



UCON Fluids & Lubricants

UCON Compressor Lubricant RSC-155 for Rotary Screw Compressors

Product Description

UCON™ Compressor Lubricant RSC-155 is a high performance polyalkylene glycol (PAG)-based synthetic lubricant designed for rotary screw compressors. UCON RSC-155 is designed for rotary screw compressor (RSC) applications but can also be used in reciprocating compressors. RSC-155 is formulated with a premium additive package designed to provide optimum performance in compressor applications. The additive technology has been drawn from knowledge gained by Dow from more than 60 years of experience with PAG lubricants in a wide variety of applications.

Features and Benefits

When properly used and with good equipment maintenance and operation, UCON RSC-155 offers compressor manufacturers and users a broad array of features and benefits that can help yield both exceptional performance and significant cost savings, including:

- Wide operating temperature range for easy cold temperature start-up and superior high temperature lubrication
- Excellent lubricity in hydrocarbon compressed gas service
- Easy cleanup
- Reduced lubricant use rate
- Less downstream contamination
- Lower maintenance costs
- Low foaming tendency
- Higher flash point, lower ΔH_{comb} than mineral oils

These attributes are unique to UCON RSC-155 and can result in a low cost/ performance ratio. The lubricant is particularly noteworthy for outstanding film strength and lubricity at high temperatures, thermal and oxidation stability and good viscosity/ temperature properties. Its excellent performance in protecting compressor parts from scoring and wear can contribute significantly to increased compressor life. UCON RSC-155 has exhibited superior performance compared to hydrocarbon oils and other synthetic lubricants.

Performance Advantages

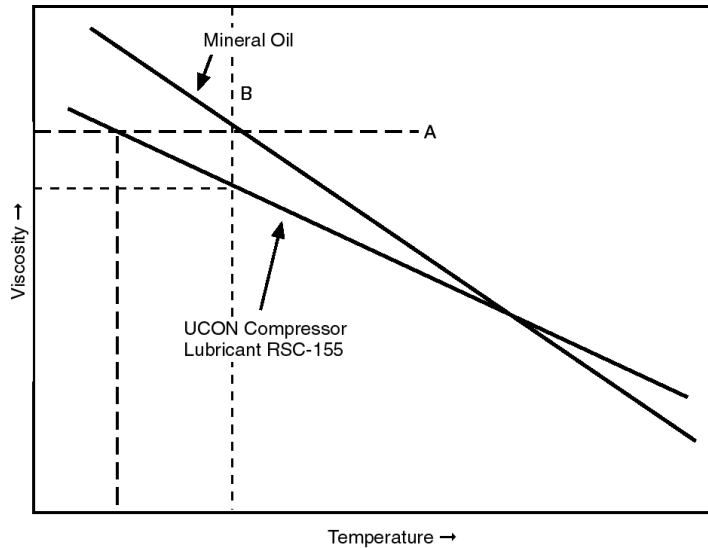
Wide Operating Temperature Range

UCON Compressor Lubricant RSC-155 has a high viscosity index of 262, compared to viscosity indexes of 90-95 for mineral oils and 160-170 for other synthetics, such as polyalphaolefins (PAOs). RSC lubricant films have excellent load-bearing capacity, helping to reduce wear at elevated temperatures. The benefits of high viscosity indexes are illustrated in Figures 1 and 2, which compare RSC-155 with mineral oil.

Easier Low-Temperature Startup

Pour point is the temperature at which a fluid will not flow, approximately 10,000 cSt (Figure 1, line A). The pour point of UCON RSC-155 is lower than that of the same viscosity grade mineral oil. Thus, at lower temperatures (Figure 1, line B), the higher viscosity of UCON RSC-155 helps provide for easier startups and handling than mineral oil.

