Material Safety Datasheet

CEMENT

It is important that you, or any persons working for you or to whom you have supplied cement(s) listed below, become familiar with the information given on both pages of this datasheet before handling, using or disposing of the product(s).

Cement

1. Identification of substance/preparation and supplier

Supplier/manufacturer: CEMEX UK Operations Ltd
CEMEX House, Evreux Way
Rugby, Warwickshire CV21 2DT
Tel: 01788 542111 (out of hours 01932 568833)
Fax: 01788 540166
www.cemex.co.uk

Substance/preparation: Bulk cements: Portland; Rapid; Extra; CEM III
Packed cements: Cement; Premium; Sulfate; Rapid; White; Fast Set

Revision date: November 2011

Hazard information

2. Composition/information on ingredients

Cement:
An odourless white to grey powder insoluble in water. When water is added it becomes a binder for construction applications.

2.1 Chemical Description:
The principal constituents of cement are calcium silicates, aluminates and sulfates.
Small amounts of alkalis, lime and chlorides are also present together with trace amounts of heavy metals. Additional constituents may also be present e.g. fly ash, limestone and granulated blast furnace slag. Permitted additives may also be present e.g. grinding aids; air-entraining agents; reducing agents.

2.2 Hazardous Ingredients:
a. The lime, calcium silicates and alkalis within the cement are partially soluble and when mixed with water will give rise to a potentially hazardous alkaline solution.

b. Salts of organic acids within air entraining agents are soluble and when mixed with water will contribute to the alkalinity of the solution.

c. Whilst reducing agents are added to cement to comply with the regulatory limit for Chromium (VI), their effect decreases with time and hexavalent chromium salts may be present, which give rise to a potentially hazardous solution when mixed with water.

3. Hazards identification

3.1 When cement is mixed with water, or when cement becomes damp from contact with sweat or tears, a strong alkaline solution is produced. If this comes into contact with the eyes or skin it may cause serious burns and ulceration. The eyes are particularly vulnerable and damage will increase with contact time. Strong alkaline solutions in contact with the skin tend to damage the nerve endings first before damaging the skin, therefore chemical burns can develop without pain being felt at the time.

3.2 Cement mixes may until set cause dermatitis.
• Irritant contact dermatitis is due to a combination of the wetness, alkalinity and abrasiveness of the constituent materials

• Reducing agents added to cement lower the potential for allergic contact dermatitis arising, principally, from chromium (VI) salts. If used outside of the declared shelf life of the reducing agent, there may be a risk of allergic contact dermatitis caused mainly by the sensitivity of an individual's skin.

Emergency action

4. First aid measures

4.1 Eye contact:
Do not rub eyes, remove any contact lenses. Wash eyes immediately with plenty of clean water for at least 15 minutes and seek medical advice without delay.

4.2 Skin contact:
Wash the affected area thoroughly with soap and water before continuing. If irritation, pain or other skin conditions occur, seek medical advice. Clothing contaminated by wet cement should be removed and washed thoroughly before use.

4.3 Ingestion:
Do not induce vomiting. Wash out mouth with water and give patient plenty of water to drink. Seek medical attention.

4.4 Inhalation:
If irritation occurs, move to fresh air. If nose or airways become inflamed seek medical advice.

5. Fire fighting measures

Cement is not flammable and will not facilitate combustion with other materials. Water used for fire extinguishing, which has been in contact with cement, may have high alkalinity.

6. Accidental release measures

6.1 Personal Precautions (See 8.3.)

6.2 Cleaning Up:
Recover the spillage in a dry state if possible. Minimise generation of airborne dust. The product can be slurried by the addition of water but will subsequently set as a hard material. Keep children away from clean up operation.

6.3 Environmental Measures:
Prevent from entering drains, sewers or water courses.

Precautions

7. Storage & handling

7.1 Storage:
Packed Cement must be stored in a safe and stable manner, in unopened bags, clear of the ground, in cool dry conditions and protected from excessive draught. Bulk Cement must be stored in silos that are waterproof, clean and protected from contamination, dry (internal condensation minimised) with stock rotated in chronological order of the despatch dates marked on delivery documents. To prevent burial or suffocation, do not enter a confined space, such as a silo, bin, bulk truck or other storage container or vessel that stores or contains cement without taking the proper safety measures. Cement can buildup or adhere to the walls of a confined space. The cement can release, collapse or fall unexpectedly.

7.2 Handling:
When handling bags take care when lifting, due regard should be paid to the risks outlined in the Manual Handling Operations Regulations 1992. Some bags may have a small amount of cement on the outer surface. Appropriate personal protective clothing (see 8.3) should be used whilst handling.

