



REFLO™ XL SYNTHETIC BLEND REFRIGERATION COMPRESSOR FLUID

Introduction

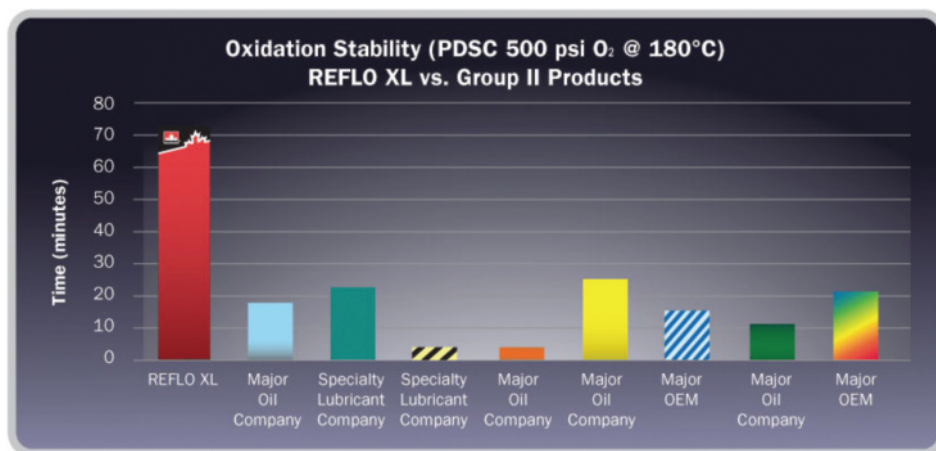
Petro-Canada's REFLO XL is a Synthetic Blend based refrigeration compressor fluid used in industrial ammonia refrigeration systems. REFLO XL is formulated to outperform straight Group II, solvent refined paraffinic and naphthenic refrigerant oils by extending service life while significantly reducing operating costs.

REFLO XL is specifically formulated using a combination of synthetic base oil and our HT Purity base oil. Petro-Canada produces 99.9% pure base oils – one of the purest in the world and virtually free of impurities that can hinder fluid performance. These crystal clear base oils are fortified with specialty selected additives that work synergistically with the HT Purity base oils to produce a refrigeration compressor fluid that offers reliable, long-term performance that can help provide significant operational cost saving when used as part of a proper maintenance program.

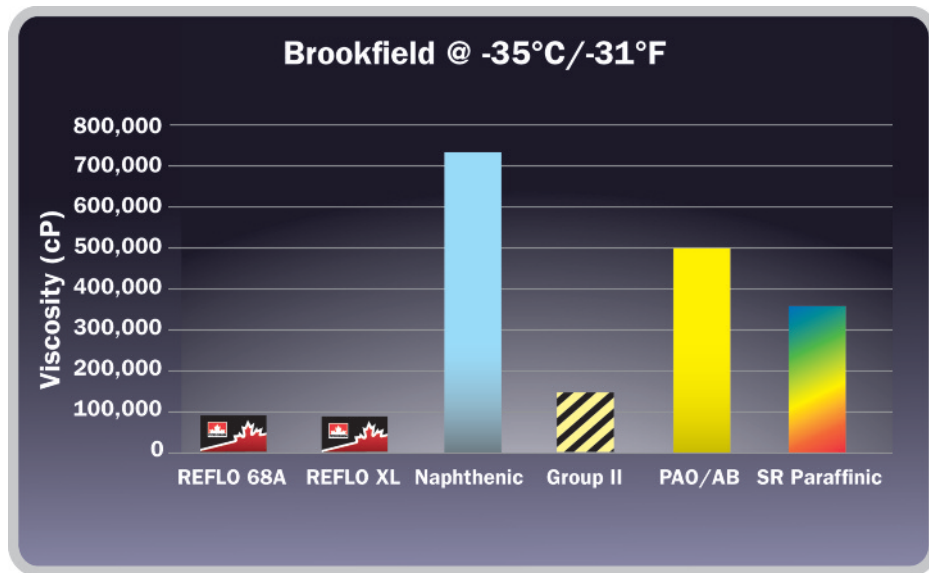
What is the HT difference?

Petro-Canada 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.

Features and Performance Benefits

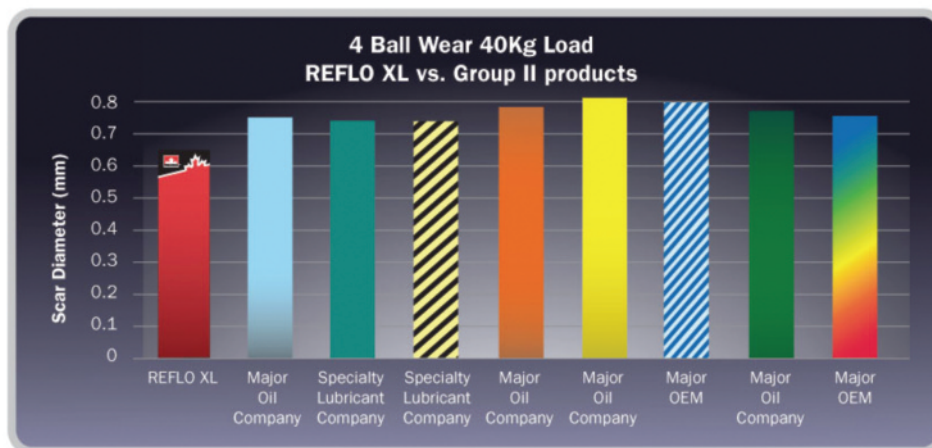


- **Excellent thermal and oxidative stability extends fluid life, helps to reduce maintenance costs and downtime**
 - Excellent resistance to oxidative and thermal breakdown guards against oil thickening, deposits and sludge formation
 - Helps to keep the compressor, heat exchanger and expansion valves operating at their design efficiency
 - Extends fluid life, even in the presence of trace moisture and air in the refrigerant, saving on downtime and change-out costs



