

## Glass under the REACH Regulation

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The **REACH Regulation**, Regulation EC N° 1907/2006 on the Registration, Evaluation, Authorization and Restriction of Chemicals, is the European Union's regulatory framework on chemicals and their safe use. It entered into force on 1st June 2007. It streamlines and improves the former legislative framework on chemicals of the European Union.

REACH makes the industry responsible for assessing and managing the risks posed by chemicals and for providing appropriate safety information to their users. In parallel, the European Union can take additional measures on highly dangerous substances, where there is a need for complementary action at EU level.

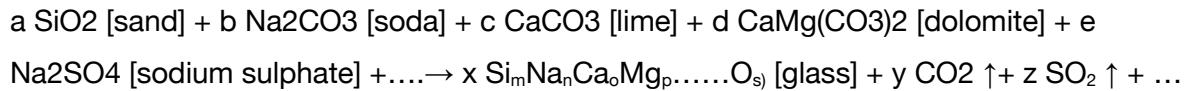
Glass Alliance Europe has written a specific document to describe the REACH Regulation and the application to the glass industry (see link below to Guidelines for the glass industry "Registration, Evaluation, Authorization and Restriction of Chemicals, REACH").

### **Nature of Glass**

Glass is an inorganic material obtained from different inorganic raw materials which react at high temperature to form a new random network (glass), where different elements are linked together, typically by oxygen bridges.

Under the REACH Regulation glass is considered as a UVCB substance (substance of unknown or variable composition, complex reaction products or biological materials).

The general chemical formation for silicate glass can be illustrated by the following simplified reaction equation:



Raw materials used in a glass formulation undergo physical (melting) and chemical (formation of the network) processes. During the chemical reaction to form glass (synthesis), different crystalline substances (a, b, c, d, e, ...) are transformed into a non-crystalline vitreous substance (x).

The physico-chemical properties of the new substance glass (chemical resistance, mechanical resistance, transmittance, colour, etc.) are a function of the network formed. Different compositions lead to different glass chemical structures and consequently to different physico-chemical properties of the final material.

### **Glass and Registration: Exemption of the Substance Glass**

Based on the nature of the substance glass and its generic inertness, the Commission added glass to the list of substances exempted from the "obligation to register" (Reach Regulation Annex V (11)(\*)). This exemption applies if the following requirements are met:

*"The following substances unless they meet the criteria for classification as dangerous according to Directive 67/548/EEC and provided that they do not contain constituents meeting the criteria as dangerous in accordance with Directive 67/548/EC present in concentrations above the lowest of the applicable concentration limits set out in Directive 1999/45/EC or concentration limit set out in Annex 1 to Directive 67/548/EEC, unless conclusive scientific experimental data show that these constituents are not available throughout the life-cycle of the substance and those data have been ascertained to be adequate and reliable: **Glass, ceramic frits**". (\*) 21*

The European Glass Industries, with the contribution of three independent experts, defined a guideline enabling glass manufacturers to check if their glass is exempted according to the previous requirements. Considering the intrinsic inertness of glass, the majority of glass types fulfil the criteria laid down in Annex V (item 11).

It is the producer's responsibility to assess the substance glass and to demonstrate with conclusive scientific data that it fulfils the criteria.

### **Raw Materials Used to Produce Glass and Authorization**

Raw materials used in a glass formulation undergo physical (melting) and chemical (formation of the network) processes. During the chemical reaction to form glass (synthesis), different inorganic substances (a, b, c, d, e, ...) are transformed into a non-crystalline vitreous substance (x).

Raw materials that are used in the manufacture of glass meet the definition of intermediates since they are transformed by synthesis into a new substance, namely glass. They are transported isolated intermediates since they are produced elsewhere and transformed at the glass manufacturers' sites.

This was confirmed by a legal opinion obtained on that specific issue and updated in December 2017 following case-law of the EU Court (*Case C-650/15* [<http://curia.europa.eu/juris/liste.jsf?language=en&num=C-650/15>]), as well as the ECHA Board of Appeal (FieldFisher - Legal opinion on the use of raw materials in the manufacture of glass as intermediates under REACH – \_Update December 2017).

### **Glass and CLP Classification**

Glass is a substance of variable composition, which by convention is expressed as oxides of the constituent elements (SiO<sub>2</sub>, Na<sub>2</sub>O, K<sub>2</sub>O, PbO, etc.). Although conventionally glass compositions are expressed as oxides of different elements, **glass is not a mixture of the different oxides or raw materials, but a substance which does not contain these oxides as such.**

Glass can better be identified by its chemical formula  $\text{Si}_m\text{N}_n\text{Ca}_o\text{Mg}_p\text{O}_s$  [glass]. The physico-chemical properties of the substance glass (chemical resistance, mechanical resistance, transmittance, colour, etc.) are a function of the network formed. Different compositions lead to different glass chemical structures and consequently to different physico-chemical properties of the final material. Due to its nature glass is generally recognized as inert material.

Glass is generally put on the market as an article (object that, during production, is given a special shape, surface or design, which determines its function to a greater degree than does its chemical composition) and Safety Data Sheets (SDS) are not required for articles. SDS are only needed if glass is sold as a substance and if this specific glass is classified as hazardous along the CLP Regulation, which represent very few cases.

### **Glass and notification to the supply chain**

The obligation to notify under Art. 7(2) of REACH and to communicate down the supply chain under Art. 33 of REACH only applies to articles which contain Candidate List substances.

Substances included in the Candidate List are used to produce glass and involved in processes leading to the production of glass articles. In these processes, the substances are chemically transformed into the glass substance. The glass substance is subsequently processed into articles. In these cases, the substances are completely transformed and not present as such in the final glass article.

Consequently, there is no obligation to notify under Art. 7(2) of REACH, nor to communicate information down the supply chain under Art. 33 of REACH. This was confirmed in ECHA Q&A – \_ID 1218 – \_12/09/2016 relating to boron compounds. 22

Companies should also assess whether the decoration of their glass products is adding 0.1% of one or more SVHC to the article as a whole, in which case the glass product should be notified and information should be communicated along Article 33.

Complex products where glass is only a component should also be assessed accordingly.

### **Glass and the SCIP Database under the Waste Framework Directive**

The SCIP database aims to ensure that information on articles containing candidate list substances is publicly available throughout the life cycle of products and materials, including disposal. As shown above, the articles consisting exclusively of glass do not contain SVHC substances. Consequently, there is no obligation to provide information in the SCIP database.