7.3 Control of chromium (VI):
Since 17 January 2005, in line with the UK implementation of Directive 2003/53/EC, CEMEX cements containing more than 2 ppm of soluble chromium (VI) have incorporated a reducing agent (stannous or ferrous sulfate) to control the level of soluble chromium (VI) to below 2 ppm by dry weight of cement on addition of mixing water. Reducing agents have a limited storage period (shelf life) during which they remain effective and, beyond which, 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. This storage period is declared on bags and despatch documents. If cements are incorrectly stored, or used after the end of the declared storage period, the level of chromium (VI) may exceed the 2 ppm limit, with a consequent increase in the potential risk of allergic contact dermatitis.

WARNING

WET CEMENT MAY CAUSE ALKALIS BURNS if in direct contact with skin.
You MUST wear the appropriate protective clothing at all times when working with cement, concrete or mortar.

8. Exposure controls/personal protection

8.1 Workplace Exposure Limits:
Workplace Exposure Limits (WEL's) of 10mg/m3 total inhalable dust and 4mg/m3 respirable dust (8 hour TWA) are listed in EH40 for Portland Cement, calcium silicate, fly ash and limestone. Chromium (VI) compounds are listed with a WEL of 0.05mg/m3 (8 hour TWA), whilst iron salts have a short term WEL of 2mg/m3 (15 minute reference period) and a long term WEL of 1mg/m3 (8 hour TWA).

8.2 Engineering Measures:
Where reasonably practicable dust exposures should be controlled by engineering methods.

8.3 Personal Protective Equipment:
Do not eat drink or smoke during work to avoid cement dust and wet cement coming into contact with skin or mouth. Immediately after working with cement or cement containing materials, workers should wash or shower with pH neutral soap and water.
a. Respiratory Protection:
Suitable respiratory protection (HSE approved standard) should be worn to ensure that personal exposure is less than the workplace exposure limit values. Always ensure good ventilation.

b. Hand and Skin Protection:
Protective clothing should be worn which ensures that cement, or any cement/water mixture (concrete or mortar) does not come into contact with the skin e.g. waterproof gloves, waterproof trousers and waterproof footwear. Particular care should be taken to ensure that wet concrete does not enter the boots and persons do not kneel on the wet concrete so as to bring the wet concrete into contact with unprotected skin. Should wet cement get inside boots, gloves or other protective clothing then this protective clothing should be immediately removed and the skin thoroughly washed as well as the protective clothing/footwear.

c. Eye Protection:
Dust-proof goggles (HSE approved standard) should be worn whenever there is a risk of cement powder or any cement/water mixture entering the eye. Suitable protection is advisable where there is a risk of material splashing.

Product information

9. Physical & chemical properties

Detailed properties vary according to:

a. The specific cement and
b. The ingredients added to affect the working characteristics of the material

9.1 Physical Data:

Physical state	Particulate
Mean particle size	5 – 30 microns
Odour	N/A
pH	pH of wet cement 12 – 14
Viscosity	N/A
Freezing point	N/A
Boiling point	N/A
Melting point	N/A
Flash point	N/A (not flammable)
Explosive properties	N/A
Density	2800 - 3200kg/m^3
Dry Bulk Density	1100 - 1600kg/m^3
Solubility	N/A

9.2 Chemical Compounds:
Mainly a mixture of: 3CaO – SiO_2
2CaO – SiO_2
3CaO – Al_2O_3
4CaO – Al_2O_3 – Fe_2O_3
Contains less than 1% crystalline Silica.

10. Stability & reactivity

Conditions contributing to chemical instability: None
Hazardous decomposition products: None
Special precautions: None
Reacts with moisture to become alkaline.

11. Toxicological information

11.1 Short Term Effects:
a. Eye Contact:
Cement is a severe eye irritant. Mild exposure can cause soreness. Gross exposures or untreated mild exposures can lead to chemical burning and ulceration of the eye.

b. Skin:
Cement powder or any cement/water mixture may cause irritant contact dermatitis, allergic (chromium) dermatitis, and/or burns.

c. Ingestion:
The swallowing of small amounts of any cement/water mixtures is unlikely to cause significant reaction. Large doses may result in irritation to the gastro intestinal tract.

d. Inhalation:
Cement powder may cause inflammation of mucous membranes.

11.2 Chronic Effects:
High repeated exposures in excess of the WEL have been linked with thinitis and coughing. Skin exposure has been linked to allergic (chromium) dermatitis. Allergic dermatitis more commonly arises through contact with cement/water mixtures than dry cement.

1.2 Medical conditions aggravated by exposure:
Inhaling respirable dust may aggravate existing respiratory system disease(s) and/or dysfunctions such as emphysema or asthma and may aggravate existing skin and/or eye conditions.

