

PFAS-Free Aerospace Materials

A Lincoln Composite Materials (LCM) Perspective

Part One – 8 Frequently Asked Questions from OEMs and Tier-1 Suppliers:

As PFAS regulations in aerospace manufacturing continue to evolve, OEMs, Tier-1 suppliers, and MRO organizations are asking practical questions about what PFAS-free film adhesives, prepregs, and potting compounds really mean for performance, qualification, and program risk.

Below are some of the most common PFAS questions we hear from aerospace Materials & Processes (M&P), Manufacturing, and Supply Chain teams.

1. What does “PFAS-free” mean in aerospace materials?

In aerospace applications, PFAS-free materials refer to adhesives, prepregs, or potting compounds formulated without intentionally added per- and polyfluoroalkyl (PFAS) substances, in response to emerging regulatory, environmental, and customer/human-driven requirements.

Importantly, PFAS-free does not automatically mean “drop-in replacement.” Aerospace teams are evaluating these materials through the same lens they apply to any critical material change: performance, qualification risk, processing behavior, price and long-term durability.

2. Will PFAS-free aerospace materials match legacy products performance?

This is typically the first and most important question raised by M&P engineers and structural engineers.

A change in chemistry does not automatically equate to reduced mechanical performance, but it does require validation. Leading aerospace teams are focusing on their specific application-relevant testing, including but not limited to:

- Lap shear strength
- Peel performance
- Hot/wet durability
- Thermal and environmental resistance
- Processing consistency

Rather than relying on generic claims, teams are conducting side-by-side evaluations against qualified legacy materials that are being discontinued.

Key takeaway:

Aerospace material performance must be demonstrated in the application — not generally assumed conditions.

LCM is here to help with samples and data

3. Are we the first aerospace OEM or Tier 1 program to use your PFAS-free materials?

This concern is both common and reasonable.

Most successful PFAS transitions do not begin with wholesale material replacement. Instead, aerospace OEMs and Tier-1's often start with:

- Parallel or a backup qualification
- Lower-risk or non-primary structures
- Pre-production or development programs

The objective is not to be “first,” but to avoid being forced into a material change later without data or time to properly qualify an offset material.

Key takeaway:

Early evaluation creates optionality — and optionality reduces program risk.

LCM is happy to share customer testimonials and problem statements where disclosure is not a concern.

4. How long will PFAS-free material qualification take?

Historically, qualification timeline — not material availability — is the real constraint.

Waiting to begin evaluation can actually compress schedules later, especially if regulatory changes or specification updates occur faster than expected. That's why many aerospace organizations are initiating parallel or pre-spec PFAS-free evaluations now.

This strategy allows teams to:

- Generate data on their own timeline
- Identify tradeoffs early
- Test multiple iterations
- Reduce schedule risk if/when changes become mandatory

Key takeaway:

Waiting does not eliminate qualification time — it concentrates it under pressure.

LCM has 2-3 week lead times for samples and production volumes.

5. Our aerospace material specifications don't allow PFAS-free materials yet, how can you help?

This is a frequent reality across OEM and Tier-1 material specifications. Many organizations are gathering internal data so that when specifications evolve, they are prepared rather than reactive.

This approach supports:

- Faster internal decision-making
- More informed spec revision discussions
- Program continuity
- Reduced disruption during regulatory transitions

Key takeaway:

Preparation is not the same as implementation.

LCM can support the process with physical samples and test data.

6. Will PFAS-free materials change our manufacturing process?

Manufacturing teams focus on process stability, scrap risk, and operator familiarity.

PFAS-free aerospace materials are evaluated not only for mechanical properties, but also for:

- Cure profile compatibility
- Out-time behavior
- Surface preparation sensitivity
- Rework and handling characteristics

Many programs begin with small trial builds to allow operators and manufacturing engineers to identify differences early — before production rate pressure exists.

Key takeaway:

Processing questions/concerns should be answered in the lab and on the production floor, not discovered during production.

LCM can support the process with physical samples, test data and on-site visits at your location.

7. Are PFAS-free aerospace adhesives and prepregs more expensive?

In some cases, unit material cost may be higher. However, M&P teams are increasingly reframing the discussion toward total program risk and lifecycle cost.

The larger cost exposure often comes from:

- Forced material changes
- Supply disruption
- Compressed qualification schedules

Early PFAS-free evaluations are often viewed as risk mitigation rather than cost increase.

Key takeaway:

Optionality has measurable value.

LCM's low MOQ and material requirement planning strategies allow us to provide competitive pricing at speed and scale, even when compared to current legacy products.

8. What if PFAS regulations change again?

This uncertainty is precisely why many aerospace organizations are acting now. Rather than reacting to each regulatory update. Teams are seeking PFAS-free aerospace material solutions that provide regulatory headroom and long-term flexibility.

The goal is not just compliance with current rules — but resilience against future regulatory shifts.

Key takeaway:

PFAS-free strategies are about long-term program stability, not short-term compliance.

LCM thought leadership team has been in the Aerospace Composite business for well over 200 years collectively. We are here for the long haul!

Final Thought: PFAS-Free Is a Risk-Management Conversation

PFAS-free aerospace materials are not about immediate replacement.

They are about learning early, reducing uncertainty, and maintaining control over qualification timelines and seamless implementation.

The most successful aerospace teams are not asking, "*When do we switch?*"

They are asking, "*How do we prepare so we're not forced to switch?*"