



Futureproofing Your Products Against PFAS Restrictions

What OEMs Must Do Now to Protect Performance, Compliance and Market Access

Executive Summary

PFAS (per- and polyfluoroalkyl substances) regulations are moving from discussion to enforcement. Over the next several years, global restrictions will affect thousands of fluorinated substances, including materials widely used in elastomers, such as FKM, FFKM, PTFE and PFAS-based processing aids. OEMs in medical devices, aerospace and defense, food and beverage processing, industrial fluid handling and energy sectors face growing pressure to eliminate PFAS-containing materials, document compliance and validate alternatives.

The challenge is not just regulatory. It is also technical and operational. Fluorinated elastomers have long been trusted for chemical resistance, heat tolerance and durability. Replacing them requires careful material selection, testing and supply-chain transparency.

The good news: PFAS-free elastomer solutions already exist for many applications. OEMs that begin transitioning now can avoid supply disruptions, reduce requalification bottlenecks and gain a competitive advantage through regulatory readiness and sustainable design.

1. Why PFAS Regulations Matter to OEMs

Regulatory activity is accelerating:

- The EU has proposed restrictions covering more than 10,000 PFAS substances.
- U.S. rules now require extensive PFAS reporting.
- Additional actions are developing at state and international levels.

These developments mean PFAS-containing polymers, including FKM, PTFE and related fluorinated materials, are under scrutiny, even in long-standing industry applications.

For OEMs, this creates three immediate risks:

- **Market Access Risk**
Products containing restricted PFAS materials may face sales barriers in key markets.
- **Supply Chain Risk**
Suppliers are already phasing out certain PFAS-based materials, tightening availability and increasing costs.
- **Qualification Bottlenecks**
As deadlines approach, internal and external testing labs, engineering teams and regulatory departments will face heavy demand, slowing approvals for late movers.





2. Where PFAS Appear in OEM Components

PFAS are not limited to obvious fluoropolymers. They can appear in:

- Seals, gaskets and O-rings made from FKM and FFKM
- PTFE-filled elastomer compounds
- Mold release agents and processing aids
- Coatings and low-friction surfaces

These materials are commonly used in:

- Medical devices: pumps, valves, tubing and diagnostic systems
- Food and beverage equipment: fillers, mixers and sanitary seals
- Aerospace and defense systems: fuel, hydraulic and environmental systems
- Industrial and energy equipment: chemical handling, compressors and fluid control

In many cases, PFAS materials were selected for performance reasons. Now, regulatory definitions are expanding faster than design cycles can adapt.

3. Shifting Mindsets: From Wait and See to Act Now

Many OEM teams believe:

- There is still time before bans take effect
- Fluorinated elastomers can be used until forced to change
- Alternatives won't meet performance requirements

The reality is different. Regulations are progressing and early substitution efforts are already underway across the supply chain. Waiting increases the likelihood of rushed redesigns, higher costs and lost production time.

Proactive OEMs can gain advantages:

- Smoother transition timelines
- Greater supplier collaboration
- Reduced regulatory uncertainty
- Stronger sustainability positioning

4. Potential PFAS-Free Alternatives

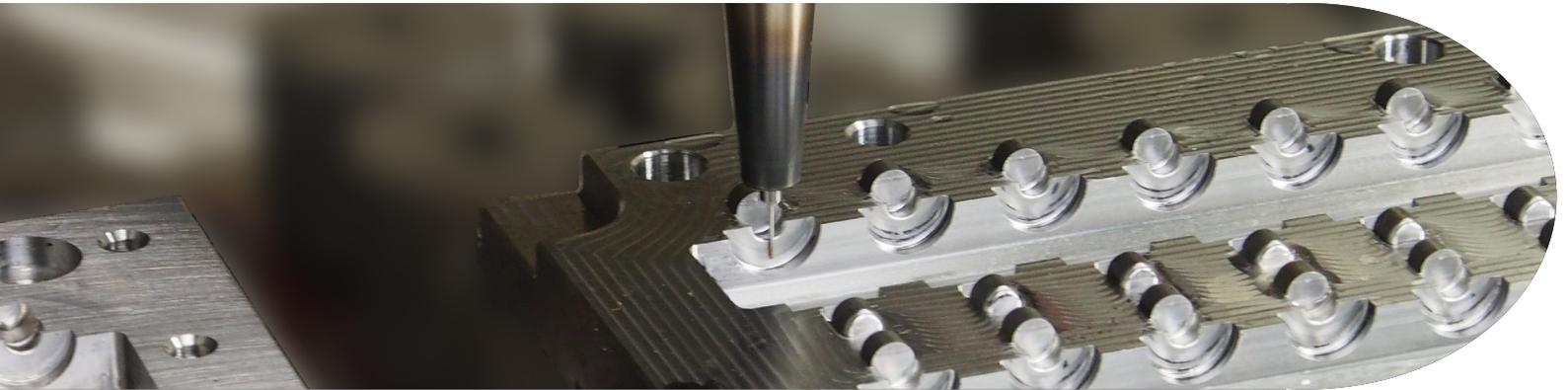
PFAS-free materials are not one-size-fits-all, but viable options exist that can be explored.

Legacy Material	Potential Alternatives	Typical Strengths
FKM/FFKM	HNBR	Oil, heat and mechanical resistance
PTFE-based solutions	Silicone, LSR	Clean, biocompatible and temperature stable
Fluorinated general seals	EPDM	Water, steam and mild chemical resistance

Advanced high-performance elastomers are also under development to address more demanding environments.

