DOW CORNING

Molykote® G-9000 Series

Phenyl Fluoro Siloxane Copolymers for Improved Thermal and Oxidative Stability

In our search for innovative new lubricants, Dow Corning has developed a totally new patented technology that could very well change the way we think about specialty lubricants.

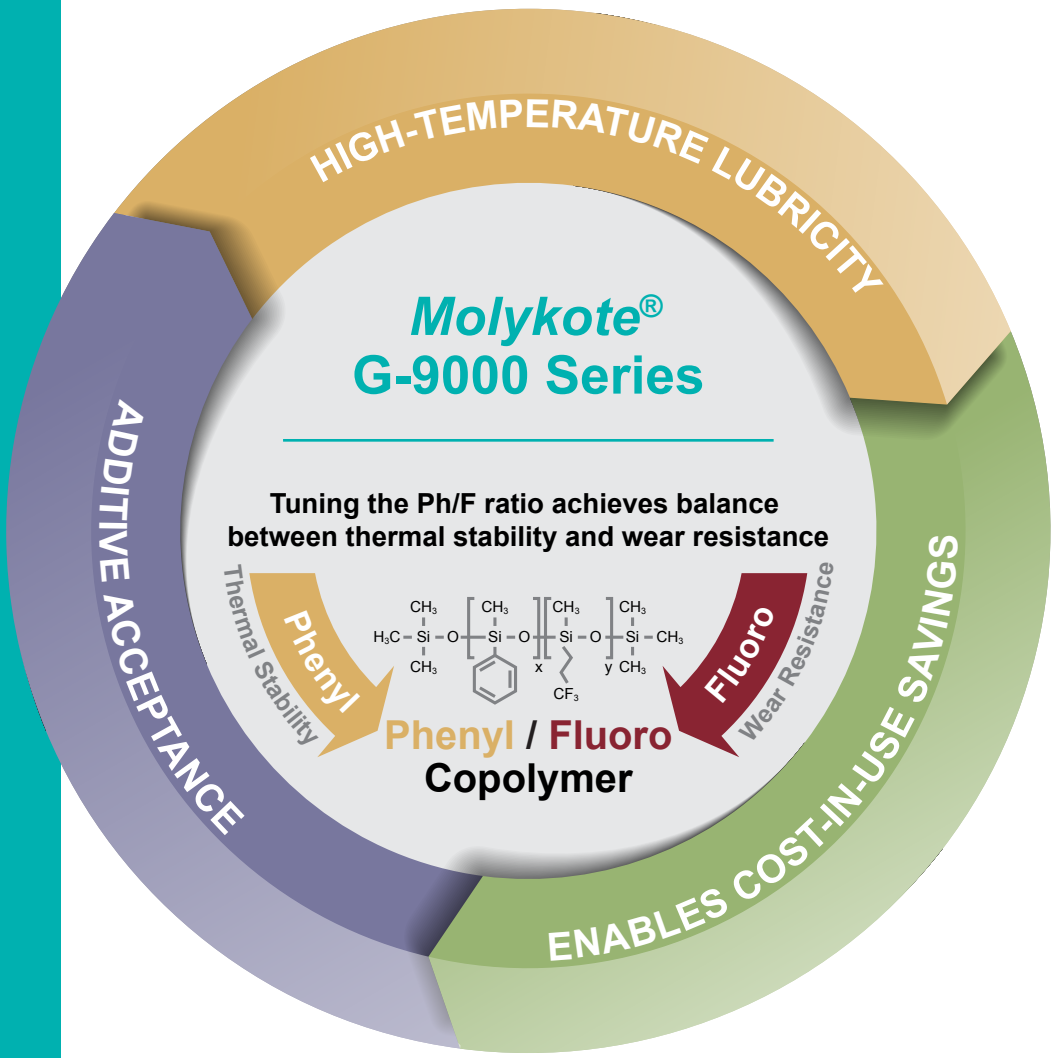
Based on phenyl fluoro siloxane copolymers, this family of lubricants could develop into a cost-attractive solution in applications that do not require the ultimate high-temperature performance and where ester-based lubricants will be limited in temperature.

