

Halocarbon Reactive Gas Lubricants

Fluorinated Oils and Greases for Reactive Gas Services

Fluorinated oils and formulated greases designed for optimal safety, thermal stability and superior chemical inertness

Halocarbon Reactive Gas Lubricants are fluorinated oils and formulated greases that have been designed for use in reactive gas/fluid applications where an inert, nonflammable, nonreactive lubricant is required for safety and extended equipment reliability. Halocarbon Reactive Gas Lubricants use unique, state of the art chemistry – fully saturated, low molecular weight polymers of PCTFE (polychlorotrifluoroethylene). These lubricants are made in a controlled polymerization process, then refined to remove any hydrogen or oxygen at the atomic level yielding an inert, stable, nonflammable lubricant. As a result of this unique molecular structure, Halocarbon oils and greases are used widely in reactive gas service applications. In addition, our lubricants are regularly used in aerospace, chemical manufacturing, oil refinery, nuclear plants, and many other industries with excellent results.

Delivering Superior, Long-Lasting Performance

As synthetic fluorinated oils and greases, Halocarbon Reactive Gas Lubricants are innately capable of lubricating and handling a multitude of applications over a wide temperature range, from below -100°C to 200°C and higher, for gases like oxygen, halogens, halogenated compounds, and other gases where nonreactivity is critical.

Halocarbon Reactive Gas Lubricants are also intrinsically **nonflammable**, **nonreactive**, and **chemically inert**, making them ideally suited for use in applications that involve flammable, corrosive, or hazardous process materials.

Key Performance Characteristics

- Safe to handle
- Nontoxic
- No flash point
- Nonflammable
- High thermal stability
- Good heat transfer properties
- Excellent lubricating properties

Designed with Your Needs in Mind

Halocarbon Reactive Gas Lubricants, part of our Engineered Fluids series, have a long and successful history of meeting customer needs, providing solutions, creating innovations, and improving efficiencies in the reactive gas industry. From chemical manufacturing to cryogenic gases and life support systems, Halocarbon Engineered Fluids have been the products that customers have turned to for decades to safely lubricate the full range of components used in reactive gas services.

Service Recommendations for Oxygen and Reactive Gases:

- **Greases** (25-5S*, 28*, 28LT*, and 25-10M)
 - Use in Valves, Regulators, Assembly Lube, and Thread Sealant applications.
 - Use 25-10M in high pressure applications
 - *Silica-thickened greases are prone to attack by chemicals active towards silica like alkalis, HF acid, and fluorinating agents. Greases labeled with a (*) are not recommended for use in these areas.
- **Fluids/Oils** (All viscosity grades from 0.8 through 1000N)
 - Use in the following applications:
 - **Compressors** – Choose the viscosity that matches the OEM recommendations at operating conditions for the specific type of compressor.
 - **Vacuum Pumps** – Choose from our current line of Vacuum Pump Fluids.
 - **Mechanical Seal Barrier Fluids** – Choose from our current line of High Velocity and Low Velocity fluids.

For our full, updated product line of Reactive Gas Lubricants, please continue to the next page.

Interested in Mechanical Seal Barrier Fluids, Metalworking Fluids, & Precision Vacuum Pump Fluids? Halocarbon has specifically engineered three new product lines to better serve the needs of these industries. Ask about our NEW information sheets for these products!

Typical Properties: Halocarbon Reactive Gas Lubricants - Greases

PCTFE Grease	NLGI	ASTM Penetration	Service Temperature	Minimum Drop Melting Point	Description
Silica-Thickened Greases					
28I	2	265 - 295	0 to 250°F -20 to 120°C	None	Basic silica-thickened grease. This product contains a rust inhibitor.
28LTI	2	265 - 295	-50 to 200°F -45 to 95°C	None	For low temperature applications. This product contains a rust inhibitor.
25-5S	3	220 - 250	0 to 350°F -20 to 175°C	None	Lowest vapor pressure. Available with a rust inhibitor (25-5SI), which has a recommended service temperature of 0 to 250°F (-20 to 120°C).

Note: Grades with an "I" designation contain rust inhibitor

PCTFE Polymer-Thickened Grease*

25-10M	1	310 - 340	30 to 275°F 0 to 135°C	300°F 150°C	Softest grease for wide temperature range. Available with rust inhibitor (25-10MS).
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Note: Grades with an "S" designation contain rust inhibitor

*This table gives typical properties (not specifications) based on historical production performance. Halocarbon Products Corporation does not make any express or implied warranty that these products will continue to have these typical properties.

Typical Properties: Halocarbon Reactive Gas Lubricants - Oils

Oil ¹	0.8	1.8	4.2	6.3	27	56	95	200	400	700	1000N
Flash and Fire Points	None										
Pour Point² °F (±10°F) °C (±5°C)	-200 -129	-135 -93	-100 -73	-95 -71	-40 -40	-30 -34	-15 -26	10 -12	15 -9	40 5	50 10
Cloud Point³ °F (±10°F) °C (±5°C)	<-200 <-129	<-135 <-93	<-125 <-87	<-125 <-87	<-95 <-71	-30 -34	-5 -21	35 2	50 10	55 13	65 18
Viscosity⁴ (±10%) cSt											
@ -65°F (-54°C)	5.7	143	---	---	---	---	---	---	---	---	---
@ 100°F (37.8°C)	0.8	1.8	4.2	6.3	27	56	95	200	400	700	1000
@ 160°F (71.1°C)	0.54	1.1	1.9	2.6	6.8	11	16	26	40	62	83
@ 210°F (99°C)	---	0.8	1.2	1.6	3.1	4.9	6.3	9	12	17	22
Density⁵ (±0.01 g/mL)											
100°F (37.8°C)	1.71	1.82	1.85	1.87	1.90	1.92	1.92	1.95	1.95	1.95	1.95
160°F (71.1°C)	1.65	1.76	1.80	1.82	1.85	1.87	1.87	1.89	1.89	1.90	1.90
210°F (99°C)	1.60	1.71	1.75	1.77	1.81	1.82	1.82	1.85	1.85	1.86	1.86
Refractive Index n _D ²⁰ (typical)	1.383	1.395	1.401	1.403	1.407	1.409	1.411	1.412	1.412	1.414	1.415

1. Same oil grades followed by "S" indicate rust inhibitor has been added. Oil is still oxygen compatible.

2. ASTM D97
3. ASTM D2500

4. ASTM D445
5. Gay-Lussac pycnometers or equivalent



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The information provided herein is based on technical tests conducted by Halocarbon and is believed to be correct. It is intended for use by persons trained in the proper use of these and related materials. Always refer to the appropriate Safety Data Sheets (SDSs) prior to using any product. Please contact our customer service department to obtain SDSs. Since actual use conditions may differ from those used in the generation of the data provided herein, Halocarbon cannot guarantee the accuracy of this information or be held responsible for loss or damage that results from the use of this information. Nothing in this document is intended or should be construed as a recommendation to infringe on any existing patents.