

The Essential Uses of PFAS in the Semiconductor Industry

BACKGROUND

Semiconductors form the building blocks of modern technology, enabling innovations that make the world smarter, greener, more productive and efficient, and better connected. With up to tens of billions of transistors on a single piece of silicon, producing these complex devices requires highly advanced processes and equipment, as well as the use of chemicals, gases, and other materials with specific performance and functional attributes.

Among the inputs essential to chip manufacturing are certain chemical substances that belong to a broader category of chemicals known as per- and polyfluoroalkyl substances (PFAS). PFAS, which consist of multiple fluorine molecules attached to carbon, are used in a wide range of industrial processes and consumer products. Although the semiconductor industry accounts for only a small fraction of the world's total PFAS usage, many uses of specific PFAS are essential to semiconductor manufacturing, and there are no known substitutes available for most chip manufacturing applications.

POLICY RECOMMENDATIONS

A growing body of scientific evidence has identified at least some PFAS chemicals as raising environmental and health concerns. As a result, governments around the world are considering proposals to address concerns associated with the use of PFAS, often by restricting the entire category of chemicals, regardless of whether a particular compound has been determined to pose environmental or health risks.

Given the critical role of semiconductors for our economy and national security, it is important that policymakers avoid unduly restricting current semiconductor operations or future innovation.

- Broad restrictions on PFAS as a class should provide critical use exemptions for the uses of fluorinated chemicals in the semiconductor industry and provide sufficient time for the industry and its suppliers to identify and qualify potential substitutes.
- Governments should support research on environmentally sound alternatives to PFAS for use in the semiconductor industry, as well as effective detection and treatment technologies.

INDUSTRY COMMITMENT

The semiconductor industry is committed to the highest-possible level of safety and takes extensive care and precautions to protect workers, consumers, and the environment. As part of this commitment, the industry is investigating the role of PFAS throughout the manufacturing process and exploring the feasibility of substitutes as well as opportunities to reduce PFAS use where possible.

As governments around the world consider legislation or regulation to restrict the use of PFAS in industrial processes or consumer products, the semiconductor industry seeks to play a constructive role in adoption of sound policy.