12. Ecological information

12.1 Aquatic Toxicity Rating:
LC50 aquatic toxicity rating not determined. The addition of cements to water will, however, cause the pH to rise and may therefore be toxic to aquatic life in some circumstances.

12.2 Biological Oxygen Demand (BOD):
Not applicable

13. Disposal considerations

Dispose of empty bags or surplus cement to a place authorised to accept builders waste. Keep out of reach of children.
Classification/characterisation of cement as a waste:
When a product becomes a waste, it must be classified/characterised so that it can be appropriately managed. In law, the classification exercise is the responsibility of each waste-producer/holder but to assist users/customers, the British Cement Association (BCA) appointed an independent technical/environmental consultancy to derive codes and classifications for cement using the appropriate technical guidance provided by the Environment Agency. The results are given below and are for use where cement has been discarded from non-domestic and domestic premises, respectively.
Cement - in the absence of any subsequent contamination - **as a waste located at NON-DOMESTIC** premises.

Origin of waste	EXC* Code	Description of waste stream in EXC	Classification/ Characterisation
Construction sites, ready-mixed plants, precast plants and retail outlets	16, 03, 04	Inorganic wastes other than those mentioned in 16, 03, 03	Non-hazardous
Cement works	10, 13, 06	Particulates and dust (except 10, 13, 12 and 10, 13, 13)	Non-hazardous

*EWC is the European Waste Catalogue
Cement as a waste located at DOMESTIC premises.
Waste cement that is located at domestic premises is officially designated to be 'household waste' and is automatically classified as 'non-hazardous'.
Waste management/disposal of cement as a waste.
Where disposal to landfill is the only option, the BCA suggests to wasteholders that cement should be classified/characterised as non-hazardous and that prior treatment is inappropriate/inapplicable. In consequence, such waste cement might be disposed of to any landfill that accepts non-hazardous materials.

Additional information

14. Transport information

Classification for conveyance – not required.

15. Regulatory information

15.1 Chemicals (Hazard Information and Packaging for Supply) Regulations.
Classification: Irritant.
15.2 Risk/safety phrases:
Risk Phrases:
- R37/38 Irritating to respiratory system and skin
- R41 Risk of serious damage to eyes
- R43 May cause sensitization by skin contact

Safety Phrases:
- S22 Do not breath the dust
- S24/25 Avoid contact with skin and eyes
- S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
- S37/39 Wear suitable gloves and eye/face protection
- S2 Keep out of reach of children

16. Legislation & other information

- CONIAC Health Hazard Information Sheet No 26 (CEMENT)
- Health & Safety at Work, etc. Act 1974
- Control of Substances Hazardous to Health Regulations (COSHH) 2002
- Control of Substances Hazardous to Health (Amendment) Regulations 2004
- Environmental Protection Act 1990
- HSE Guidance Note EH40 (Workplace Exposure Limits)
- Any authorised manual on First Aid by St.John's/St. Andrews/Red Cross
- Manual Handling Operations Regulations 1992 (as amended)

Prepared in accordance with UK REACH Competent Authority Information
Leaflet 13 - REACH and SDS - May 2008.

Guidance references

Available from HMSO, HSE area offices, or local authority Environmental
Health Departments:
- EH40/: Workplace Exposure Limits
- A step-by-step guide to COSHH Assessment (HS[G]97)

IMPORTANT NOTES

The purpose of this datasheet is to provide Health, Safety and Environmental guidance on the safe handling, use and disposal of Cement supplied by subsidiary or affiliate companies of CEMEX in the United Kingdom.

The information contained in this datasheet is correct at the date of, and applies only in relation to, the supply of material referred to in the delivery docket to which this datasheet is attached and forms part.

This datasheet should alert purchasers and/or users to the usual hazards in handling the supplied material when using it within the ordinary range of uses for which such material is normally supplied. If you have purchased or arranged the supply on behalf of a third party who will work with the material supplied it is your duty to pass this information on to them BEFORE such work commences.

For the avoidance of doubt the datasheet DOES NOT constitute the user's own assessment of workplace risk as may be required by other safety legislation and nothing herein shall be construed or relied upon as relieving the purchaser, user or any intermediate supplier or third party from any statutory or other legal duty which may apply to them or from taking care or precautions to protect themselves or others to whom they owe a duty of care.

The datasheet should not be relied upon for any other purpose including without limitation any technical or design purpose, nor relied upon in the use or handling of any other product whether supplied by CEMEX or not. Reliance placed on any part or all of the information contained in this datasheet which goes beyond the purpose set out above is entirely at the user's own risk.

Without limiting or restricting the terms and conditions upon which the material has been supplied to the extent permitted by law, CEMEX disclaims all liability arising directly or indirectly from the content or preparation of this datasheet except that CEMEX will accept responsibility for personal injury which is demonstrated to have been caused by its own negligence.

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