Krytox™
Performance Lubricants

News for Application Sharing

September 2024
Case Studies

- Krytox™ GPL205 for Power Generation
- Krytox™ GPL277 for Metal Processing and Molding

Chemours™

Krytox™ GPL205 for Power Generation

Application Profile

Product	Krytox™ GPL205
Country	Thailand
Industry	Power Generation
Application	SEAL – AND GAP; Internal Shaft/Lever; Internal Linkage/ Joint Connect
Lubrication Cycle	Yearly
Lubrication Amount Per Event	Unknown
Customer Benefit	Decreased downtime, long lasting lubricant life, lubricant meets contact resistivity requirements of the application

Background Information

High-voltage circuit breakers, which regulate high voltages and safeguard other substation equipment, are installed at power substations. Many outdoor substations employ oil-filled circuit breakers. These circuit breakers have contacts that are submerged in an oil that insulates and prevents arcing. The oil is enclosed in a metal casing. Older circuit breakers have a lifespan of about 40 years, while modern circuit breakers last for 30 years and are designed to be more easily maintained and replaced.

SF_6 circuit breakers are a type of high-voltage circuit breaker that use sulfur hexafluoride (SF_6) gas to extinguish the arc. SF_6 is an inert, non-toxic, and non-flammable gas that has excellent electrical insulation and arc-quenching properties. SF_6 circuit breakers are widely used in power grids, substations, and industrial applications.

Opportunity Identification and Customer Challenges/Unmet Need

- Existing customer experiencing challenges with incumbent lubricant
- Customer was experiencing frequent disruptions due to downtime
- Application requires that the lubricant demonstrate a high level of efficiency and chemical inertness in a small volume application

Application Information

Lubrication Points

- Rolling Element Bearings
- Sliding Surfaces

Lubrication Requirements

- Chemically inert
- Superior viscosity performance in a wide temperature envelope
- Resistant to oxidation
- Reliable performance—must reduce friction and wear and prevent corrosion and rust
- Must meet incumbent product specification/performance

Enhanced Benefit Experience by Customer

- Rapid operation with complexity of mechanical assembly
- Prolonged service life
- No impact to equipment downtime

OEM Qualifications or Certifications Required

- Not required for this application

Reasons for Success

- Product Versatility—lubricants are available but Krytox™ GPL205 meets full needs of the customer and eliminates costly unplanned downtime.

Potential In-Kind or Not-In-Kind Alternatives

Rocol® OT20 or Barrierta I MI-202

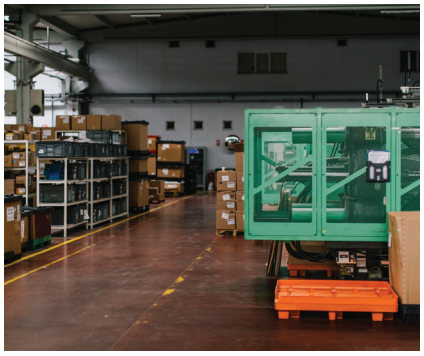
Potential for Application Extension

Yes, can be employed in power stations globally

Krytox™ GPL227 for Metal Processing and Molding

Application Profile

Product	Krytox™ GPL227
Country	Indonesia
Industry	Metalforming
Application	Metal Mold Guide and Ejector Pins
Lubrication Cycle	During die replacement and maintenance
Lubrication Amount Per Event	500 grams per lubrication cycle
Customer Benefit	Decreased downtime during operation, longer equipment life, increased productivity



Background Information

The global metalforming industry is a vital sector that produces components and products for various applications, such as automotive, aerospace, construction, medical, and consumer goods. Metal injection molding (MIM) is a metalforming process that combines the advantages of powder metallurgy and plastic injection molding. MIM is a cost-effective and versatile method for producing high-performance metal parts, using a variety of metals and alloys, with complex geometries and tight tolerances.

MIM requires guide and ejector pins to facilitate the alignment and ejection of the molded parts. Guide pins ensure the accurate positioning and alignment of the mold halves during the injection and cooling stages. Ejector pins enable the smooth and safe removal of the molded parts from the mold cavity without damaging them. During operation, these parts are subjected to high temperatures, pressures, and friction. Proper lubrication can reduce wear and tear, extend the lifespan, and improve the performance of the pins and the mold.

Opportunity Identification and Customer Challenges/Unmet Need

- Customer was not previously using a lubricant—pins were being damaged and broken
- Required a lubricant that could meet the high temperature requirements of the application

Application Information

Lubrication Point

- Mold Guide and Ejector Pins

Lubrication Requirements

- Withstand the high operating temperature of the application (180–250 °C)

Enhanced Benefit Experience by Customer

- Increased customer productivity
- Lowered required maintenance intervals/cost
- Extended equipment life

OEM Qualifications or Certifications Required

- Not required for this application

Reasons for Success

- Superior high temp performance—Krytox™ GPL227 does not oxidize or degrade at the operating limits of the application. Decreased oil separation at application temperature prevents excessive oil bleed and dripping.
- Wear Protection—Krytox™ GPL227 is able to provide the needed wear protection at the lower speeds of this application and effectively extends the life of the pins and the mold.
- Ease of Application—Customer can easily deliver Krytox™ GPL227 to the pins using a brush.

Potential In-Kind or Not-In-Kind Alternatives

Not identified

Potential for Application Extension

Yes, can be used in other metalforming and MIM processes