



## Krytox™ XHT Takes the Heat

### Application Profile

#### **CHALLENGE: Overcoming high temperature lubricant degradation**

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 found inadequate for critical systems where failure is not an option.

At the same time, 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). When conventional oils and thickeners break down to form tars and solids that cause bearings to freeze up, frequent re-lubrication is required and component life is sacrificed. In fact, re-lubrication must occur more frequently as the temperature increases above 71 °C (160 °F). For every 10 °C (20 °F) increase in temperature, the life of the grease is cut in half, which can mean that re-lubrication is required every few hours at extreme temperatures.

If re-lubrication is missed for any reason, the equipment fails. Frequent re-lubrication, as well as frequent component outages, drive up maintenance materials and manpower cost, not to mention the substantial cost of lost production.

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

#### **What are Krytox™ XHT lubricants?**

Krytox™ XHT lubricants are made from Chemours 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 non-volatile, making Krytox™ the most robust family of lubricants available.

#### **SOLUTION: Krytox™ XHT lubricants take the heat and provide excellent lubrication in the harshest environments**

The extra high temperature (XHT) line of fluoropolymer lubricants broadens the overall Krytox™ lubrication line to address long life lubrication needs from -74 °C (-100 °F) up to 399 °C (750 °F). Specifically, 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.

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; the bearing life was typically 1-2 weeks. After applying Krytox™ XHT-AC grease, bearings have been running for over six months with no failures. The bearings were inspected and re-lubricated after four months and look to be in excellent condition. Using Krytox™ has resulted in substantial savings in man-hours and bearing replacement cost, as well as a significant increase in uptime.

Krytox™ XHT-BDX was also 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 260–315 °C (500–600 °F).

Krytox™ XHT-BDX is currently being used as an O-ring lubricant for aircraft environmental control systems. This system diverts engine exhaust to the wings for de-icing purposes. No other lubricant could withstand the 315 °C (600 °F) temperatures of engine exhaust.

### **PERFORMANCE: Krytox™ XHT—The lubricant for hot, hot, hot applications**

Increased uptime and reduced maintenance costs lead to higher productivity. More reliable equipment with consistent performance reduces quality problems and waste. Unscheduled shutdowns are avoided and safety is increased, because there is less time spent around hot equipment.

Krytox™ XHT lubricants are ideal for your high temperature lubrication systems. Besides the ability to work in harsh environments and high temperatures, Krytox™ XHT lubricants provide typical savings that are 10–100 times or more 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](http://www.krytox.com) to move a step closer to solving your most difficult lubrication problems.

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