



## LUMINOL™ Di ELECTRICAL INSULATION LIQUID

### Introduction

LUMINOL Di is a Class B product in Petro-Canada Lubricants' LUMINOL family of electrical insulating liquids. Unlike naphthenic mineral based liquids, LUMINOL Di uses Petro-Canada Lubricants' ultra-pure severely hydrotreated iso-paraffinic base oils to help minimize power loss and maximize productivity. These liquids contain no corrosive sulfur that may lead to transformer breakdown.

LUMINOL Di withstands energy spikes and hot and cold weather. Thanks to a naturally good oxidation stability, LUMINOL Di resists breakdown longer and helps provide enhanced service life and minimum maintenance.

### Environmental, Health & Safety Benefits

LUMINOL Di 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 Di insulating liquids using the HT Purity Process. This ultra-pure liquid is free of carcinogenic polynuclear aromatics (PNAs) and virtually non-toxic.

### Facts about LUMINOL Di

LUMINOL Di is ideal for use in distribution transformers such as pad and pole mounted

- LUMINOL Di is designed for inhibited (Type II) applications
- LUMINOL Di meets the performance requirements of CSA C50 Class B Type II and ASTM D3487 Type II

#### Demonstrated Characteristics Include:

- Full compatibility with existing naphthenic insulating oils, which enhances the performance of the combined liquids
- LUMINOL Di contains no corrosive sulfur compounds, is virtually sulfur free and does not require passivators
- Very good cold temperature properties allow for more efficient heat transfer through natural convection
- LUMINOL Di is less dense than traditional naphthenic oils, exhibiting decreased weight for the same volume

#### Dependable Supply Today and Tomorrow:

- Available in bulk, IBC (1040L / 275 USG), and drums (205L / 55 USG)
- Available only from Petro-Canada Lubricants; one of the world's most dependable producers of advanced fluids

#### What is the HT difference?

Petro-Canada Lubricants starts with the HT purity process to produce water-white, 99.9% pure base oils. The result is a range of lubricants, specialty fluids and greases that deliver maximum performance for our customers.



## Typical Performance Data

PROPERTY	TEST	CSA-C50 CLASS B	ASTM D3487	LUMINOL
		Type II	Type II	Di
<b>PHYSICAL PROPERTIES</b>				
Appearance	ASTM D1524	Clear & Bright	Clear & Bright	Clear & Bright
Colour	ASTM D1500	0.5 max	0.5 max	<0.5
Specific Gravity @ 15 °C	ASTM D1298	0.906 max	0.91 max	0.854
Viscosity, cSt @ 100 °C	ASTM D445	N/A	3.0 max	2.45
Viscosity, cSt @ 40 °C	ASTM D445	12 max	12.0 max	9.35
Viscosity, cSt @ 0 °C	ASTM D445	76 max	76.0 max	55.5
Viscosity, cSt @ -40 °C	ASTM D445	6000 max	N/A	4082
Pour Point, °C	ASTM D97	-40 max	-40 max	-48
Interfacial Tension @ 25 °C, dynes/cm	ASTM D971	40 min	40 min	46
Flash Point, °C	ASTM D92	145 min	145 min	171
Aniline Point, °C	ASTM D611	NA	63 min	92.9
<b>CHEMICAL PROPERTIES</b>				
Neutralization Number, mg KOH/g	ASTM D974	0.03 max	0.03 max	<0.01
Water content, ppm	ASTM D1533	35 max	35 max	<25
Corrosive Sulphur	ASTM D1275, Cu	Non-corrosive	Non-corrosive	Non-corrosive
Potentially Corrosive Sulphur	IEC 62535	Non-corrosive	NA	Pass
DBDS Content	IEC 62697-1	Non-detectable (<5 mg/kg)	Non-detectable (<5 mg/kg)	<1
Metal Passivators	IEC 60666	Non-detectable (<5 mg/kg)	NA	<1
2-Furfural & related compounds, µg/L	ASTM D5837	<100	25 max	<1
Strong Acids	ASTM D974	ND	NA	ND
PCB Content, ppm	ASTM D4059	2 max	ND	Nil
Oxid, Stability, wt.% Sludge @ 72h	ASTM D2440	NA	0.1 max	<0.01
Oxid, Stability, Neut # mg KOH/g @ 72h	ASTM D2440	NA	0.3 max	<0.01
Oxid, Stability, wt.% Sludge @ 164h	ASTM D2440	0.05 max	0.2 max	<0.01
Oxid, Stability, Neut # mg KOH/g @ 164h	ASTM D2440	0.2 max	0.4 max	<0.01
Rotating Bomb Oxidation Test, minutes	ASTM D2112	195 min	195 min	451
Inhibitor Content, wt.%	ASTM D2668	>0.08-0.40	0.3 max	0.2
<b>ELECTRICAL PROPERTIES</b>				
Dielectric Breakdown Voltage, kV	ASTM D877	30 min	NA	44
Dielectric Breakdown Voltage VDE Electrodes, kV	ASTM D1816 (1mm gap)	NA	20 min	28
	ASTM D1816 (2mm gap)	24 min	35 min	40
	ASTM D1816 Filtered (2mm gap)	56 min	NA	68
Dielectric Breakdown Impulse, kV	ASTM D3300	145 min	145 min	300
Gassing Tendency Under Electrical Stress, µL/min @ 80 °C	ASTM D2300	N/A	+30 max	23.6
Power Factor @ 60 Hz, 100 °C	ASTM D924	0.005 max	0.0030 max	0.001
Power Factor @ 60 Hz, 25 °C	ASTM D924	0.0005 max	0.0005	<0.0001

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

To order product or to learn more about how Petro-Canada Lubricants can help your business visit: [lubricants.petro-canada.com](http://lubricants.petro-canada.com) or contact us at: [lubecsr@petrocanadalsp.com](mailto:lubecsr@petrocanadalsp.com)

