



**PPC**  
**CEMENT**

**MATERIAL SAFETY DATA SHEET**  
**CEMENTITIOUS MATERIALS**

**MSDS**

# CEMENTITIOUS MATERIAL

## NAME OF SUBSTANCE

Common and Masonry Cement and Cement Extenders

## SYNONYM

Cement, Cement blends, Masonry Cement, slag, Slagment, fly ash, Pozzfil, silica fume, CSF. Covered by cement standards SANS 50197 and SANS 50413 and extender standards SANS 1491 Parts 1, 2 and 3.

## U.N. NO.

No U.N. number

## HAZCHEM CODE

Awaited

## NIOSH NO.

W8770000(RTECS)

## CHEMICAL FORMULA

Tri & Di-calcium silicate, Tetra Calcium Alumino Ferrite, Tri Calcium Aluminate and silicon dioxide

## PACKAGING

25, 40 & 50 kg paper or polypropylene sacks; big bags; mini bulk silos; road & rail tankers

## PHYSICAL PROPERTIES

Relative density (Water = 1)	2.2 – 3.2 kg/l
Solubility in water:	Negligible <1 %
Melting point:	>1500 deg. C
Molecular weight:	Variable
Boiling point at 760 mm Hg:	Not applicable
Flammability:	Non combustible
Fire fighting procedures:	Not applicable
Explosiveness:	Nil
Alkalinity:	pH 7 – 13
OEL total inhalable (RL)	10 mg / m <sup>3</sup>
OEL respirable dust (RL)	5 mg / m <sup>3</sup>

## OTHER CHARACTERISTICS

Stability:	Unstable
Incompatibility with other materials:	Avoid moisture – strongly alkaline and hardens when exposed to water.
Hazardous decomposition:	Nil
Hazardous polymerisation:	Nil



**HAZARDS / SYMPTOMS****PREVENTION****FIRE EXTINGUISHING & FIRST AID**

Inhalation:	Demarcate dust areas with zebra lines and/or appropriate signage. Use dust mask in accordance with SANS 50149	Remove exposed person to fresh air. If airways become inflamed, seek medical advice.
Skin:	Wear gloves and long sleeves.	Wash with water & non-sensitising soap.
Eyes:	Wear fully sealing eye protection.	Wash eyes with large volumes of water. Seek medical attention.
Ingestion:	Do not eat in areas exposed to cement dust	Ingestion in harmful quantities is unlikely to occur. If ingested drink plenty of water and consult a doctor immediately. <b>DO NOT INDUCE VOMITING.</b>
Other: Wet cement or concrete	Suitable protective clothing to prevent contact due to caustic nature	Treat as per caustic burns

**SPILLAGE HANDLING****STORAGE REQUIREMENTS****PACKAGING AND LABELLING**

Sweep or vacuum to minimize dust dispersion	Keep dry Do not stack more than 12 loose bags high	In terms of SANS 10228
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**HEALTH HAZARD INFORMATION**

Inhalation: Exposure over long periods of time to very high concentrations may cause a cough with phlegm.	TWA OEL – RL 5 mg/m <sup>3</sup> respirable dust.
	TWA OEL – RL 10 mg/m <sup>3</sup> total inhalable dust.
Skin contact:	Prolonged exposure could sensitise skin causing mild irritation or allergic dermatitis in extreme cases.
Eye Contact:	Irrigate with large amount of water. Seek immediate medical attention.
Ingestion:	Ingestion in harmful quantities is unlikely to occur. If ingested drink plenty of water and consult a doctor immediately. <b>DO NOT INDUCE VOMITING</b>
Back Strain:	As bags are heavy, prevent back & neck injuries by using proper bending & lifting manoeuvres.

## PERSONAL PROTECTIVE EQUIPMENT

Respiratory:	Dust mask where TLV is exceeded in line with SANS 50149.
Eyes:	Eye and dust shields are optional. It is preferable to wear fully sealing eye protection.
Gloves:	Any type which prevents skin contact with product and undue perspiration.

## ECOLOGICAL INFORMATION

Aquatic toxicity: Fish Daphnia Algae	Non-toxic in small quantities. Large quantities especially in static water will result in pH increase up to pH 12 or more. pH changes may result in death of aquatic life.
Biodegradability:	Cement hardens to form a crust. It will dissolve slowly in acidic conditions.
Bio-Accumulation:	As above.
Mobility:	Dry powder is readily air entrained making it mobile. When wet it is sticky or fluid depending on moisture content.

