



AN HF SINCLAIR BRAND

TECH DATA

LUMINOL™ LS

LOW SCENT/LOW ODOUR HIGH-EFFICIENCY ELECTRICAL INSULATING OIL

INTRODUCTION

LUMINOL™ Outperforms Naphthenic Electrical Insulating Oils

Petro-Canada™ Lubricants' LUMINOL family represents a breakthrough in electrical insulating oils technology. Unlike naphthenic mineral oils, LUMINOL uses Petro-Canada Lubricants' ultra-pure severely hydrotreated iso-paraffin base oils to help minimize power loss and maximize productivity. These oils contain no corrosive sulphur that may lead to transformer breakdown.

LUMINOL oils withstand energy spikes and hot and cold weather extremes, better than naphthenic electrical insulating oils. Thanks to a naturally high oxidation stability, LUMINOL oils resist breakdown longer and help provide extended service life. So less money is spent on routine transformer maintenance and fluid top-up, and less time worrying about transformer efficiency.

LUMINOL LS provides the additional benefits with its low odour characteristic. It minimizes the typical scent of an electrical insulating oil to address additional health concerns when dealing with hot transformer equipment or with an equipment environment where there is limited ventilation.

As usual, LUMINOL LS also delivers worry-free, corrosive sulphur-free performance that other LUMINOL products provide.

Environmental, Health & Safety Benefits

In addition to the low scent benefits, LUMINOL LS, much like other LUMINOL oils, can help reduce disposal costs and the potential impact of spills, as well as answer possible community concerns about transformer oil toxicity. Petro-Canada Lubricants produces LUMINOL oils using ultra-refined isoparaffinic base oil. LUMINOL LS is inherently biodegradable in natural environments. As well, it has low gassing tendency and its high flash point help reduce the risk of fire and explosion.

Facts about LUMINOL LS

LUMINOL LS is ideal for use in large power and distribution transformers operating at peak capacity as well as free-breathing units, pad mount, and pole mount transformers; LUMINOL LS is also ideal for minimizing fluid smell produced during oil changing process with very hot transformer equipment, or with an equipment environment where there is limited ventilation; for commercial, industrial and institutional applications:

- LUMINOL LS is designed for Type II applications.
- LUMINOL LS meets or exceeds the performance requirements of CAN/CSA-C50-14 (R2018) (Class A and B), and ASTM D3487 standards.

Demonstrated Characteristics Include:

- Excellent heat transfer capability to help enhance transformer performance
- High dielectric impulse strength to improve performance in the presence of overvoltage conditions
- Low power-factor (dielectric loss) to reduce thermal runaway under conditions of high electric stress
- Low gassing to reduce the risk of failure from hydrogen gas bubbles
- Full compatibility with existing naphthenic insulating oils, which enhances the performance of the combined oils
- LUMINOL LS contains no corrosive sulphur compounds and do not require passivators
- LUMINOL LS is colourless and low-scent
- Outstanding cold weather performance

Dependable Supply Today And Tomorrow:

- Available only from Petro-Canada Lubricants, one of the world's most dependable producers of advanced fluids.

TYPICAL PERFORMANCE DATA

Property	Test Method	ASTM D3487 Type II	CSA-C50 Class A Type II	LUMINOL LS
PHYSICAL PROPERTIES				
Appearance	ASTM D1524	Clear & Bright	n/a	Clear & Bright
Colour	ASTM D1500	0.5max	0.5max	<0.5
Density @ 15 °C kg/L	ASTM D1298	0.91max	0.906max	0.83
Kinematic Viscosity @ 40°C, cSt	ASTM D445	12max	10max	9.1
Kinematic Viscosity @ 100°C, cSt	ASTM D445	3max	n/a	2.5
Kinematic Viscosity @ 0°C, cSt	ASTM D445	76max	75max	48.4
Kinematic Viscosity @ -40°C, cSt	ASTM D445	Not Required	2500max	1223
Pour Point, °C	ASTM D97	-40max	-46max	<-60
Interfacial Tension @ 25°C, mN/m	ASTM D971	40min	40min	48
Flash Point, °C	ASTM D92	145min	145min	171
CHEMICAL PROPERTIES				
Neutralization Number, mg KOH/g	ASTM D974	0.03max	0.03max	<0.01
Water Content, ppm	ASTM D1533	35max	35max	<20
Corrosive Sulfur	ASTM D1275B	non-corrosive	non-corrosive	non-corrosive
Potentially Corrosive Sulfur	IEC 62535	n/a	non-corrosive	non-corrosive
PCB Content, ppm	ASTM D4059	non detectable	<=2	<2
DBDS Content, mg/kg	IEC 62697-1	n/a	<5	<1
Metal Passivators, mg/kg	IEC 60666	n/a	<5	<1
2-Furaldehyde µg/L	ASTM D5837	n/a	100max	<1
Oxid. Stability, wt% Sludge @ 164h	ASTM D2440	0.2max	0.05max	<0.01
Oxid. Stability Neut # mg KOH/g @ 164h	ASTM D2440	0.4max	0.2max	<0.01
Inhibitor Content, wt%	ASTM D2668	>0.08-0.3	>0.08-0.4	0.23
Rotary Pressure Vessel Oxidation Test minutes	ASTM D2112	195min	195min	592
ELECTRICAL PROPERTIES				
Dielectric Breakdown Voltage, @ 60 Hz Disk Electrode, kV	ASTM D877	30min	30min	60
Dielectric Breakdown Voltage @ 60 Hz VDE Electrode, 2.03 mm gap, kV	ASTM D1816	35min* / 56min**	24min* / 56min**	57*/62**
Dielectric Breakdown Impulse, kV	ASTM D3300	145min	145min	>300
Gassing Tendency, µL/min	ASTM D2300	+30max	n/a	+10.5
Power Factor @ 60 Hz, 100°C	ASTM D924	0.003max	0.005max	<0.001
Power Factor @ 60 Hz, 25°C	ASTM D924	0.0005max	0.0005max	<0.0001

The values quoted above are typical of normal production. They do not constitute a specification.

*Following transport (unprocessed oil).

**After filtering, drying and degasification (new processed oil).

Learn more about us: lubricants.petro-canada.com

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Committed to the disciplined operation of our business.



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