

Submission by the 3-D Printing Equipment Consortium to the PFAS Consultation

The **3D-Printing Equipment Consortium** is made up of several (mostly US) manufacturers of 3D Printing (aka additive manufacturing) equipment who are importing such equipment and ancillaries into the European Union to facilitate the growth of this progressive technology within the EU-27. Additive Manufacturing presents momentous benefits in terms of product design, localized manufacturing, and efficiency of material use, which are completely in line with the objectives of the European Green Deal and, in particular, the Eco-design for Sustainable Products Regulation (ESPR). Additionally, these technologies are central to the Fourth Industrial Revolution (Industry 4.0) as represented within the European Union by the Digital Transformation agenda.

Specific members of the Consortium have previously submitted comments to both the first and second Calls for Evidence issued by the proponents of the proposed PFAS Restriction. However, disappointingly, it is noted that the comments submitted regarding the critical uses of fluoropolymers within the 3D printing process have not been recognised in the proposal submitted on 13th January 2023 and published in its current form on 23rd March 2023 at the launch of public consultation. It appears that the only items being considered for a potential time-limited derogation currently within the 3D printing/additive manufacturing realm relate to two non-polymeric PFAS uses:

- x. [Industrial and professional use of solvent-based debinding systems in 3D printing until 13.5 years after EIF];
 - y. [Industrial and professional use of smoothing agents for polymer 3D printing applications until 13.5 years after EIF];

- both for non-polymeric PFAS uses
- no polymeric PFAS derogation proposals currently

Alternatives	Cost impact
in addition to the literature search, stakeholders have reported that there are no alternatives to fluorinated gases for: - Industrial precision cleaning fluids - Cleaning fluids for use in oxygen-enriched environments	Loss of consumer surplus where alternatives are more expensive For industrial precision cleaning fluids there are further potential impacts on consumers through flammability of alternatives, increased drying times, inability of solvent to penetrate confined spaces leading to reduced performance, incompatibility with electronic systems, etc. These may feed through to impacts on the durability of systems. [Sufficiently strong evidence]
For 3D printing, limited information has been submitted by industry to indicate alternatives do not exist for some specific applications: - Solvent-based debinding systems in 3D printing for industrial and professional applications - Smoothing agents for polymer 3D printing applications for industrial and professional applications	It is not clear how broadly the 3D printing sector would be affected by a restriction – whether difficulties are restricted to 3D printing of metals and medical devices, or affect other products as well. This clearly affects the scale of producer and consumer surplus losses linked to a restriction.
A case has been made for 3D printing of metals and medical devices though not for other parts of the market. Comparative evidence of the performance of alternatives is lacking. Conclusion: High substitution potential at EIF across a diverse range of applications [sufficiently strong evidence] and low substitution potential at EIF for specialist cleaning fluid applications [sufficiently strong evidence] and for 3D printing [weak evidence].	[Weak evidence]

The Consortium therefore believes that use of fluoropolymers specifically in 3D Printing Equipment represents a ‘missed use’ in the context of this current consultation.

While the Consortium is not contesting the legitimacy of the requests for the derogations already identified, the lack of reference to any use of polymeric PFAS within 3D printing represents a substantive omission, even though the quantities involved are very limited. The Consortium has identified several current critical uses of fluoropolymers in the 3D printing sector including, but not limited to, glass laminates for various resin reservoir assemblies, gaskets, lubricants, and specialty tubing. The performance of these fluoropolymer components is pivotal to the commercial use of 3D printing technologies for manufacturing of critical medical and dental devices, athletic equipment, components and manufacturing aids in automotive, industrial machinery components, and electrical industry components for major EU companies.

As documented in earlier submissions by Consortium members, several alternatives have already been assessed for these applications, but NO viable alternative has yet been identified.

The EU market for 3D Printing in 2020 was estimated at €4.23 billion and was anticipated to grow at a CAGR of 14% to €9.28 billion by 2026¹. The Consortium estimates that the impact of the non-availability of appropriately functional equipment for Additive Manufacturing could therefore impact the EU-27 economy by in the order of €15-20 billion by 2030 if the Restriction comes into force by 2028, even though the emissions from fluoropolymer use are likely to be infinitesimal in practice. This reflects the fact that virtually all such equipment is dependent on fluoropolymers to some extent. The Consortium members therefore join their voice with the hundreds of companies who have already called for a general derogation for fluoropolymers².

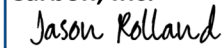
Further information on this statement is available from:

Jason Rolland on behalf of the 3D Printing Equipment Consortium

 [@carbon3d.com](mailto:carbon3d.com)

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Signature

Jason Rolland

Name

SVP, Materials

Title

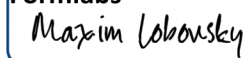
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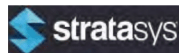
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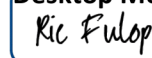
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Ric Fulop

Name

Founder and CEO

Title

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Date



¹ <https://www.mordorintelligence.com/industry-reports/europe-3d-printing-market>

² <https://chemicalwatch.com/826977/hundreds-of-companies-call-for-eu-to-leave-fluoropolymers-out-of-pfas-restriction>