



**Krytox™**  
Performance Lubricants

## Extra High-Temperature (XHT) Lubricants

### Product Information

Selection of the best lubricant involves analyzing operating conditions and choosing from the many synthetic and petroleum-based products available today. While most petroleum products begin to degrade before 99 °C (210 °F) and cease turning at temperatures just below -18 °C (0 °F), Krytox™ fluorinated synthetic lubricants have operating ranges that are significantly broader (-70-316 °C [-94-600 °F]).

Krytox™ lubricants are more effective at even higher temperatures, regardless of operating duration. Using base oils, thickeners, and additives with chemistry designed to create high and low viscosity, these products are targeted for use solely in the very high-temperature range. Available in several grades that offer anti-corrosion, extra bonding, and non-melting properties, these lubricants have applications in a variety of industries, including chemical, textile, tire, aviation, conveyor, glass, plastic film, non-woven manufacturing, and mining and metal processing.

#### High-Temperature Greases

Because of its thermal stability and non-oxidizing characteristics, Krytox™ is a natural high-temperature lubricant.

Krytox™ XHT greases are available with useful temperature ranges up to 360 °C (680 °F) for continuous use, with spikes to 400 °C (752 °F), when used in proper metallurgy with periodic re-lubrication.



**Krytox™ XHT Grades: Extreme Conditions,  
Extreme Performance**



## Stability

### Nonflammable

Krytox™ lubricants contain only carbon, oxygen, and fluorine. Because hydrogen is not present, these products are nonflammable. They will not burn or support combustion, even in 100% liquid or gaseous oxygen.

### Chemically Inert

Krytox™ performance lubricants are not only resistant to oxygen, but are inert to virtually all chemicals used in a variety of industries.

They are insoluble in most solvents, but are soluble in highly fluorinated fluids and in some supercritical fluids such as CO<sub>2</sub>.

### Thermal and Oxidative Stability

The temperature at which thermal decomposition of Krytox™ oils takes place depends on the test method used and how the point of incipient deterioration is measured. By differential thermal analysis, deterioration occurs at about 470 °C (878 °F) in the absence of air. The isotenoscope technique shows an initial decomposition point of 355 °C (671 °F) as measured by excess pressure increase. At 355 °C (671 °F), the decomposition rate is approximately 0.03 wt% per day. At 399 °C (750 °F), the decomposition rate increases to 1.3 wt% per day. When tested under nitrogen for six hours at 371 °C (700 °F), Krytox™ showed no increase in neutralization number and no significant change in viscosity. The presence of air does not substantially lower the decomposition point of Krytox™ oils.

During depolymerization, gaseous decomposition products are given off, and the remaining fluid is less viscous; but, no sludge or gummy deposits are formed.



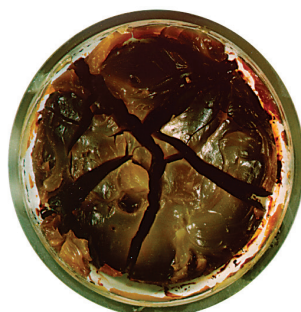
Hydrocarbon-based lubricants burn; Krytox™ does not.



Krytox™ grease in hydrocarbon solvent is not dissolved.



In oven at 232 °C (448 °F) for 40 hr:  
Krytox™—0% wt loss



In oven at 232 °C (448 °F) for 40 hr:  
Hydrocarbon—40% wt loss

## User Guide for Krytox™ XHT Greases

Standard Grades
XHT-S and XHT-SX
250–320 °C (482–608 °F)
<i>Typical Applications:</i> Small or large bearings with relatively high speeds. Higher viscosity, lower evaporation of oil extends life.
Anti-Corrosion Grades
XHT-AC and ACX
250–320 °C (482–608 °F)
<i>Typical Applications:</i> For machines that run for shorter duration with frequent starts and stops. Frequently cooled machines require anti-corrosion additives.
Extra Bonding Grades
XHT-BD, BDX, and BDZ
300–400 °C (572–752 °F)
<i>Typical Applications:</i> For use when machine movement is not purely rotational. This grease is non-melting for high-temperature use and offers better adhesion to substrate.



Krytox™ XHT greases can be used in many industrial applications in extreme thermal conditions.

## Technical Properties of Krytox™ XHT Lubricants\*

Grade	Thickener		Viscosity (cSt)			Volatility (ASTM D2595)	Anti-Corrosion Additive
	Type	Properties	at 40 °C (104 °F)	at 100 °C (212 °F)	at 200 °C (392 °F)	at 204 °C (399 °F) (%)	
XHT-S	PTFE	Low friction max. temp. 300 °C (572 °F)	500	46	6.8	<1	NA
XHT-SX	PTFE	Low friction max. temp. 300 °C (572 °F)	738	65	8.8	<0.4	NA
XHT-AC	PTFE	Low friction max. temp. 300 °C (572 °F)	500	46	6.8	<1	Yes
XHT-ACX	PTFE	Low friction max. temp. 300 °C (572 °F)	738	65	8.8	<0.4	Yes
XHT-BD	Non-melting	Extra strong bonding to substrate	500	46	6.8	<1	NA
XHT-BDX	Non-melting	Extra strong bonding to substrate	738	65	8.8	<0.4	NA
XHT-BDZ	Non-melting	Extra strong bonding to substrate	1023	88	11.4	<0.3	NA

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

### Additional Information and Literature Requests

The general physical characteristics of each Krytox™ fluorinated oil product category are described in this brochure. More detailed data sheets showing specific properties for each Krytox™ product are available.



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