



DuPont™ Krytox® XHT-BD Grease DuPont™ Krytox® XHT-BDX Grease DuPont™ Krytox® XHT-BDZ Grease

Product Data

The DuPont™ Krytox® XHT-BD series of greases are special extreme high temperature greases with low oil evaporation and thickened with a non-melting thickener to allow use at temperatures above the melting point of common greases. These greases have excellent lubrication over a broad temperature range. Krytox® XHT-BD series greases are nonflammable, chemically inert, and allow extended lubrication intervals and longer equipment life.

Krytox® XHT-BD greases are designed for use where the temperatures are in the 288 °C (550 °F) range and higher, where there is a danger of melting the standard PTFE thickener. The Krytox® XHT-BD grease series uses a special non-melting high temperature thickener that also provides extreme pressure properties and works as a solid lubricant if the base oil is depleted.

The base oil of the Krytox® XHT-BD grease series is an extremely viscous oil that provides good viscosity and lower evaporation at high temperatures.

Krytox® XHT-BD series greases are slightly tacky and will coat the surface and stay in place. The oil in the grease can begin to slowly degrade at temperatures above 330 °C (626 °F), and this will occur at an increasing rate as temperatures increase. Relubrication could be required at these temperatures to achieve optimum life.

Typical Properties of XHT-BD Series PFPE Greases*

	XHT-BD	XHT-BDX	XHT-BDZ
Standard NLGI Penetration Grade	1.5	1.5	1.5
Estimated Useful Temperature Range	–20/300 °C (–4/572 °F) with spikes to 330 °C (626 °F)	–15/350 °C (5/662 °F) with intermittent spikes to 400 °C (752 °F)	–5/360 °C (23/680 °F) with intermittent spikes to 400 °C (752 °F)
Pour Point	–25 °C (–13 °F)	–20 °C (–4 °F)	–15 °C (5 °F)
Base Oil Viscosity, cSt			
20 °C (68 °F)	1712	2610	3500
40 °C (104 °F)	500	738	1023
100 °C (212 °F)	47	65	88
Oil Separation 30 hr at 99 °C (210 °F), %	6	5	5
Oil Volatility in 22 hr at 260 °C (500 °F), % D2595	2.1	1.5	1.1
Vapor Pressure			
20 °C (68 °F) (Knudsen)	$\leq 1 \times 10^{-9}$	$\leq 3 \times 10^{-14}$	$\leq 4 \times 10^{-15}$
100 °C (104 °F) (Knudsen)	$\leq 8 \times 10^{-7}$	$\leq 1 \times 10^{-9}$	$\leq 2 \times 10^{-10}$
200 °C (392 °F) (Knudsen)	$\leq 1 \times 10^{-4}$	$\leq 2 \times 10^{-6}$	$\leq 3 \times 10^{-7}$
Appearance	White, creamy consistency	White, creamy consistency	White, creamy consistency
Specific Gravity, 0 °C (32 °F)	2.00	2.00	2.00

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



The miracles of science™

Compatibility with Metals

Due to their low surface tensions, DuPont™ Krytox® oils easily wet metallic surfaces, and because of their inertness, Krytox® oils have little or no adverse effect on metals when the oil temperature is lower than 288 °C (550 °F). The behavior of Krytox® oils in the presence of many alloys has been studied using the Micro Oxidation-Corrosion Test developed by the Air Force Materials Laboratory.

In general, nickel and cobalt alloys are the most resistant to corrosion and are suitable for use with Krytox® lubricants up to 371 °C (700 °F). Carbon steel alloy suitability should be studied for uses above 288 °C (550 °F). Some types of stainless steel are satisfactory at 316 °C (600 °F). A summary of metals compatible with Krytox® oils at various temperatures is given below.

Certain alloys have been found to cause catalytic depolymerization of Krytox® lubricants at high temperatures. At 316 °C (600 °F), for example, titanium alloys that contain aluminum function in this way. Aluminum alloy 2024 also catalytically depolymerizes Krytox® lubricant at 371 °C (700 °F). This depolymerization is considerably reduced in the absence of oxygen when an inert gas is substituted for the dry air flow. This suggests that the reactions involved are between the Krytox® lubricant and the oxide coating on the metal surface.

Metals and Alloys Suitable for Use with Krytox® Lubricant at Elevated Temperatures

Based on results of Micro Oxidation-Corrosion Tests, 72 hr at indicated temperature, 5 L dry air flow/hr, qualifying corrosion rate 0.4 mg/cm day

371 °C (700 °F)	Nickel alloys Cobalt alloys AMS 5547 steel
343 °C (650 °F)	AMS 5525 steel Titanium alloy Ti(6Al-6V-2Sn) Mg, Ag, Cr, V
316 °C (600 °F)	Types 301, 304, 316, 321, and 446 stainless steels N-155 Titanium alloy (13V-11Cr-3Al) Titanium alloy (6Al-4V) Aluminum alloy QQ-A-355 Bearing bronze
288 °C (550 °F)	Types 405, 410, and 440 stainless steels QQ-S-636, M-1, M-50, WB-49, and 52100 steels Titanium alloy Ti(8Mn) Copper

Below 288 °C (550 °F), most metal and alloys show little or no evidence of corrosion in the presence of Krytox®.

DuPont Performance Lubricants

Extreme Conditions. Extreme Performance.

For more information or for technical assistance, please call 1-800-424-7502 or contact us at krytox@usa.dupont.com.

For international sales and support contacts, visit us at www.lubricants.dupont.com.

Copyright© 2009 DuPont. The DuPont Oval Logo, DuPont™, The miracles of science™, and Krytox® are registered trademarks or trademarks of E.I. du Pont de Nemours and Company or its affiliates. All rights reserved.
H-91815-3 (8/09) Printed in the U.S.A.

The information set forth herein is furnished free of charge and based on technical data that DuPont believes to be reliable. It is intended for use by persons having technical skill and at their own discretion and risk. Because conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information. Nothing herein is to be taken as license to operate under or a recommendation to infringe any patents.