

Silicones play a crucial role in meeting EU policy ambitions

In addition to stringent chemical and environmental legislation, the EU chemicals industry – including silicones – needs to transition to a green, digital and circular economy by 2050, and contribute to the EU's strategic autonomy ambitions. Silicones Europe supports these policy goals and advocates for the crucial role silicones play in meeting them, backed up by science.

Silicones and EU Policy Goals

Silicones are a versatile material with benefits across all industrial ecosystems, paving the way for a more sustainable and technologically advanced future. They contribute significantly to reducing greenhouse gas emissions, with studies [showing](#) the potential of certain technologies to save almost 100 Mt of CO₂ emissions by 2030 compared to non-silicone alternatives and they are crucial for renewable technologies such as wind and solar. Through improvements in the product lifespan and durability they increase circularity, including increasing the lifespan of buildings and reducing maintenance costs. Silicones have also revolutionised the digital and ICT sectors. Their unique properties, being heat resistant, insulating and conductive, make them essential for high-performing and durable electronic devices, improving the reliability of devices varying from microprocessors to semiconductors.

They also contribute to the EU's strategic autonomy, fostering Europe's industrial competitiveness. They play a vital role in critical value chains such as those for semiconductors and space and defence technologies: [satellites](#), [drones](#), [airplanes](#).

EU Regulatory Framework for Silicones

Since 2020, the use of octamethylcyclotetrasiloxane (D4) and decamethylcyclopentasiloxane (D5) in wash-off personal care products has been restricted under REACH. An additional restriction published in May 2024, extends its scope beyond wash-off cosmetic applications. The main intention of EU regulators is to limit emissions of D4, D5 and dodecamethylcyclohexasiloxane (D6) from products which are used by consumers and professionals.

Silicones Europe appreciates the Member States' decision to support a number of derogations, which allow continued use of D4, D5, and D6 in specific industrial uses as well as the production of silicone polymers. D4, D5, and D6 are building blocks in the manufacturing of silicone polymers, representing about 98% of their uses. The remaining 2% represent the products responsible for 98% of D4, D5, and D6 releases to the environment, which are mainly cosmetic products, already regulated in the EU. Silicones Europe believes no further regulatory measures are needed.

Potential Proposal for POP Nomination (D4, D5, D6)

The European Commission is considering nominating D4, D5, and D6 for listing in Annex B of the Stockholm Convention on Persistent Organic Pollutants (POPs). The Stockholm Convention seeks to eliminate the manufacture and use of substances listed therein. Industry strongly disagrees with this intention:

- A POP listing weakens Europe's strategic industries and policy ambitions. Since 98% of D4, D5 and D6 are used to produce silicone polymers for key applications, ruling out the D4, D5 and D6 monomers would have a major knock-on effect on the many sectors where these polymers are utilised. This is mainly because of the specific implementation of the global agreements into EU law via the POPs Regulation, which sets very strict requirements for European industry,



much stricter than under a REACH restriction or in any jurisdiction. This endangers the viability of the silicones industry in the EU and puts European industry at a considerable disadvantage *vis-à-vis* other global silicone players mainly based in the US and China.

- A POP nomination may prohibit the recycling of silicones. For silicones to become fully circular, the ultimate goal of the industry is to recycle silicone waste back into the cyclic monomers D4, D5, and D6 and use these to manufacture virgin silicone polymer material. The answer lies in depolymerisation. This is a chemical recycling process where the chemical bonds of silicone waste products are broken down back to their key building blocks (monomers D4, D5 and D6), turning the waste product back into a valuable resource.
- There is no consensus within the scientific community whether D4, D5, and D6 fulfil the POPs screening and nomination criteria under the Stockholm Convention (see science-led decision making).

Science-led Decision Making

Silicones Europe is a strong advocate for science-led decision making and risk management of silicones. The silicone industry invests in science and research to show that silicones are safe for the environment and human health.

For instance, for a chemical substance to be classified as a POP, it needs to meet among others the Long-Range Environmental Transport (LRET) criterion. In other words, evidence needs to be presented that a substance can travel long distances from where it was originally released, even across continents and oceans, and can accumulate in a pristine environment very far away from any release points (e.g. production sites and municipal wastewater treatment plants). Regarding LRET, Silicones Europe and the Global Silicones Council have jointly commissioned a [monitoring study](#) in the Antarctic to gather robust scientific data on cyclic Volatile Methylsiloxanes (cVMS) concentrations in Antarctica's air, surface media and aquatic biota. Results will be available in Q2 2025.

Conclusion

Overall, the polyvalence and performance of silicones make them indispensable for innovation and technological advancement, playing a key role in several strategic EU industries. Silicones Europe believes that data-based policymaking is key to striking the right balance between ensuring EU policy goals – green, digital, and circular economy, as well as EU strategic autonomy – can be met on the one hand, and protecting human health and the environment from the risks that can be posed by chemicals on the other.

Background

About D4, D5, D6: D4, D5 and D6 are cyclosiloxanes, important building blocks of the broad family of silicone materials. They are building blocks in the manufacturing of silicone polymers, representing about 98% of their uses. D4, D5 and D6 are the main monomers in commercial production and their use has been proven safe for human health and the environment under current conditions of use. While they are all cyclosiloxanes, each substance has its own set of unique properties that make them the material of choice for countless essential applications in our day-to-day lives.

More [here](#).



About Silicones Europe

Silicones Europe, a Sector Group of Cefic, is a non-profit trade organisation representing all major producers of silicones and silanes in Europe. We aim to help you understand the essential role that silicones perform in almost every aspect of our lives. Silicones have been shaping European industry for decades, playing a key part in sectors such as energy, digital, transport or healthcare. Silicones keep our solar panels and wind turbines running, electric vehicles moving, and mobile phones connected. Find out more: www.silicones.eu

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