



Unlock Peak Performance

Why Clean Surfaces Matter for Krytox™ Lubricants



Unlock Peak Performance: Why Clean Surfaces Matter for Krytox™ Lubricants

Krytox™ perfluoropolyether- (PFPE-) based oils and greases are known for their exceptional resistance to extreme temperatures and chemical exposure, and high load-carrying capability. To achieve optimal performance, Krytox™ lubricants must be used under the right conditions. Proper surface preparation to remove residual oils, greases, or anti-corrosion coatings is essential to ensure desired efficiency when applying Krytox™ products to bearings and other components.

Why Compatibility Matters

Krytox™ lubricants are designed to form a stable, durable film on clean surfaces. If residual oils, greases, or anti-rust preservatives remain on the contact surfaces, they can interfere with this process, leading to several potential issues, such as:

- **Adhesion Failure:** Residual contaminants act as barriers, preventing Krytox™ lubricants from adhering properly to the surface. This reduces the lubricant's ability to form a uniform, protective film.
- **Chemical Incompatibility:** Krytox™ lubricants are chemically inert, but interaction with certain substances can lead to the formation of degradation byproducts, especially at elevated temperatures. This may lead to premature failure of the lubricant due to contamination debris.
- **Performance Degradation:** Residual impurities can compromise the Krytox™ lubricant's unique properties, such as its low volatility, high oxidation resistance, and excellent lubrication under extreme conditions. Krytox™ lubricants are chemically inert, but residual contaminants

will degrade or carbonize, especially at elevated temperatures. This may lead to premature failure of the Krytox™ lubricant due to contamination debris.

Impact on Bearings and Components

When Krytox™ lubricants fail to adhere or integrate properly on surfaces due to contamination:

- Bearings may experience uneven lubrication, leading to increased friction, wear, heat generation, and in extreme cases, failure.
- The lubricant film may break down prematurely, reducing the lifespan of both the lubricant and the component.
- Equipment operating under high-speed, high-temperature, or high-pressure conditions may not achieve the intended performance or reliability standards.

Importance of Removing Anti-Rust Preservatives

Bearings and metal components are often coated with anti-rust preservatives to prevent corrosion during storage and transit. While these coatings provide temporary corrosion protection, they are typically incompatible with Krytox™ lubricants. For optimal performance, completely remove all anti-rust preservatives before applying Krytox™ products. If not removed, these preservatives can:

- Leave an uneven substrate that impairs the lubricant's ability to provide consistent coverage and protection.
- Decompose under high temperature or long-term operation which can affect the appearance and

the life of the Krytox™ lubricant.

Examples of anti-rust preservatives that must be removed include:

- Light oil films
- Wax-based corrosion inhibitors
- Rust-preventive coatings

The typical effect of failure to remove bearing anti-corrosion preservative can be seen in the below FE9 bearing test* data. Residual anti-corrosion preservative present on the bearing demonstrated a 72% reduction in bearing life when compared to the cleaned bearing.

FE9 (DIN 51821) Testing Performed by Third Party					
Grease	Load (N)	Speed (rpm)	Temp (°C)	F10 (hrs)	F50 (hrs)
Krytox™ GPL 225-Filled Bearing with Preservative	3000	3000	160	32	145
Krytox™ GPL 225-Filled Bearing with Preservative Removed	3000	3000	160	115	513

*FE9 (DIN 51821) is a test of predictive grease life in a bearing. The test utilizes five bearings to develop statistical life expectancy as denoted by F10 and F50. The F number is the percentage of bearings that could fail in the hours run.



Recommendations for Ensuring Compatibility

To ensure optimal performance of Krytox™ lubricants:

1. Thorough Cleaning:

- Use cleaning agents such as isopropyl alcohol (IPA), acetone, petroleum ether, or solvents recommended by the bearing and lubricant manufacturer to remove residual oils, greases, and coatings. Safety cleaners may remove most hydrocarbon-based oils, greases, and coatings, but may leave residues behind; a final rinse with a high flash solvent such as IPA, acetone, or petroleum ether may be needed to remove these residues. Ensure that proper ventilation and personal protective equipment are utilized when handling such solvents.
- Ensure the surface is completely dry before applying Krytox™ lubricant to prevent dilution or contamination. Use proper personal protective equipment to maintain surface cleanliness while handling. Gloves are recommended as oil residue from fingerprints can lead to corrosion on clean metal surfaces.

2. Surface Preparation:

- Verify that the surface is free of any visual or tactile residues. Even micro-thin layers of contaminants can interfere with adhesion.
- For high-speed or high-precision applications, consider using ultrasonic cleaning or advanced techniques to achieve a pristine surface.

3. Consultation with Suppliers:

- Confirm with the bearing or component manufacturer to verify if the new bearing has been coated with an anti-corrosion/preservative treatment and whether that

treatment is compatible with Krytox™ lubricants. If not compatible, ask the bearing manufacturer for guidance on the type of solvents required to completely remove them.

- Request guidance from Krytox™ lubricant suppliers on best practices for cleaning and preparation.

