

# Whitepaper

## Interflon's MicPol® Technology: A PFAS-Free Solution for Sustainable Lubrication



*This information is based on our best and present knowledge and intended to provide general notes about PFAS in industrial lubricants. This document does not guarantee suitability for a specific application. Quality of our products is guaranteed under our General Conditions of Sale between Interflon BV and subsidiaries and/or contracted distributors. Interflon® and MicPol® are registered trademarks of Interflon BV. Typical properties mentioned are based on production tolerances and do not represent a specification. Variations that do not affect product performance are to be expected during normal manufacturing. Information in this document is subject to change without prior notice.*

## Introduction

Per- and polyfluoroalkyl substances (PFAS) have become a growing concern due to their environmental and human health impacts. As awareness increases, industries, including lubrication, face challenges in balancing efficiency, innovation, and sustainability.

Lubricants are essential for the smooth operation of machinery and equipment, but the presence of PFAS in these products raises significant concerns. This whitepaper explores the use of PFAS in industrial lubricants, their release within the supply chain, and the implications for businesses. Addressing this complex issue requires expertise in chemistry, engineering, environmental science, and regulatory compliance.

Interflon is committed to developing sustainable solutions that enhance industrial efficiency while safeguarding the environment and human health.

To clarify: Interflon fully acknowledges the global health and environmental risks associated with PFAS.

## 1.1 Background and Context

While concerns about PFAS date back decades, discussions gained significant traction in the late 1990s. The issue has evolved in key phases:

- **Discovery and Commercial Use:** PFAS were first synthesized in the mid-20th century (ITRC, 2020). Their resistance to heat, water, and oil made them highly valuable across industries.
- **Emerging Concerns:** By the 1970s, researchers raised alarms about PFAS's persistence and potential toxicity (ITRC, 2020), noting their accumulation in the environment and living organisms.
- **Scientific Research:** Between 2000 and 2010, studies expanded our understanding of PFAS's environmental impact, human exposure routes, and health risks (ECHA, n.d.).
- **Regulatory Actions:** As evidence mounted, regulatory agencies worldwide implemented restrictions, including drinking water standards and limits on PFAS use in consumer products.

## 1.2 What Are PFAS?

PFAS are synthetic chemicals widely used in industrial and consumer applications. They encompass a broad range of compounds, all characterized by a carbon-fluorine bond—one of the strongest in chemistry—which makes them highly resistant to degradation.

- **Teflon and its Role in Lubrication**  
Polytetrafluoroethylene (PTFE), commonly known as **Teflon**, is one of the most well-known PFAS. Its non-stick, heat-resistant, and chemically inert properties make it an effective additive in industrial lubricants, enhancing machine performance and extending component lifespan. PTFE-based lubricants are used in demanding industries, including automotive, aerospace, and heavy machinery.  
  
However, the persistence of PFAS, including PTFE, has raised serious environmental and health concerns, prompting a shift toward sustainable alternatives.

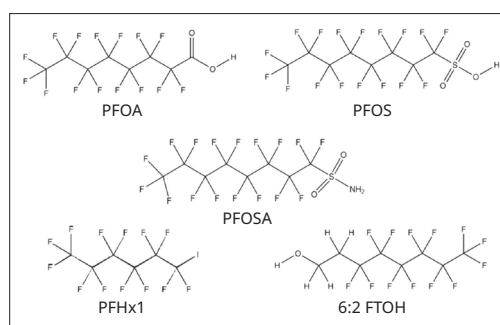


Figure 1 - PFAS structure

### 1.3 MicPol® Technology: A PFAS-Free Breakthrough

In 2012, Interflon embarked on a groundbreaking initiative to develop next-generation lubricants using MicPol® technology, surpassing traditional PTFE-based formulations. This project prioritized sustainability, friction reduction, and the integration of renewable resources.

After eight years of rigorous laboratory testing and field trials, Interflon successfully introduced PFAS-free lubricants featuring MicPol® technology. The motivation was not initially driven by environmental concerns. At the time, PFAS regulations were not a major industry focus; instead, the motivation was the pursuit of superior functionality and reduced ecological impact.

#### Key Achievements

Interflon's MicPol®-based lubricants are:

- 100% PFAS-free (including PTFE)
- Free of microplastics and nanoparticles
- Compliant with global regulations (REACH, ECHA, CLP, OSHA, TSCA, etc.)

This success represents a new benchmark in industrial lubrication, combining high performance with environmental responsibility.

#### How MicPol® Technology Works

MicPol® technology incorporates micronized and polarized particles that enhance lubrication efficiency:

- Micronized particles (0.05 - 0.15 microns) fill surface irregularities, ensuring a smooth, protective layer.
- Polarized particles create a strong adhesion to surfaces, reducing friction and wear.
- Bonding Bridge Technology: Interflon has also engineered a unique base oil enhancement, improving resistance to extreme pressures.

#### Advantages of MicPol® Technology:

- Superior Wear & Corrosion Protection: Forms a strong, long-lasting lubrication film, extending machine lifespan and reducing downtime.
- Improved Energy Efficiency: Low friction significantly cuts energy consumption, lowering operational costs and carbon footprints.
- Minimal Environmental Impact: Longer lubrication intervals reduce waste and ecological footprint.
- Lubricants with the new MicPol® technology are free from PFAS, SVHCs, microplastics, nanoparticles, and TSCA-restricted substances.

In short, MicPol® technology delivers both operational efficiency and environmental sustainability.

#### Results to Date

Interflon has now made 91% of its lubricant range PFAS-free, enabling companies to comply with evolving regulations without sacrificing performance.

MicPol®-based lubricants also meet:

- ISO 21469 standards
- Food-grade, vegan, halal, and kosher requirements
- Biodegradable formulations available

This ensures compatibility across diverse industries, from food processing to heavy manufacturing.

## 1.4 Conclusion

As PFAS concerns grow, industries must transition to safer, sustainable lubrication solutions. Interflon's PFAS-free MicPol® lubricants provide maintenance professionals with a future-proof alternative—delivering top-tier performance while meeting regulatory demands.

### **Take the Next Step**

Discover how Interflon's PFAS-free lubricants can optimise maintenance, reduce costs, and support sustainability goals.

**Contact us today for a consultation or demonstration.**