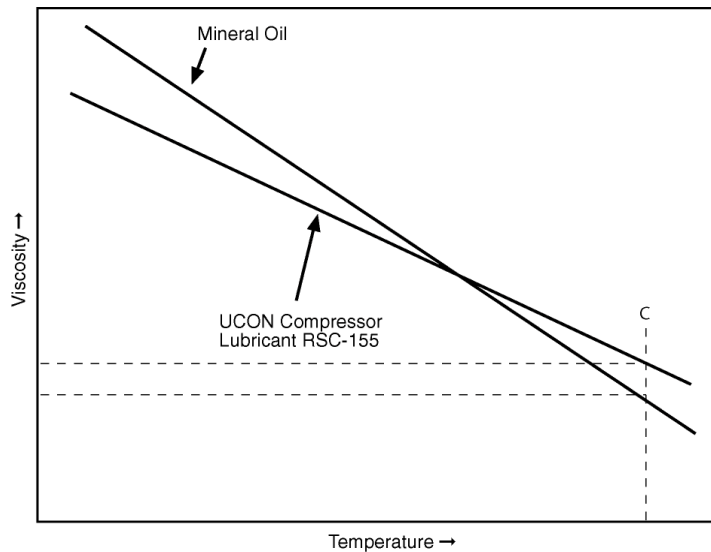
Figure 1 • High Viscosity Index: UCON Compressor Lubricant RSC-155 vs. Mineral Oil



Excellent Lubricity

At higher operating temperatures (Figure 2, line C), UCON RSC-155 retains a higher viscosity than mineral oil, providing better lubricity and reducing equipment wear.

Figure 2 • High Viscosity Index: UCON Compressor Lubricant RSC-155 vs. Mineral Oil



Superior Lubricity in Gas Compression

The solubility of hydrocarbon gases in UCON Compressor Lubricant RSC-155 is low. This results in less viscosity dilution due to dissolved gas than with other lubricant types. The higher viscosity provides a superior lubrication film, thereby helping to reduce wear and maintenance costs. Figures 3, 4 and 5 illustrate the low solubility of methane, propane and carbon dioxide in UCON RSC-155.

Figure 3 • Solubility of Methane in UCON Compressor Lubricant RSC-155

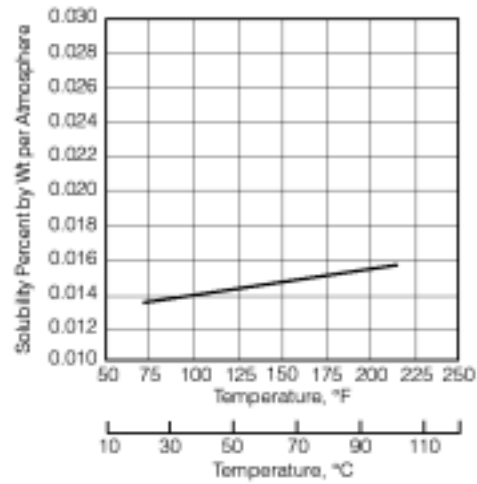


Figure 4 • Solubility of Propane in UCON Compressor Lubricant RSC-155

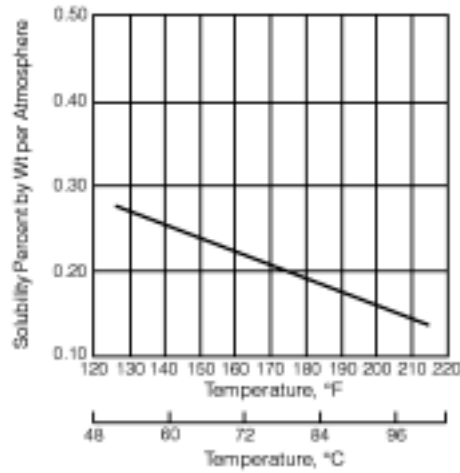
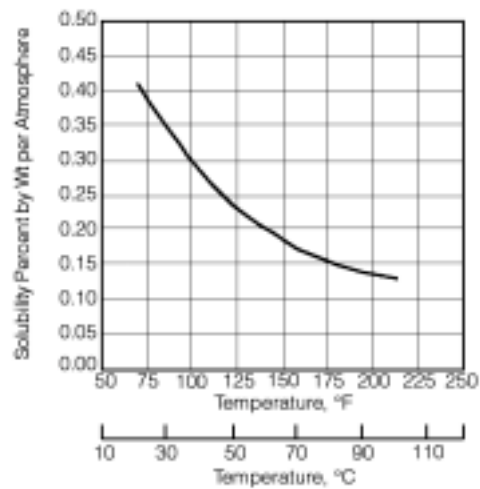


Figure 5 • Solubility of Carbon Dioxide in UCON Compressor Lubricant RSC-155



Easy Cleanup and Lower Lubricant Use Rate

UCON RSC-155 is 100% soluble in water, making equipment and shop cleanup easy. In addition, the low sensitivity to moisture may increase change-out intervals, thereby reducing lubricant cost.