4. Testing for Compatibility:

- Before full-scale application, perform small-scale trials to ensure the Krytox™ product effectively lubricates the cleaned surface when applied.
- Monitor initial performance to verify that the lubricant is functioning correctly under operating conditions.

Cleaning Procedures and Cleaning Solvents Based on Best Lab Practices

A Chemours representative can provide recommendations on suitable cleaning solvents. Below is the standard Lab Solvent Cleaning Procedure.

Lab Solvent Cleaning Procedure

1. Don appropriate PPE and ventilation for lab solvent handling.
2. Rinse component with toluene.
3. Wipe away residual solvent with clean cloth.
4. Allow component to air dry in a dust free environment.
5. Rinse component with isopropyl alcohol.
6. Wipe away residual solvent with clean cloth.
7. Allow component to air dry again in a dust-free environment.

Additional testing has been done using spray solvents that are readily available at most automotive and big-box stores, utilizing the below Spray Cleaner Cleaning Procedure.

Spray Cleaner Cleaning Procedure

1. Don appropriate PPE and ventilation for spray cleaner handling.
2. Spray component with spray cleaner.
3. Wipe away residual solvent with clean cloth.
4. Spray component once again with cleaner.
5. Allow component to air dry in a dust-free environment.
6. If needed, rinse component with a high flash solvent such as isopropyl alcohol or acetone, and air dry in a dust-free environment.

The four-ball wear (ASTM D2266) data, as shown in below table, demonstrates that there is no statistical difference in bearing wear when utilizing the Spray Cleaner Cleaning Procedure versus using the Lab Solvent Cleaning Procedure. Spray cleaners can be an effective and easy way to clean any anti-corrosion/preservative coatings off of any metal parts that Krytox™ lubricant may be applied to. As always, ensure that proper ventilation and personal protection equipment are utilized to handle the cleaning solvents or spray cleaner.

Cleaning Procedure	Cleaning Product Chemical Composition ¹	Average Wear Scar (mm) by ASTM D2266
Standard Spray Cleaning	Tetrachloroethylene	0.78
Standard Spray Cleaning	Acetone/Heptanes	0.78
Standard Spray Cleaning	Acetone/Toluene	0.78
Krytox™ Cleaning Procedure	Toluene and IPA	0.80

1. Product composition as suggested by product SDS.

Krytox™ lubricants offer exceptional performance advantages, but their effectiveness depends on proper surface preparation. By removing incompatible oils, greases, and anti-rust coatings, you can unlock the full potential of Krytox™ lubricants and ensure reliable, long-lasting lubrication for critical applications.

Why Clean Surfaces Matter for Krytox™ Lubricants



Krytox™ High-Performance Lubricants: Made for what's never been made before.

Staying ahead of the curve in manufacturing requires constant improvements. The stakes are high and failure is not an option. So, the industry depends on Krytox™ high-performance lubricants to anticipate, prevent, and solve the most intractable problems by formulating the ideal lubricants for the most extreme conditions. Krytox™ lubricants are safe and uniquely compatible with your equipment to extend its life, reduce downtime, and cut maintenance costs. For 60 years, we've considered reliability and performance non-negotiable. That's why we're the perfect partner for whatever is next. Together, let's reconsider possible.

Chemours is ISO 9001 and ISO 14001 certified, and select grades of Krytox™ lubricants are NSF H-1 certified.

For more information, visit [Krytox.com](https://www.krytox.com) or contact us [here](#).



Versatile Attributes of Krytox™ Lubricants

Performance over a wide temperature range

We provide more durable solutions validated by industry standard testing, running at higher temperature (from -73 °C to greater than 360 °C (-99 °F to 68 °F) and for longer duration, allowing your machines to operate consistently and with minimum downtime.

Safety and no VOCs

With Krytox™ lubricants, you can be assured you're using the safest solution; you can achieve peak performance levels with our chemically inert, nonflammable, nonreactive PFPE lubricants. With no VOCs, Krytox™ lubricants have a smaller environmental footprint than not-in-kind competitors.

Chemical stability

Krytox™ lubricants are not only long-lasting, but also chemically stable; our solutions are nonmigrating, will withstand harsh chemical environments, and will not degrade. This means you can lubricate without having to worry about repeatedly reapplying.

Lower total cost of ownership

With our long-lasting Krytox™ lubricants, your maintenance will decrease, which, in return, reduces your total cost of ownership.

Peace of mind

As demands put on machines increase and the stresses under which they are placed intensify, Krytox™ lubricants give you peace of mind in knowing you are using a quality lubricant that lasts.

Global reach

Our backward integrated model coupled with our global reach and global technology support means that you can feel secure in our ability to supply you everywhere.



The information set forth herein is furnished free of charge and based on technical data that Chemours believes to be reliable. Chemours makes no warranties, express or implied, and assumes no liability in connection with any use of this information. Nothing herein is to be taken as a license to operate under or a recommendation to infringe any patents or trademarks. ©2026 The Chemours Company FC, LLC. Krytox™ and any associated logos are trademarks or copyrights of The Chemours Company FC, LLC. Chemours™ and the Chemours Logo are trademarks of The Chemours Company. C-10365 (10/25)

