16-Jun-23

Semiconductor PFAS Consortium

PFAS Consortium
Frequently Asked Questions
For further information, please contact:
PFASConsortium@semiconductors.org

Why did SIA form a Semiconductor PFAS Consortium?
Persistence, bioaccumulation and toxicity (PBT) concerns with specific per- and poly-fluoroalkyl substances (PFAS) are driving governments to propose regulating PFAS as an entire class based on a chemical structure definition, not as individual compounds or groups of compounds. This structural definition approach brings many essential fluorocarbon chemicals, gases and articles into the scope of proposed PFAS reporting and restrictions. Such regulation appears likely to disrupt the semiconductor manufacturing supply chain and requires a supply chain-wide approach to address.

What are PFAS?
The definition of PFAS varies slightly across various standards organizations and regulatory bodies; however, the definition used by this Consortium is any chemical or material containing at least one -CF2- and/or -CF3 moiety. This broad definition was chosen to ensure the Consortium addresses all substances which could be included in the scope of PFAS regulations. It is not meant to imply that all substances which meet the Consortium are PBTs.

What is the mission of the Consortium?
The mission of the Consortium is to collect the technical data needed to formulate an industry-wide approach and better inform public policy and legislation regarding the semiconductor industry's use of PFAS, while working to identify technologies that will minimize uses and releases following the pollution prevention hierarchy.

Does the Consortium undertake lobbying efforts?
No. The Consortium is technically focused and DOES NOT lobby government officials or undertake policymaking; however, the intent is that consortium-developed information be used by members and other organizations (e.g., SIA, ESIA and SEMI) to inform governments so they can make data-driven decisions.

What is the scope of PFAS uses covered by the Consortium efforts?
The scope is limited to those PFAS used and/or generated in semiconductor manufacturing (including chemicals, gases, facility infrastructure, and articles necessary for the manufacture of semiconductor devices).

What are the benefits of forming a Consortium?

This Consortium brings together all members of the semiconductor manufacturing ecosystem in a precompetitive environment to gather and analyze relevant information and address concerns about the semiconductor industry's use of PFAS.

Benefits include:

- **Membership in a consortium** with broad industry participation for pre-competitive information sharing
- **Leveraged funding and resources**
- **Distributing costs** across the industry and supply chain
- **Speeding knowledge transfer** and improving decision making

Members of the Consortium will **share knowledge, cost and risk** before setting out in unique competitive directions.

Why is the PFAS Consortium operating through the Semiconductor Industry Association (SIA)?

SIA has the appropriate working structure to enable:

1. Dedicated, experienced Project Management resources
2. Appropriate management of information
   - Data is managed by secure 3rd party consultants in a manner that protects confidential business information and addresses anti-trust requirements
3. Demonstrated success in managing consortia with supply chain partners (e.g., Semiconductor Onium PAG Consortium)

SIA has a demonstrated track record of successfully starting and running device maker-supplier consortia. SIA will work cooperatively with other relevant semiconductor industry associations (e.g., ESIA, SEMI) to share information as appropriate.

If the Semiconductor PFAS Consortium does not advocate for the industry, who does?

The Semiconductor Industry Associations and SEMI are responsible for advocating for the industry on this issue. For the EU's proposed PFAS restriction, ESIA and SEMI are advocating on behalf of the semiconductor industry and its supply chain using Consortium-developed survey results and Consortium technical reports. ESIA and the SEMI WG chairs are working closely on industry comments.

Does a company need to be an SIA member to join the Consortium?

No, a company does not need to be an SIA member to join. The only requirements for membership are for a company to (1) be a device manufacturer or a supplier to the semiconductor manufacturing industry, and (2) commit to providing resources and data needed for the Consortium to succeed.

Does joining the Consortium include membership in the SIA?
No. However, if your company is not currently an SIA member, and would like to inquire into becoming an SIA member, please contact Sarah Ravi at sravi@semiconductors.org.

Who should companies contact to join the Semiconductor PFAS Consortium?
Please complete the "Join the Consortium" webform found HERE: https://www.semiconductors.org/pfas/ or email the Consortium at PFASConsortium@semiconductors.org.

Is there a fee associated with Consortium membership?
Yes, an annual membership fee is required. Please contact the Consortium for more specifics.

Are HFC and PFC gases considered to be PFAS? What is the focus of the Plasma Etch and Deposition (PED) WG?
Yes. HFCs (e.g., CHF_3, CH_2F_2) and PFCs (e.g., CF_4, C_3F_8, c-C_4F_8) fall under the broad definition that PFAS are any chemical or material containing at least one aliphatic -CF2- and/or -CF3 moiety. The PED WG addresses fluorinated gases and liquids used in semiconductor plasma etch and deposition processes.

Will pending regulations impact fluoropolymer resin manufacturers' ability to make and sell polymers?
Yes, fluoropolymers are currently within scope of many proposed regulations and face restrictions.

- The EU is pursuing a PFAS class-wide restriction on manufacturing and use, with the intent to make all applications illegal aside from those that have been determined to be essential. The PFAS Regulatory Restriction effort is well-resourced and aims to have restrictions in place by 2025 and effective 18 months following adoption. Thus far, the EU PFAS regulatory restriction effort has not significantly missed any milestones along the proposed timeline.
- Fluoropolymers are within scope of proposed US EPA rules.

Will pending regulations impact solid fluoropolymer resins and PTFE? If yes, in what manner?
Fluoropolymers are included within the scope of the EU REACH PFAS Restriction on manufacture (including import) and use, as well as within the framework of US EPA TSCA (noting that the current EPA administrator has made this exceptionally clear, with many non-PFAS examples already within their scope of regulation, such as PIP 3:1).

Will pending regulations impact finished articles (hose, fittings and seals)? If yes, in what manner?

Yes, finished articles are included within the scope of a class-wide ban on manufacture (including import) and use in the EU. In the US, mandates within the EPA TSCA regulatory framework for PFAS reporting appear to be aimed at eventual elimination of all non-critical uses (noting that in the EU, their preferred term is "essential", while US EPA TSCA makes use of the term "critical" – both carry the same intent and meaning).

What companies are currently members of the Semiconductor PFAS Consortium?

AGC Chemicals America	Georg Fischer	Robert Bosch GmbH
Analog Devices Inc.	GlobalFoundries	Samsung Austin Semiconductor
Applied Materials Inc.	Henkel	SCREEN Semiconductor Solutions Co., Ltd.
Arkema	Hitachi High-Tech America	Senju Metal Industry Co. Ltd.
ASML	IBM	Shin-Etsu MicroSi
BASF	Intel Corp.	Skywater
Brewer Science	JSR	Solvay
Central Glass Co. Ltd.	KLA	STMicroelectronics
Chemours	Lam Research	Sumitomo Chemical Co. Ltd.
DuPont	Linde	Texas Instruments Inc.
Edwards	Microchip	Tokyo Electron Ltd.
EMD Electronics	Micron Technology	Tokyo Ohka Kogyo Co. Ltd.
Entegris	Moses Lake Industries	TSMC
Fujifilm Electronic Materials	NXP Semiconductors	Zeiss