- **Excellent low temperature performance**

- REFLO XL's low pour point and low temperature fluidity reduces the likelihood of blockage if the fluid were to get carried into cold sections of the system by the refrigerant



- **Excellent antiwear properties and new seal swell**

- REFLO XL is formulated to help reduce liner, ring and piston wear in reciprocating compressors
- Specially formulated with a seal swell agent to help control the degree of seal swell/shrinkage

- **Lower oil volatility helps to reduce fluid consumption and maintenance costs**

- Significantly less volatile than solvent refined paraffinics or naphthenics at high temperatures
- Can result in less oil carryover to the system's low temperature side than naphthenic oils (when combined with proper maintenance)
- Lower oil carryover may reduce plugging and deposit formation in evaporators, lowering maintenance costs

- **Lower solubility in ammonia improves system efficiency and performance**
 - REFLO XL has less solubility in ammonia refrigerant than naphthenic oil
 - Less ammonia is absorbed into the compressor fluid, which can reduce gas entrainment (foaming) in separator tanks and increase system efficiency
 - Lower concentrations of ammonia in the fluid allows it to maintain viscosity, so it can lubricate better, reducing wear
 - Less compressor fluid is absorbed into the ammonia, reducing the potential for fluid to block piping, valves and filters
 - Lower concentration of compressor fluid in the ammonia also helps maintain refrigerant purity, improving system efficiency and performance
- **Ensures proper lubrication and protection from wear over a wide range of operation temperatures**
- **High flash point ensures safe operation at elevated temperatures**

Applications

REFLO XL is formulated to lubricate ammonia refrigeration compressors used in large commercial operations such as cold stores, marine systems, food processing plants and ice arenas. REFLO XL is also used in manufacturing industries that require low temperature control, such as pharmaceuticals and microelectronics. REFLO XL can be used in ammonia refrigeration systems where evaporator temperatures are as low as -42°C (-44°F) in well maintained systems.*

REFLO XL is compatible with similar paraffinic mineral oil based products. The full benefits of REFLO XL will not be realized without a complete fluid change-out.

REFLO XL is formulated to have good compatibility with seal material; it contains a seal swell agent to protect against fluid leaks. REFLO XL is compatible with material such as Neoprene® (Polychloroprene), HSN (Highly Saturated Nitrile) or BUNA N (Nitrile). However, when a compressor is converted from one oil formulation or type to another, there is always a risk of seal swell or shrinkage. Unlike naphthenic fluids or fluids derived from aromatic chemicals such as alkyl benzenes, REFLO XL will not swell seals to the same extent. Although tightening flanges can sometimes correct minor leaks, we advise that new seals should be retrofitted during the oil conversion. Follow the OEM's seal recommendation for hydrotreated paraffinic oil.

REFLO XL meets the requirements of most major compressor OEM's.

Recommended by Mayekawa (Mycom) for screw compressors

Food Industry Registered

- Acceptable as a lubricant in and around food processing areas where there is no possibility of food contact
- Acceptable for use in food processing facilities in Canada where there is no possibility of food contact.
- NSF H2 registered



Typical Performance Data

PROPERTY	ASTM TEST METHOD	DIN TEST METHOD	REFLO XL
Density, kg/L @ 15°C	D4052	—	0.869
Viscosity, cSt @ 40°C cSt @ 100°C SUS @ 100°F SUS @ 220°F	D445	51550	59.3 8.5 306 54
Viscosity Index	D2270	—	115
Pour Point, °C/°F	D5950	51597	-45
Flash Point, COC, °C/°F	D92	515376	227
Foam Characteristics, mL Sequence I Sequence II Sequence III	D892	51566	0/0 15/0 0/0
Total Acid Number (TAN), mg KOH/g	D664	51558	<0.1

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

*These are recommended minimum evaporator temperatures based on our products' typical pour point. It is important to refer to your operating manual and follow suggested OEM instructions. It is not recommended to operate at evaporator temperatures cooler than the pour point of the compressor oil as waxing / flocking may occur.

Health and Safety

To obtain Material Safety Data Sheet (MSDS), contact one of Petro-Canada's TechData Info Lines

TechData Info Lines

To place an order, please call a Customer Order Management Representative at :

Canada (English) Phone 1-800-268-5850
(French) Phone 1-800-576-1686
United States Phone 1-877-730-2369
Latin America Phone +1-416-730-2369
Europe Phone +1-416-730-2389
Asia Phone +1-416-730-2372
China Phone +86 (21) 6362-0066

You can also e-mail us at lubecsr@suncor.com



To learn more about how Petro-Canada lubricants, specialty fluids, oils and greases can help maximize your equipment performance, savings and productivity, please contact us at :

North America Phone 1-866-335-3369
Europe Phone +44 (0) 121-781-7264
Germany Phone +49 (0) 201-726-2913
Latin America Phone +1-416-730-2369
Asia Phone +1-416-730-2372
China Phone +86 (21) 6362-0066
E-mail sales@suncor.com

Visit us on the web at lubricants.petro-canada.ca