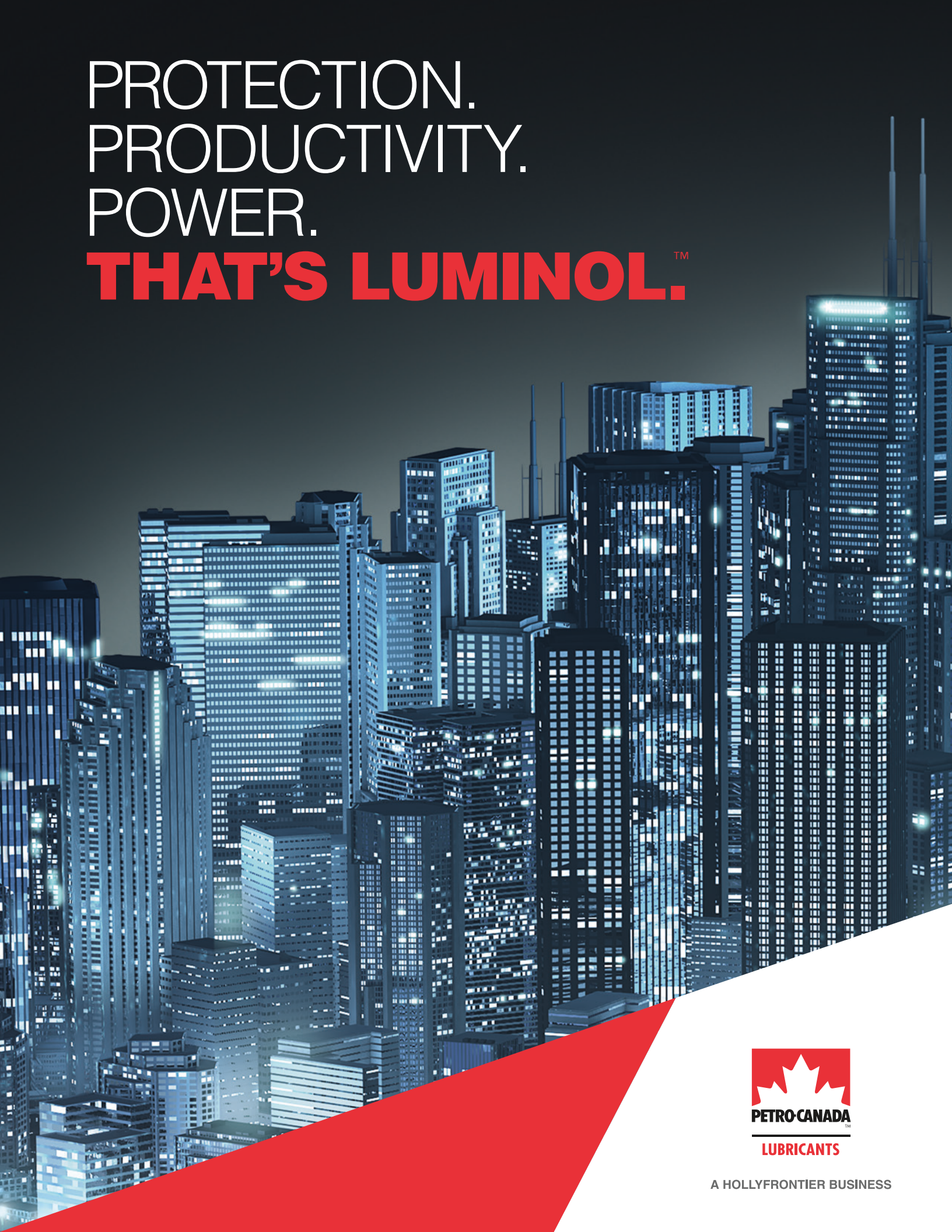
PROTECTION.
PRODUCTIVITY.
POWER.
THAT'S LUMINOL.™
PETRO-CANADA™
LUBRICANTS
A HOLLYFRONTIER BUSINESS

# PROTECT THE WAY YOU POWER EVERYTHING.

## LONGER LIFE.

LUMINOL is an ultra-refined insulating oil with enhanced thermal and oxidative stability to better protect your paper insulation.

## UNPARALLELED PERFORMANCE.

LUMINOL has a low pour point and viscosity at low temperatures to allow quick transformer startup in cold-weather conditions.

## KEEP COOL.

LUMINOL is better at beating the heat because transformers containing LUMINOL operate cooler than transformers using conventional oil.

## THE ULTIMATE MIXER.

LUMINOL is fully compatible with conventional oils. Even a small amount of LUMINOL in a top-off improves the chemical and electrical properties of what's currently in your transformer.

## GO NON-TOXIC.

LUMINOL is made of ultra-pure and virtually non-toxic base oils. It is sulphur-free and will not corrode your equipment.


