DuPont™ Krytox® Introduces New Extra High Temperature (XHT) Line of Fluoropolymer Lubricants

New DuPont™ Krytox® XHT lubricants are made from DuPont's proprietary fluoropolymer base oils and high performance thickeners. As with all Krytox® lubricants, these products provide excellent lubrication properties and are chemically inert, thermally stable, nonflammable, and nonvolatile, making Krytox® the most robust family of lubricants available.

Krytox® XHT greases are designed for applications in the 204–399°C (400–750°F) temperature range for use in bearings, gears, chains, O-rings, sliding, and other mechanical components. These products are excellent for use in many harsh industrial applications and are currently used in mining, metal processing, power generation, textile, aviation, baking, and chemical applications. The addition of the XHT line provides a broadening of the overall Krytox® lubrication line to address long life lubrication needs from –73°C (–100°F) to 399°C (750°F).

Krytox® Takes the Heat

Conventional mineral oil lubricants begin to degrade quickly at temperatures above 93°C (200°F), and most alternative synthetic technologies begin to degrade quickly at temperatures above 149°C (300°F). Conventional oils and thickeners break down to form tars and solids that cause bearings to freeze up. As a result, frequent relubrication is required and component life is sacrificed.

Relubrication must occur more frequently as the temperature increases above 71°C (160°F). For every 11°C (20°F) increase in temperature, the life of the grease is cut in half, which can mean that relubrication is required every few hours at extreme temperatures. If relubrication is missed for any reason, the equipment fails. Frequent relubrication, as well as frequent component outages, drive up maintenance materials and manpower cost, not to mention the substantial cost of lost production.

Recirculating oil systems are often employed to remove component heat. These systems can require 50x the lubricant volume versus Krytox®, resulting in housekeeping, disposal, and other environmental issues. A malfunction in the recirculating oil system can very quickly result in component bearing failure.

Conventional lubricants are subject to oxidation, attack by harsh chemicals or solvents, flammability, and volatilization of the base oil, leading to failure of the lubrication system and associated hazards. Conventional lubricant properties are often not adequate for critical systems where failure is not an option.

Krytox® Lubricants Provide Excellent Lubrication in Harsh Environments

Krytox® lubricants provide excellent lubrication and low wear. They are totally chemically inert, thermally stable, nonflammable, and nonvolatile, making them ideal for the harshest environments. Krytox® XHT lubricants are designed, manufactured, and formulated to excel in the 204–399°C (400–750°F) temperature range.

Krytox® base oils are manufactured within the DuPont fluoropolymer supply chain as a derivative of Teflon®. DuPont is the largest producer of fluoropolymers in the world and a leader in fluoropolymer and fluorine technology. Krytox® polymer chains are completely saturated and contain only carbon, oxygen, and fluorine. Hydrogen is not present. The result is a very robust oil with excellent lubrication properties.

Krytox® XHT lubricants are composed of high viscosity, high stability, low volatility base oils, and nonmelting high temperature thickeners. These products have a very high viscosity index and provide a thick lubricating film, even at temperature extremes to 399°C (750°F). Special nonmelting and bonding thickeners ensure delivery of the base oil

for lubrication, even at these high temperatures. As shown in the examples below, Krytox® provides solutions for a variety of applications.

- Krytox® XHT-AC grease was recently applied in a line of Copper Rod Mill sizing bearings. These bearings run at temperatures of 204–260°C (400–500°F). Before Krytox®, a standard lithium-thickened mineral oil was applied daily, and bearing life was typically 1–2 weeks. Because Krytox® XHT-AC grease was applied, bearings have been running for over six months with no failures. The bearings were inspected and relubricated after four months and look to be in excellent condition. Using Krytox® has resulted in substantial savings in man hours, as well as bearing replacement cost, and a significant increase in uptime.
- Krytox® XHT-BDX was applied to dampers in a power plant fired boiler that control a 371°C (700°F) air stream. Graphite had been used previously, resulting in damper sticking and loss of control. Krytox® XHT-BDX was installed in March 2000, and dampers have operated trouble-free since that time.
- Krytox® XHT-AC has been in use for 18 months in a waffle baking oven bearing application at temperatures from 260–316°C (500–600°F).
- Krytox® XHT-BDX is being used as an O-ring lubricant for an aircraft environmental control system. This system diverts engine exhaust to the wings for de-icing purposes. No other lubricant could withstand the 316°C (600°F) temperatures on the engine exhaust.

As with any product, Krytox® will break down if overheated, but it breaks down slowly and only at very high temperatures. It does not gradually oxidize like most lubricants. During depolymerization, gaseous decomposition products are given off and the remaining fluid is less viscous, but no sludge or gummy deposits are formed.

Krytox® XHT—The Lubricant for Hot, Hot, Hot Applications

Krytox® XHT lubricants are ideal for your high temperature lubrication system. Besides the ability to work in harsh environments and high temperatures, Krytox® XHT lubricants provide typical savings that are 10–100x + the cost of the lubricant.

What are you waiting for? Call us today at (800) 424-7502 or visit us on the web at **www.krytox.com** to move a step closer to solving your most difficult lubrication problems.

For more information or technical assistance, call: (800) 424-7502

or visit us on the Web: http://www.krytox.com

Or call the Krytox® hotline in the **United States** at (800) 424-7502, E-mail: krytox@usa.dupont.com
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