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

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

Revision date: May 2006

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 become vulnerable and 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.
b. Salts of organic acids within air entraining agents are soluble and when mixed with water will give rise to a potentially hazardous alkaline 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 wetness, alkalinity and abrasiveness of the constituent materials rise to a potentially hazardous solution when mixed with water.

3.2 Cement mixes may until set cause dermatitis.
- Irritant contact dermatitis is due to a combination of the alkalis, alkalinity and abrasiveness of the constituent materials. 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.
- Reactants 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 sensitivty of an individual's skin.

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 always become irritated 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. Minimize generation of airborne dust. The product can be cleaned off the surface 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.

7. Storage & handling

7.1 Storage:
- Packed Cement must be stored in a safe and stable manner, in unopened bags, clean 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 build-up 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.

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.

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CEMEX House, Evreux Way, Rugby, Warwickshire CV21 2DT
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www.cemex.co.uk
7.3 Control of chromium (VI):
Since 1 January 2005, in line with the UK implementation of Directive 2000/53/EC, CEMEX cement containing more than 2 ppm of soluble chromium (VI) have incorporated a reducing agent (triammonium or ferrous) 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.

9.2 Chemical Compounds:
Mainly a mixture of: 3CaO – SiO₂, 2CaO – SiO₂, 4CaO – Al₂O₃ – Fe₂O₃. 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 some microscopical damage; gross exposure 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. Ingestion:
The swallowing of small amounts of any cement/water mixtures is unlikely to cause significant harm to the body. Large doses may result in irritation to the gastrointestinal 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 thrush and coughing. Skin exposure has been linked to allergic dermatitis. Dermatitis more commonly arises through contact with cement/water mixtures than dry cement.
12. Ecological information
12.1 Aquatic Toxicty 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 line with the classification exercise, the environmental responsibility of any waste producer/holder must be 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 appropriate industry/Agency. The results are given below and are for use where cement has been discarded from non-domestic and non-domestic premises, respectively.

Cement - in the absence of any subsequent contamination - as a waste located at NON-DOMESTIC premises.

For further information please contact Customer Services on:
Tel: 01788 542111 (out of hours) 01932 568833
Fax: 01788 540168

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 sensitisation by skin contact
Safety Phrases:
• S22 Do not breathe the dust
• S54 Avoid contact with skin and eyes
• S56 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
• S32 Keep out of reach of children

16. Legislation & other information
• CEMAC Health Hazard Information Sheet No.26 (CEMENT)
• Health & Safety at Work, etc. Act 1974
• Control of Substances Hazardous to Health-Rules (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/Red Cross
• Manual Handling Operations Regulations 1992 (as amended)

Data Sheet prepared in accordance with the Safety Data Sheets Directive (91/155/EEC, as amended by Directives 93/122/EC and 2001/58/EC)

Guidance references
Available from HSE, HSE area offices, or local authority Environmental Health Department:
EH40: Workplace Exposure Limits

1. A step-by-step guide to COSHH Assessment (HSEGB7)

IMPORTANT NOTES

The purpose of this datasheet is to provide Health, Safety and Environmental guidance on the safe handling, use and disposal of CEMEX 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 key which refers to this datasheet and forms part of this datasheet.

This datasheet should be kept by purchasers and/or users as the usual hazard in handling the applied material when using within the ordinary range of uses for which the material is normally supplied. If you have purchased or arranged the supply on behalf of a third party area and you work with the material supplied in your job to pass on this information to them BEFORE such work commences.

For the avoidance of doubt this datasheet DOES NOT constitute the user’s own assessment of 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.

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:

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Particulate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean particle size</td>
<td>5 – 20 microns</td>
</tr>
<tr>
<td>pH of wet cement</td>
<td>12 – 14</td>
</tr>
<tr>
<td>Viscosity</td>
<td>N/A</td>
</tr>
<tr>
<td>Freezing point</td>
<td>N/A</td>
</tr>
<tr>
<td>Boiling point</td>
<td>N/A</td>
</tr>
<tr>
<td>Melting point</td>
<td>N/A</td>
</tr>
<tr>
<td>Flash point</td>
<td>N/A (not flammable)</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>N/A</td>
</tr>
<tr>
<td>Density</td>
<td>2800 – 3200kg/m³</td>
</tr>
<tr>
<td>Dry Bulk Density</td>
<td>1100 – 1600kg/m³</td>
</tr>
</tbody>
</table>

For more information, please refer to the European Waste Catalogue.

CEMENT is 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 waste-holders that cement should be classified/characterised as non-hazardous and that prior treatment is inappropriate/unacceptable. In consequence, such waste cement might be disposed of to any landfill that accepts non-hazardous materials.