# WANT PROTECTION? MEET THE FAMILY.

**LUMINOL TR**
For Type I applications.

**LUMINOL TRi**
For Type II applications.

**LUMINOL LS**
For Type II applications.

**LUMINOL Di**
For inhibited (Type II) applications.

# **LUMINOL IS A CLASS ABOVE.** SEE HOW:

| KEY CHARACTERISTICS | PROPERTIES | | | | RESULTS |
|---|---|---|---|---|---|
| | **TR** | **TRi** | **LS** | **Di** | |
| **Classification** | ASTM D3487<br>CSA C50 Class A<br>Type I | ASTM D3487<br>CSA C50 Class A<br>Type II | ASTM D3487<br>CSA C50 Class A<br>Type II | ASTM D3487<br>CSA C50 Class B<br>Type II | |
| **Thermal and Oxidative Stability** | **Outstanding**<br>Significantly less carbon buildup than most naphthenic oils under electrical stress | **Outstanding**<br>Significantly less carbon buildup than most naphthenic oils under electrical stress | **Outstanding**<br>Significantly less carbon buildup than most naphthenic oils under electrical stress | **Good**<br>Significantly less carbon buildup than most naphthenic oils under electrical stress | **Leads to improved service life and reliability—reducing maintenance costs.** |
| **Cold-temperature Properties** | Pour point of -60°C (-76°F)<br>Viscosity at -40°C (-40°F) of 1230 cSt | Pour point of -60°C (-76°F)<br>Viscosity at -40°C (-40°F) of 1230 cSt | Pour point of -60°C (-76°F)<br>Viscosity at -40°C (-40°F) of 1230 cSt | Pour point of -48°C (-54°F)<br>Viscosity at -40°C (-40°F) of 4082 cSt | **Better cold-temperature properties allow for quick transformer startup in cold-weather conditions.**<br>Excellent low-temperature viscosity for LUMINOL Class A products: 1230 cSt at -40°C (-40°F) versus competing oils. |
| **Flash Point** | 170°C (338°F) | 170°C (338°F) | 178°C (352°F) | 171°C (340°F) | **Higher flash point reduces the risk of fire, providing an extra margin of safety.**<br>Most naphthenic oils have a flash point of 150°C (302°F). |
| **Gassing Tendency***<br>*Most naphthenic oils tested exhibit a positive gassing tendency. Negative gassing reduces hydrogen gas bubbles resulting from electrical and thermal fault conditions. | -10 | -10 | 11.7 | 23.6 | **Lower gassing tendency reduces the risk of equipment failure. It also reduces the risk of explosion due to hydrogen evolving, providing an extra margin of safety.**<br>Negative gassing reduces hydrogen gas bubbles resulting from electrical and thermal fault conditions. |
| **Weight Savings** | Lower specific gravity | Lower specific gravity | Lower specific gravity | Lower specific gravity | **Can translate into reduced transportation costs.**<br>6,000 gallons weigh approximately 2,450 lbs. less than the same volume of naphthenic oil. |
| **Electrical Properties** | Power factor of 0.001% at 100°C (212°F)<br>Dielectric breakdown voltage (ASTM D1816, 2.03 mm gap) of 44 kV<br>Dielectric breakdown impulse (ASTM D3300) of >300 kV | Power factor of 0.001% at 100°C (212°F)<br>Dielectric breakdown voltage (ASTM D1816, 2.03 mm gap) of 44 kV<br>Dielectric breakdown impulse (ASTM D3300) of >300 kV | Power factor of 0.0002% at 100°C (212°F)<br>Dielectric breakdown voltage (ASTM D1816, 2.03 mm gap) of 57 kV<br>Dielectric breakdown impulse (ASTM D3300) of >300 kV | Power factor of 0.001% at 100°C (212°F)<br>Dielectric breakdown voltage (ASTM D1816, 2.03 mm gap) of 40 kV<br>Dielectric breakdown impulse (ASTM D3300) of 300 kV | **Higher dielectric breakdown provides better electrical insulating properties.** |
| **Naphthenic Oil Compatibility** | Fully compatible | Fully compatible | Fully compatible | Fully compatible | **A small amount (as low as 5%) has been shown to enhance the chemical and electrical properties of naphthenic oils.** |

# OUR NO-NONSENSE LUBRICANTS WARRANTY

Petro-Canada Lubricants will repair damaged equipment, or replace damaged equipment parts resulting from a failure due to defects of the Petro-Canada Lubricants product, as long as the lubricant is used in accordance with your equipment manufacturer's and our recommendations.

IT'S MORE THAN JUST A WARRANTY. **IT'S A COMMITMENT.**

To learn more about how Petro-Canada Lubricants can help your business, visit **lubricants.petro-canada.com** or contact us at **lubecsr@petrocanadalsp.com**

Committed to the disciplined operation of our business.

**CERTIFIED**
ISO 9001: 2015
ISO 14001: 2015
IATF 16949: 2016

PETRO-CANADA™
LUBRICANTS

A HOLLYFRONTIER BUSINESS


LUB3397E (2020.04)