

SHPP's Inputs to the Public Consultation Comments to Annex XV PFAS Restriction Proposal

Question number 6. Missing uses: Potential derogations marked for reconsideration: PTFE Used in Internally Lubricated Thermoplastic Compounds

Executive Summary

SABIC's Specialties business (SHPP) produces a range of highly differentiated products, including high-performance thermoplastics, compounds, and additives that meet complex thermal, mechanical, optical, and electrical property requirements.

PTFE internally lubricated engineering thermoplastic (ETP) compounds are widely utilized in many applications and market segments including Healthcare, Industrial, Water Management, Food Contact & Processing, Automotive, Electrical, Appliances, Oil & Gas, Energy Generation & Storage, and more. Many applications are safety-critical, such as steering wheel sensors and gas pedal and clutch systems for automobiles, circuit breaker switches and safety switches for electrical applications, medical and surgical devices, and more. These compounds offer differentiated properties, such as low friction and high wear resistance, resulting in self-healing and improved tribological properties. They extend the life span of devices or components, reducing plastic waste. In general, these compounds are more expensive than non-internally lubricated compounds and are only used when other materials fail to meet application requirements.

The Society of Environmental Toxicology and Chemistry publishes an Environmental Toxicology and Chemistry and Integrated Environmental Assessment on fluoropolymers. In this report, they state that emissions during the use phase of final articles are negligible, because PTFE is bound within the polymer. The emissions in the waste stage depend on the pre-treatment method. Data shows that fluoropolymers are stable and not expected to transform to dispersive nonpolymeric PFAS.

Evaluating the possible alternatives shows that no known alternatives provide the same performance functions and the same/better safety and socio-environmental benefits. Finding an alternative to PTFE in internally lubricated ETP compounds is challenging and would require at least 5-7 years of research and invention. Additionally, numerous tiers, OEMs and moulders across the globe would need to re-design and re-test their tooling, components and systems, which could take 7-10 years for all customers to fully replace. Therefore, it could take at least 12-17 years to develop a new material solution with the same performance and environmental benefits as PTFE, and to replace it in existing applications and markets.

Therefore, SHPP requests a 12-year derogation for PTFE used in internally lubricated engineering thermoplastic (ETP) compounds.

Substance Information:

Substance Name: Poly(1,1,2,2-tetrafluoroethylene)

Synonyms/Abbreviations: PTFE

Molecular formula: (C₂F₄)_n

EC/List no.: 618-337-2

CAS number: 9002-84-0

Type: Solid

Application: PTFE used in internally lubricated engineering thermoplastic (ETP) compounds