

Silicone sealants



Sealants are used to seal cracks or joints and serve an important role in building and home design.

Silicone sealants offer many advantages, including:

- UV stability
- Colour stability
- Adhesion to a variety of construction surfaces
- Exceptionally high movement accommodation
- Extreme temperature resistance
- High workability
- Prevention of moisture and air penetration

As a result, sealants are a versatile option for many construction projects.

Benefits of silicone sealants

Environmental and social benefits

Efficient building insulation for energy savings

- Buildings consume more than 40% of energy in Europe
- Insulation technologies like silicone sealants can reduce energy costs associated with buildings with as much as 60%

Extension of the life span of buildings

- Insulation techniques mitigate natural and man-made disasters and promote climate adaptation
- Sealants protect sensitive materials from water penetration



The EU construction sector

3.2
million
Number of people
employed

863
thousand
Number of
enterprises

Upcoming classification

- Certain silicone sealants contain silicon dioxide as reinforcing agent. Without silicon dioxide, sealants cannot fulfil their function.
- There is a proposal to classify silicon dioxide as **STOT RE 1, H372** (repeated dose toxicity via the inhalation route of exposure). This will classify silicon dioxide as a 'most harmful chemical' according to the Chemicals Strategy for Sustainability (CSS) definition.
- The extension of the Generic Risk Approach (GRA) could trigger a possible implementation of a generic restriction (ban) on consumer/professional use of silicon dioxide.
- As a consequence, certain silicone sealants could no longer be used by consumers and professionals.

Upcoming classification

- The silicon dioxide proposed classification of STOT RE 1 relates only to the physical hazard in dust form when inhaled, not to a chemical hazard. Silicon dioxide in silicone sealants is inextricably bound in the polymeric matrix and cannot be inhaled.
- However, GRA restrictions will not include a defined procedure for risk and socio-economic assessments by expert committees, so in the worst-case silicone sealants that do not pose any risk to the environment or human health but bring many benefits to society will be banned.
- This is an example of the disproportionate character of the GRA since chemical products that are currently not classified as most harmful chemicals could be banned in the future when new harmonised classification is assigned to chemicals in the product and this without risk assessment.

Consequence of the ban of silicon dioxide

- Fumed silica is an ingredient necessary in most silicone sealants to provide sag resistance and cohesive strength.
- There are potential substitutes, such as calcium carbonate; however, they cannot be used everywhere.
- The performance in terms of UV resistance of alternative technologies is inferior to that of silicones, so in certain high-performance applications there is no technically equivalent replacement.

Potential derogations

- If the initial scope of the restriction is designed improperly (due to the lack of risk and socio-economic assessments by expert committees), a potentiality of derogation for the use of silicon dioxide in silicone sealants would need to be assessed for 'essentiality' at the end of the restriction process.
- The Commission will bear the burden of proof for the justification of derogation, or the requests for derogation from the industry would accumulate although silicone sealants do not pose any risk outright.
- This does not contribute to the primary objectives of the CSS (reduce administrative burdens, make the restriction process more efficient and effective, give clearer signals and more planning security to companies), while there is no increased protection of human health and the environment.