

The chromium (VI) legislation for cement Information for formulators

Introduction

The Chromium (VI) Directive (2003/53/EC) applying to cement and cement-containing preparations [see FACT SHEET 10.1] was implemented in the UK on 17th January 2005. This legislation is designed to minimise the occurrence of chromium (VI)-related allergic dermatitis arising from the use of cement. The detailed legislation/regulations governing implementation and enforcement are a matter for individual Member States. In the UK, implementation was via amendments to the COSHH and CHIP Regulations under the responsibility of the Health & Safety Executive (HSE).

BCA Member Companies' approach to meeting the requirements of the legislation

In order to comply, BCA Member Companies now control the amount of soluble chromium (VI) in all bulk and bagged cements by the addition, where necessary, of small amounts of a reducing agent such as ferrous sulfate or stannous sulfate. In the UK, this means that all BCA Member Companies' cements have levels of soluble chromium (VI), when water is added to the cement, that are no more than 2 ppm (0.0002%) by mass of the dry cement.

Shelf-life of cement

Reducing agents added to the cement during production have a limited period during which they remain effective. After this period ('shelf life') has expired they can no longer be relied upon to keep the soluble chromium (VI) level below 2 ppm when the cement comes into contact with water. BCA Member Companies now declare a storage period (shelf life) for cement treated with a reducing agent and this has been set at 61 days from the date of packing for bags or the date of despatch for bulk for most common cements. The shelf life applies only to cement that has been stored in accordance with the manufacturer's recommendations.

The cement manufacturer accepts responsibility for controlling the soluble chromium (VI) content of treated cement for the declared storage period (shelf life), when stored in accordance with the manufacturer's recommendations. However, once the cement has been incorporated in a formulated product, responsibility for controlling the soluble chromium (VI) content of the formulated product – including the cement – passes to the formulator.

Labelling of cement

In addition to the normal health and safety warnings, delivery documents for cement are now required to include the following information: the date of despatch; the declared storage period (shelf life) from the date of despatch and the recommended storage conditions relevant to the declared storage period. Other information is at the discretion of the manufacturer and this currently includes the consequences of using the cement after the declared storage period or when improperly stored and a 'use-by-date'.

Shelf-life of formulated products

The legislation also applies to "cement-containing preparations" and although no definition is given it is self-evident that formulators prepare products that contain cement. Formulators, therefore, have a twofold responsibility: firstly, to ensure that cement is stored in accordance with the cement manufacturer's recommendations up to the time of use in a formulated product, within the declared storage period and secondly, to ensure that the formulated product has a soluble chromium (VI) content, by mass of the cement, that will remain in conformity with the 2 ppm limit for use up to the expiry of a period of storage (shelf life) declared by the formulator. It should be understood that the 2 ppm limit is calculated by mass of the dry cement and consequently, even though products may contain inert materials such as sands or fillers, this will not 'dilute' the chromium (VI) in the product in terms of conformity with the legislation. Additional soluble chromium (VI) in any materials added to the cement will, however, be included in the calculated soluble chromium (VI) content to be assessed against the 2 ppm limit.

Labelling of formulated products

Besides the normal health and safety warnings, the formulator has a statutory duty to label products with: the date of packing; the declared storage period (shelf life) and the recommended storage conditions relevant to the declared storage period. Other information is discretionary but a formulator may feel a responsibility to alert users to the potential risk of using products after the declared storage period or when improperly stored.

Cement performance

BCA Member Companies only add a small quantity of reducing agent to cement (typically below 0.5% by mass of cement). Trials to date have indicated that at these low levels of addition, there are no significant changes to the performance of cement. When used to make concrete there may, however, be a slight reduction in expected workability and it is possible that if used in combination with some mineral additions, there may be an increase in setting time.

Health and safety

Reducing agents do not make cement safe to handle without PPE. Cement, when wet, can cause two types of dermatitis, *allergic* dermatitis and *irritant* dermatitis. Reducing agents only protect against allergic dermatitis. The same PPE is, therefore, required for handling wet cement now that reducing agents have been introduced as was previously required. Irrespective of the introduction of reducing agents, correct PPE would ensure users do not suffer allergic dermatitis, irritant dermatitis or burns.

Where can I find out more?

For product-specific information, contact your supplier/manufacturer directly. For generic information, contact: M G Taylor at BCA, Tel: 01276 608716, mtaylor@bca.org.uk

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BUXTON LIME INDUSTRIES LIMITED

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