POSITION PAPER

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Epoxy Based Composites under the EU Advanced Materials Act

Epoxy-based composites are system-critical enabling materials for many of the European Union's strategic priorities, including renewable energy, electrification, energy networks, infrastructure, transport, defense and electronics.

As the EU Commission prepares to launch the Advanced Materials Act (AMA), Epoxy Europe calls for recognition of epoxy-based composites as system-critical enabling materials supporting Europe's strategic priorities. Under the logic of the Act, advanced materials are defined by functional performance and system relevance rather than by novelty alone.

The value of epoxy-based composites lies in their engineered performance at system level, where reliability, durability, and safety are essential, and substitution is often technically or economically challenging. These applications rely on long qualification cycles, rigorous certification, and predictable performance over decades, placing epoxy composites squarely within the scope of materials that underpin EU industrial resilience.

This aligns directly with the Advanced Materials Act's objective to promote innovative, high-performance solutions that contribute to a more efficient, sustainable and competitive European industry.

Epoxy Europe policy asks

1. Recognition of epoxy-based composites as advanced materials

Epoxy-based composites should be explicitly recognised as advanced materials where they deliver system-critical performance and are enablers of EU strategic objectives. Such recognition is particularly relevant given their role in EU strategic applications requiring long qualification cycles and certification, where performance consistency and reliability outweigh novelty as defining criteria.

2. Prioritising support for scale-up and certification

The Advanced Materials Act should emphasize the industrial deployment: support should focus on validation, certification, and scale-up. These steps are critical for epoxy-based composites, and thus for the European industries that depend on them, due to their use in highly regulated and safety-critical sectors.

3. Balanced sustainability criteria

A sustainability assessment under this Act should integrate lifecycle performance and durability as key parameters alongside circularity. This would ensure that environmental benefits are fully recognised and support the development of balanced sustainability criteria for advanced materials. Epoxies also contribute to the prosperity element of sustainability by reducing resource needs and economic maintenance and replacement costs.

4. Policy coherence with existing and upcoming legislations

Some epoxy feedstocks are subject to regulatory scrutiny. Framing epoxy-based composites primarily through an upstream chemicals lens within the AMA would risk distorting policy coherence and sending unintended substitution signals. The Advanced Materials Act should remain clearly distinct from REACH and CLP, which continue to govern hazard-based aspects of substances within epoxy value chains. Maintaining this separation is essential to avoid regulatory overlap and uncertainty. Epoxy Europe encourages cross-reference initiatives such as the upcoming Circular Economy Act to ensure policy coherence.

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The contribution of epoxy-based composites to the Advanced Materials Act

- **Enabling strategic industrial applications and EU resilience**

Epoxy-based composites provide reference-level mechanical, thermal, and electrical performance and are required in applications where they cannot be easily replaced. As enabling inputs rather than standalone materials, they support downstream sectors central to EU priorities on energy security, decarbonisation and electrification. They are contributing to asset longevity and reduced lifecycle emissions. Their strategic importance therefore derives from their role in strengthening entire ecosystems and reinforcing EU industrial resilience and strategic autonomy, rather than from volume or visibility at material level.

- **Supporting innovation and industrial scale-up**

Contrary to perceptions of epoxy systems as "mature", active innovation continues across recyclability, reprocessability, lower-emission formulations, and feedstocks containing bio-based or recycled content (also via mass-balancing). The primary bottleneck is not early-stage research, but validation, certification, and industrial scale-up—precisely the innovation gap that the Act is intended to address. Ensuring access to instruments linked to this Act for pilot projects, scale-up, and certification is therefore essential for delivering tangible industrial impact.

- **Driving sustainability through lifecycle performance**

Epoxy-based composites contribute to sustainability by extending service life by decades in their applications, reducing replacement frequency, increasing resource efficiency, and improving lifecycle assessment. While end-of-life challenges for thermoset materials are still present, innovation pathways are advancing and industry initiatives are ongoing. This reflects the need for a balanced sustainability approach, considering both planetary, people as well as prosperity related elements.

In conclusion, epoxy-based composites are advanced by function and necessity. Their appropriate treatment under the Advanced Materials Act is not an industry carve-out, but a coherence requirement between industrial, climate, and materials policy. A system-, lifecycle-, and value-chain-based approach will ensure that the AMA strengthens EU industrial resilience while delivering credible and proportionate sustainability outcomes.

Did you know?

- About 90% of the wind turbine blades are epoxy-based composites
- In Eurofighter Typhoon, about 40% of the structural weight is carbon fibre reinforced composite material and toughened epoxy makes up 75% of the aircraft's exterior.
- Among medium and high voltage insulation materials, epoxy resin systems are the leading solid insulation materials with a share of 25% (by value) of all insulation technologies.
- Epoxy-based composites are used to lightweight improving range of EV's: for 10% mass reduction, the energy consumption typically decreases by 4-8%.

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