (°C)	ISO 2592	≥ 300	>300
Pour-point (°C)	ISO 3016	≤ -45	<-45
CHEMICAL			
Water content (mg/kg)	IEC 60814	≤ 200 ^a	<90
Acidity (mg KOH/g)	IEC 62021 -1, IEC 62021 -2	≤ 0,03	0,01
Oxidation stability, 164 h	IEC 61125, Method C		
Total acidity (mg KOH/g)		≤ 0,3	0,25
Total sludge (% mass)		≤ 0,01	0,005
ELECTRICAL			
Break down voltage (kV)	IEC 60156	≥ 45 ^a	>60
Dielectric dissipation factor (tan δ)	IEC 60247, IEC 61620		
90 °C and 50 Hz		≤ 0,03 ^a	0,02
DC resistivity at 90 °C (GΩ·m)	IEC 60247	≥ 2	10

^a for untreated liquid, as received

Since its introduction, there has not been a reported fire-related failure of an Envirotemp 200 fluid-filled transformer.



Because of its fire-resistant characteristics, Envirotemp 200 fluid is ideally used in applications such as densely populated areas where fire safety is a top priority, including enclosed spaces and transformers positioned in close proximity to people and/or other equipment.

- The high fire point (310°C vs 160°C for mineral oil) and excellent heat transfer characteristics of the fluid make it an inherently ignition-resistant material.
- Transformers filled with this less-flammable fluid can enable organizations to reduce or even eliminate fire mitigation systems.

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Envirotemp™ 200 fluid is a Cargill product.