Long Service Life and Lower Maintenance Costs

UCON RSC-155 is chemically and thermally stable and is inhibited against oxidative degradation. Thus the tendency to form sludge, varnish or carbonaceous residue is significantly less than with petroleum-based lubricants. As a result, equipment runs cleaner longer, resulting in overall lower operating costs, longer equipment life and longer run times between maintenance shutdowns.

Reduced Use Rates and Less Downstream Contamination

Since UCON RSC-155 has low vapor pressure and low gas solubility, less entrained/vaporized lubricant is lost in compressed process gas. Thus, the amount and frequency of lubricant top-offs may be reduced, resulting in lower lubricant make-up costs. As an added benefit, there is less contamination of downstream processes and equipment than with mineral oil lubricants.

Superior Additive Package

The additive package specifically developed for UCON Compressor Lubricant RSC-155 has resulted from Dow's more than 60 years of experience in formulating UCON Lubricants for many end uses. These additives provide excellent oxidation and corrosion protection as well as superior lubrication and antiwear characteristics. What's more, the foaming is virtually eliminated, helping in the efficient operation of the compressor and separation equipment.

Greater Safety

The high flash point of UCON Compressor Lubricant RSC-155 may provide a higher margin of safety in storage and handling than with typical mineral oils.

Typical Physical Properties⁽¹⁾

Properties	UCON Compressor Lubricant RSC-155
Viscosity	
cSt at 40°C (104°F)	135
cSt at 100°C (212°F)	30
SUS at 38°C (100°F)	687
Viscosity Index	262
Pour Point, °C (°F)	-42 (-44)
Specific Gravity at 20/20°C	1.049
Flash Point, Pensky-Martens Closed Cup (ASTM D 93), °C (°F)	240 (465)
Flash Point, Cleveland Open Cup (ASTM D 92), °C (°F)	307 (585)
Rust Test – Modified ASTM D 665/A (3% water, 48 hours)	Pass

1. Data represent typical physical properties only and should not be construed as product specifications.

Elastomer and Coatings Compatibility

UCON Compressor Lubricant RSC-155 is compatible with a variety of elastomers and coatings listed below.

	Recommended	Not Recommended
Elastomers	Viton A Kalrez Butyl K 53 Buna N Natural Gum Rubber Neoprene EPR Chloro Sulfonated Polyethylene Thiokol 3060 Polysulfide	Buna S Hycar Natural Black Rubber Hypalon
Coatings	Catalyzed Epoxy-Phenolic Modified Phenolic	Alkyd Vinyl

Conversion Procedure

When converting a compressor to UCON Compressor Lubricant RSC-155, care must be taken to follow accepted engineering practices and to be as thorough as possible. Completely drain the old lubricant from the system. Particular attention should be paid to the reservoir, coolers, piping, filters, or other equipment where residual oil may be trapped. Inspect or replace filters, and clean screens. Clean the system of residual sludge and deposits by wiping it if possible and then flushing with a small amount of UCON Compressor Lubricant RSC-155.

After installing the UCON RSC-155, adjust lubricant to deliver the manufacturer's recommended rate of lubrication. UCON RSC-155 will continue to remove sludge and varnish from the previous lubricant(s). Therefore, during the first few weeks of operation, particular attention should be paid to the filters and separators as they may become clogged. Replace filter cartridges and separators as often as needed.

Additional Information

Contact Dow for additional information on conversion procedures or help in selecting the proper lubricant for your application.

Product Stewardship

Dow encourages its customers and potential users to review their applications from the standpoint of human health and environmental aspects. To help ensure that Dow products are not used in ways for which they are not intended or tested, Dow personnel will assist customers in dealing with environmental and product safety considerations. Dow literature, including Material Safety Data Sheets, should be consulted prior to the use.

For More Information

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