Material substitution should be approached as an engineering exercise, not a simple swap. Performance requirements, regulatory demands and processing conditions must all be evaluated together.





5. The Qualification Challenge

Replacing PFAS materials often requires:

- Physical and chemical testing
- New molds and tools
- Validation to ASTM, ISO or industry-specific standards
- Documentation for regulatory filings
- Internal and customer approvals

This process can take months. As industry-wide demand rises, qualification capacity will become a limiting factor. Early engagement with knowledgeable material partners is critical to maintaining timelines.

6. A Practical Roadmap for OEMs

To stay ahead of PFAS restrictions, OEMs can follow these steps:

Step 1: Identify PFAS Exposure

Map components, materials and suppliers where fluorinated substances may be present.

Step 2: Prioritize High-Risk Parts

Focus on mission-critical components and high-volume products first.

Step 3: Evaluate PFAS-Free Options

Work with material experts to compare performance and compliance.

Step 4: Begin Testing and Validation

Initiate qualification before regulatory deadlines create bottlenecks.

Step 5: Strengthen Documentation

Ensure clear material declarations and traceability.

7. Why Partnering Early Matters

Transitioning away from PFAS is not simply a compliance exercise, it is a strategic supply-chain decision. OEMs benefit most when working with partners who can provide:

- Documented PFAS-free formulations
- Application engineering support
- Testing and validation data
- Long-term supply continuity

Collaboration among compounders, OEMs and end users accelerates successful adoption and reduces risk.

Conclusion: The Time to Act Is Now

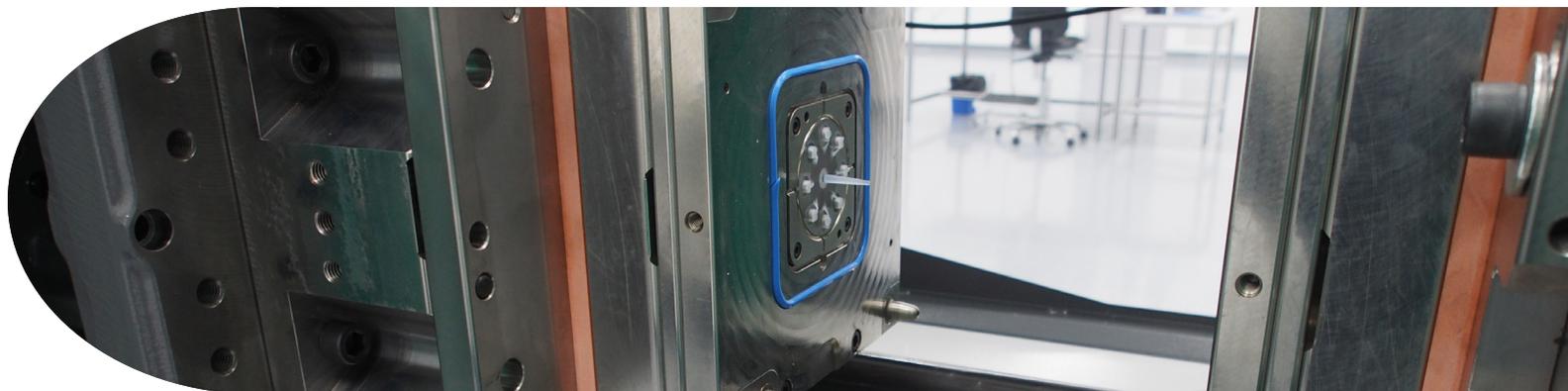
PFAS restrictions are reshaping material requirements across regulated industries. Waiting increases exposure to supply disruptions, compliance challenges and costly delays.

PFAS-free elastomer solutions are already available. OEMs who begin transitioning now will be best positioned to protect performance, maintain certifications and sustain market access.

Next Steps

Engage with a materials expert to begin evaluating PFAS-free alternatives for your components. Early action ensures smoother transitions, stronger compliance positioning and uninterrupted product availability.

Start your PFAS readiness assessment with PAI today.



How Precision Associates, Inc. (PAI) Supports Your PFAS Transition

PAI partners with OEMs in regulated and high-performance industries to navigate PFAS-related material transitions with confidence. As regulations evolve, PAI provides the technical, documentation and supply-chain support required to move from PFAS-containing materials to validated PFAS-free alternatives.

PAI supports OEMs through:

- **PFAS-Free Material Expertise**
Development and supply of elastomer compounds designed to meet demanding mechanical, chemical and thermal performance requirements without the use of PFAS substances.
- **Application Engineering Collaboration**
Technical support to help evaluate part function, operating environment and regulatory exposure, ensuring the right material is selected for the application, not just a direct substitution.

- **Qualification and Validation Support**
Guidance aligned with ASTM, ISO and industry-specific standards to help streamline testing and requalification efforts.
- **Regulatory-Ready Documentation**
Clear material declarations and traceability to help OEMs meet customer, regulatory and ESG expectations.
- **Long-Term Supply Continuity**
Proactive formulation strategies to reduce risk from future regulatory changes and material phaseouts.

By working with a partner that understands both performance requirements and compliance realities, OEMs can reduce transition risk while maintaining product integrity and market access.

Engage PAI to begin evaluating PFAS-free material alternatives for your components.

Learn more

To learn more about PAI's precision-molded products, visit www.precisionassoc.com.

To request a quote for custom parts or seals call +1.612.333.7464 or 1.800.394.6590 or visit precisionassoc.com/contact-us.