This guide will help you learn some of the key benefits of this family, such as:

- High-temperature (+220ºC) lubricity without sacrificing low-temperature (-35ºC) performance
- Lower density enables cost-in-use savings
- Additive technology allows customized performance

MOLYKOTE®

A New Way of Thinking about Specialty Lubricants



Better Performance, Better Protection

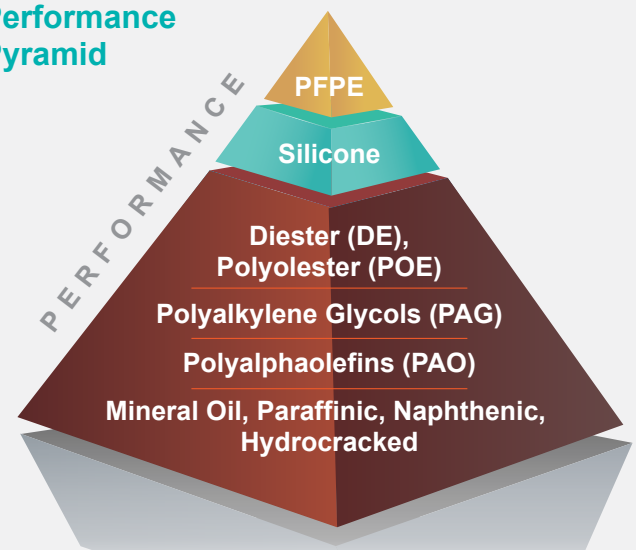
With a lower specific gravity and high-temperature and oxidation resistance, *Molykote*® G-9000 Series lubricants offer improved performance over ester greases in many applications.

Molykote G-9000 Series lubricants can accept a variety of additives, including corrosion inhibitors, antioxidants and AW/EP additives. This additive acceptance allows interesting formulation flexibility to meet specific application requirements.

High-Temperature Performance

	PFPE	G-9000 Series	Ester Grease
Base Oil Technology	PFPE	Si-Copolymer	Polyolester
High-Temperature Performance: FAG FE9, (6000 rpm & 1.5 kN); F_{50}; DIN 51821@ 220ºC	44 hours	62 hours	**FAIL**
Relative Cost-in-Use	$$$	$$	$

Performance Pyramid

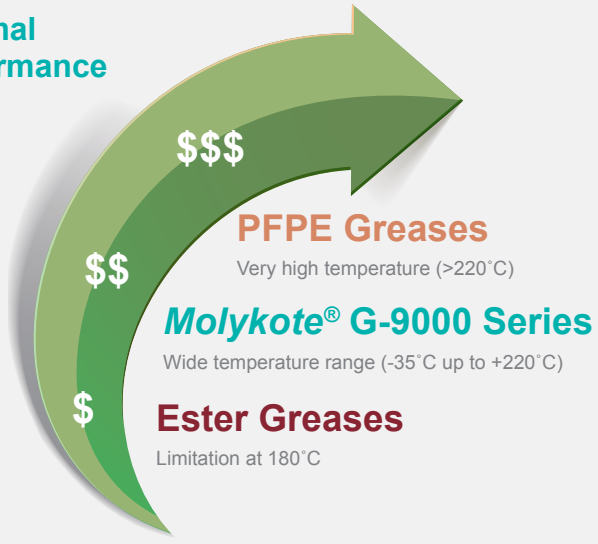


Ph/F siloxane copolymer is a new class of silicone lubricant with significantly improved lubricity and high-temperature performance.

Thickeners suitable to prepare copolymer greases include:

- PTFE
- Li- and Li-complex soaps
- Polyurea

Thermal Performance



***Molykote* G-9000 Series:**

- Wide temperature range (-35ºC up to 220ºC)
- Significant potential for cost savings

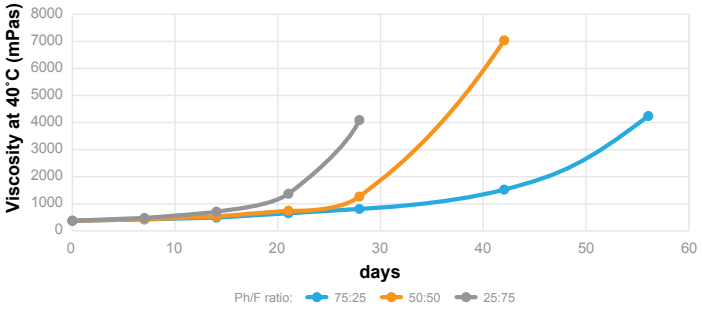
Molykote® G-9000 and G-9001 samples are available upon request.

