

REACH AND CONCRETE

1. Introduction

This short document is intended to summarise the position of concrete under the REACH legislation. It is intended for users, contractors, specifiers, national and local authorities, as well as producers.

It summarises the current position as at **11 June 2009**, but may need to be revised as suppliers of raw materials to the concrete industry finalise their own positions under REACH, and, if necessary, register their products, carry out *chemical safety assessments* and amend their Safety Data Sheets (SDS).

2. What is REACH?

With the objective of protecting human health and the environment, REACH is a European regulation designed to ensure the safe supply and use of chemical substances. Industry itself becomes legally responsible for managing the risk of chemicals.

REACH means the **R**egistration, **E**valuation, **A**uthorisation and Restriction of **C**hemicals. Under it, three categories of product are identified:

- **substances** – single chemicals;
- **preparations** – mixtures of substances;
- **articles** – where substances are contained in objects.

All chemical substances which are not exempted from registration in annex IV or V of REACH have to be registered with the new European Chemicals Agency. Registration requires manufacturers and importers of substances to submit information in a standardised format to demonstrate that they know about the most important properties of their chemicals, and that they are managing the hazards and risks adequately. Neither preparations nor articles have to be registered, though SDSs may be necessary if they meet the classification criteria as dangerous.

Special requirements apply to '*Substances of very high concern*' (SVHC), which require specific authorisation by the Chemicals Agency.

To minimise any risk in the use of chemicals, REACH attaches great importance to **communication of information** up and down the supply chain:

- safety data sheets for both substances and preparations are used to communicate information *down* the supply chain. REACH has set out a standard format for SDSs.
- users of chemicals have to make sure that their suppliers, *up* the supply chain, are aware of how the chemicals are being used.

3. What is concrete?

As a minimum, concrete is a mixture of cement, coarse aggregate, fine aggregate (sand) and water. In addition it often includes one or more of the following: ground granulated blastfurnace slag, flyash, silica fume, and chemical admixtures. Table 1 shows the status under REACH of concrete itself, and of its main constituents. Generally fresh concrete is an irritant, but simple precautionary measures will ensure that it can be used safely – and it has been so used for many years. These measures will continue to be identified on producers' SDSs.

No SVHC is used in concrete; and neither concrete itself nor any of its main constituents requires authorisation.

4. How will the concrete industry comply with REACH?

- concrete producers will ensure that all substances they use are registered, and that their suppliers comply properly with REACH requirements;
- they will ensure that their own use of chemicals is in compliance with suppliers' Safety Data Sheets;
- they will communicate information both upstream to suppliers of raw materials, and downstream, to customers;
 - upstream, they will provide their suppliers with information on how they use substances and preparations, so that suppliers' advice on 'exposure scenarios' and on the use of the substance is comprehensive, and, in particular, includes the ways in which the concrete producer *actually* makes use of the chemical;
 - downstream they will continue to provide SDS for their own customers, with details of the sensible measures needed to ensure safe use of concrete on site;
- they will also communicate necessary information to their own employees to ensure safe practice.

5. Further information

Basic information on REACH is available from ECHA, the European Chemicals Agency, website <http://echa.europa.eu/> or from the REACH national Helpdesks, website http://echa.europa.eu/reach/helpdesk/nationalhelp_contact_en.asp

More information can be obtained from the organisations in the European Concrete Platform:

- **Admixtures:** the European Federation of Concrete Admixtures Associations, 0044 1925 740581, website: www.efca.info
- **Aggregates:** the European Aggregates Association, 0032 2233 5300, website: www.uepg.eu
- **Cement:** CEMBUREAU, 0032 2234 1011, website: www.cembureau.eu
- **Precast concrete:** the European Federation for Precast Concrete, 0032 2738 7442, website: www.bibm.eu
- **Ready-mixed Concrete:** the European Ready-Mixed Concrete Organisation, 0032 2645 5212, website: www.ermco.eu

TABLE 1: CONCRETE AND ITS MAIN CONSTITUENTS UNDER REACH

	Concrete		Concrete constituents (<i>note 1</i>)						
	Fresh ready-mixed concrete	Precast concrete	Aggregates	Cement (<i>note 2</i>)	Blastfurnace slag	Flyash (<i>note 3</i>)	Silica fume	Limestone powder	Admixtures (<i>note 4</i>)
Typical % by weight in concrete	————	————	75 - 80	8 - 16	5 - 10	3 - 5	1 - 2	3 - 5	< 0.05
Status under REACH	Preparation	Articles	Article	Preparation	Substance	Substance	Substance	Substance	Preparations
EINECS number (<i>note 5</i>)	None	None	None	None	266-002-0	268-627-4	273-761-1	215-279-6	Various
CAS number (<i>note 6</i>)	None	None	None	None	65996-69-2	68131-74-8	69012-64-2	1317-65-3	Various
Registration?	Not necessary for preparation	Not necessary for articles	Not necessary for articles	Not necessary for preparation	Yes	Yes	Yes	Exempt	Not necessary for preparation
Authorisation or restriction?	No	No	No	Soluble Cr (VI) restricted to 2 ppm (REACH Annex XVII.42)	No	No	No	No	No
Current classification (<i>note 7</i>)	Irritant	None	None	Irritant	None	None	None	None	Usually irritant, sometimes corrosive, or harmful

Notes:

- Concrete may contain other products. Steel and/or synthetic fibres may be added to fresh concrete, and reinforcing steel is often cast into the concrete in-situ or in a precast factory. All these products are articles, and are not subject to registration or authorisation under REACH, or to the requirements of the Classification and Labelling Directives.
- Clinker, the principal active constituent of cement, is a substance, exempt from registration, but subject to requirements for classification and labelling and for safety data sheets.
- Flyash - in principle it is waste, therefore outside the scope of REACH. However, when recovered and used in a preparation (e.g. cement, or ready-mixed concrete) it is classed as a substance and is subject to registration.
- Admixtures - a big range of different preparations, so statements above are general ones.
- EINECS number means that in the 'European Inventory of Existing Commercial Chemical Substances'.
- CAS number means that in the database of the Chemical Abstracts Service of the American Chemical Society.
- Current classification under European Directives 67/548/EEC (dangerous substances) and 1999/45/EC (dangerous preparations).