MPA Cement Fact Sheet 10.5

Chromium (VI) and cement

Information for formulators

Introduction

Clause 47 of *Annex XVII* of the REACH Regulation regulates cement and cement-containing preparations for their water-soluble chromium (VI) content. It has the objective of minimising the occurrence of chromium (VI)-related allergic dermatitis which can arise from contact with wet cement during use [see Fact Sheet 10.1 in this series].

MPA Cement' Member Companies approach to meeting the requirements of the legislation

In order to comply, MPA Cement's Members now control the amount of water soluble chromium (VI) in all bulk and bagged cements (and their other cement-containing products/preparations) 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 their 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 cements

Reducing agents added to the cement during production have a limited period ('shelf-life') of effectiveness. After this period 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. Under the legislation, a storage period ('shelf-life') has to be declared for cement treated with a reducing agent and MPA Cement's Members declare this to be 61 days from the date of despatch for bulk delivery of most common cements. For cement packed in bags (paper or plastics) different storage periods can apply. Declared 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.

Cement performance

MPA Cement's Members only add a very 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 the cement in concrete. A slight reduction in concrete workability may, however, be observed and it is

possible that when used in combination with some mineral additions, an increase in setting time might also be experienced.

Labelling of cement

In addition to the normal health and safety warnings, delivery documents for cement now 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 a 'use-by-date' and the consequences of using the cement after the declared storage period or when improperly stored.

Formulated products

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.

Performance of formulated products

Information on the performance of formulated products should be sought directly from the relevant formulator.

Health and safety

Reducing agents do <u>not</u> make cement safe to handle without PPE (personal protective equipment). Cement, when wet, can cause two types of contact dermatitis, *allergic* dermatitis and *irritant* dermatitis. Reducing agents only protect against allergic dermatitis. The same PPE is required for handling wet cement since reducing agents were introduced as was previously required. 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: C McCague, Tel: +44(0)20 7963 8000, colum.mccague@mineralproducts.org

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