Lower Specific Gravity, Higher Performance

Molykote G-9000 Series Phenyl Fluoro Siloxane Copolymers have a lower specific gravity than PFPE lubricants. This means more lubrication from less material – and greater value. It also enhances performance in applications where high bearing speed or total mass are critical.

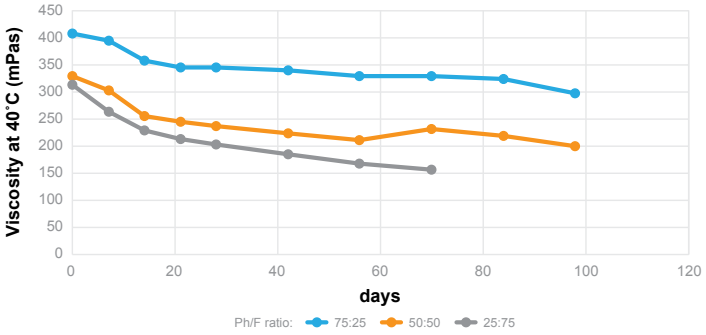
Thermal Stability and Tribological Characteristics for New Ph/F Copolymer Fluids

Figure 1: Open Cup Thermal Stability (250˚C)



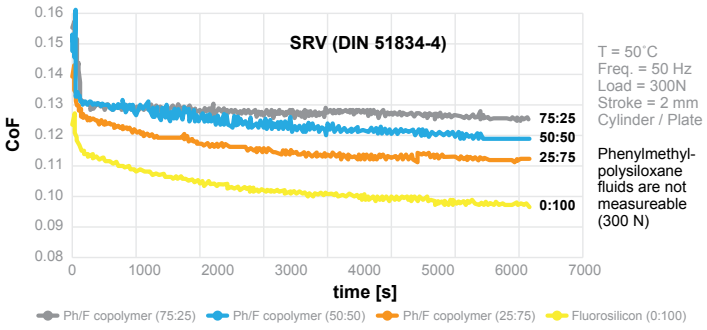
Formulation with high phenyl content has the best thermal/oxidation stability.

Figure 2: Closed Cup Thermal Stability (250˚C)



In closed systems without evaporation and with limited oxidation, all ratios show high thermal stability – over 100 days at 250ºC.

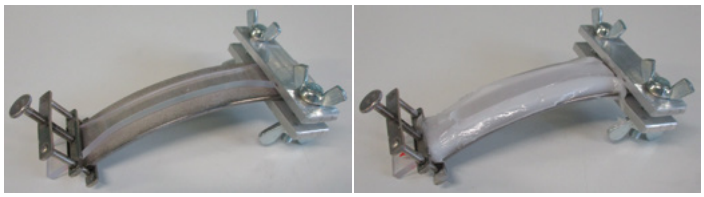
Figure 3: Wear Resistance



Plastic and Elastomer Compatibility

Stress cracking testing showed no cracking when *Molykote*® G-9000 Series products were used with:

- Polyoxymethylene (POM)
- Polyamide 6.6 (PA 6.6)
- Acrylonitrile butadiene (ABS)
- Polycarbonate (PC)
- Polyetheretherketone (PEEK)



Test specimens with shape and parameters according to DIN ISO 527-2 Type 1B were placed on the holder with radius 140mm. The samples were kept in contact with grease for 7 days at 80°C.

Note: All plastics are different and there are a lot of parameters influencing the compatibility. Tests with specific customer samples are recommended before application.

Take a Test Drive

To see how well *Molykote* G-9000 Series lubricants will work in your application, contact your distributor and request a development sample.

To learn more about this new technology or other Dow Corning and *Molykote*® lubrication solutions, visit ***dowcorning.com/iam***, or talk to an expert at ***info@molykote.com***.

Image: AV15217, AV24662, AV24640, AV22480, AV11797, AV01056, AV11765, AV26362, AV26363

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