## TRANSPORT INFORMATION

Tremcard No.	
U.N. Number:	Portland Cement and cement blends are not hazardous cargo in terms of the International Maritime Dangerous Goods Code and as such do not have a U.N. number.  Portland Cement is listed as an Appendix C cargo in terms of the BC Code. Relevant information is attached in Appendix 1.

## RECOMMENDED MEDICAL SURVEILLANCE

The following medical procedure should be made available to each person who is exposed to Portland cement at potentially hazardous levels;

### 1. Initial Medical Examination:

A complete history and physical examination: The purpose being to detect pre-existing conditions that might place the exposed person at increased risk, and to establish a baseline for future health monitoring. Examination of the respiratory tract and eyes should be stressed. The skin should be examined for evidence of chronic disorders and allergic dermatitis.

14" x 17" chest roentgenogram: Portland Cement mixtures have been reported to cause x-ray changes. Surveillance of the lungs is indicated.

FVC and FEV (1 sec): Cement mixtures may cause signs of respiratory impairment. Persons with impaired pulmonary function may be at increased risk from exposure. Periodic surveillance is indicated.

### 2. Periodic Medical Examination:

The aforementioned medical examination should be repeated on an annual basis, except that an x-ray is necessary only when indicated by the results of pulmonary function testing, or by signs and symptoms of respiratory disease.

### Summary of Toxicology

Cement dust may irritate the eyes and may cause dermatitis. There are reports of increased incidence of bronchitis and chest x-ray changes after prolonged heavy exposure to undefined mixtures of cement and other dusts. Exposure to cement can cause chronic conjunctivitis, blepharitis, and skin ulcers of the nose. Repeated and prolonged skin contact with cement can result in dermatitis of the hands, forearms and feet – this is a primary irritant dermatitis and may be complicated in some instances by allergic reactions.

## CONTACT PERSONS / INSTITUTIONS

Poison Information Centre  
Red Cross Hospital, Cape Town  
**+27 (0)21 689 5227** ALL HOURS OR  
Poison Information Centre  
Tygerberg Hospital, Bellville  
**+27 (0)21 931 6129**

Ask for information on:

COMMON CEMENTS, MASONRY CEMENTS, PORTLAND CEMENT, CEMENT BLENDS AND CEMENT EXTENDERS

## APPENDIX 1

### BC Code

#### List of bulk materials which are neither liable to liquefy (appendix A) nor to possess chemical hazards (appendix B)

1. It should be carefully noted that this list of materials is not exhaustive and that the physical properties attributed to them are for guidance only.
2. The following materials are non-cohesive when dry:

Ammonium Nitrate Fertilisers (Non-Hazardous)

Ammonium Sulphate

Borax Anhydrous

Calcium Nitrate Fertiliser

Di-ammonium Phosphate

Mono-ammonium Phosphate

Muriate of Potash (Potassium Chloride) (KCl)

Potash

Potassium Sulphate

Superphosphate

Urea

Prior to completion of loading, the angle of repose of the materials to be loaded should be deteriorated (see section 6) so as to determine which provisions of this Code relating to trimming apply (see section 5).

3. All other materials listed in this appendix are cohesive and use of the angle of repose is, therefore, not appropriate. Materials not listed should be treated as cohesive until otherwise shown.



## APPENDIX 1

Material	Approx. angle of repose	Approx. stowage factor (m <sup>3</sup> /t)	Properties, observations and special requirements
CEMENT, CEMENT BLENDS, AND CEMENT EXTENDERS		0,4 to 1,30	<p>Fine whitish to grey powder.</p> <p>Maximum particle size: 0,1mm. Both specific gravity and angle of repose are dependent upon the amount of air in the material. Cement, cement blends and cement extenders contract approximately 12 % from an aerated to a non-aerated state. Normally cementitious binders are carried in specially designed ships and trimming is carried out with special equipment. Masters of vessels not specially fitted for the carriage of cementitious binders or who are unaware of the characteristics of such cargo should consult local authorities for advice. Considering the fluid nature of the cementitious binder prior to settlement, care should be taken to maintain the ship upright during loading, and attention should be given to ensuring that the material is trimmed reasonably level. Consideration should also be given to any necessary measures to ensure that the cargo has settled and is stable before the ship sails, especially where the loading rate is extreme in relation to the total dead-weight loaded. After the material has settled, shifting should not normally occur unless the angle of the surface within the horizontal plane exceeds 30°. Should be kept dry prior to loading, bilge should be made sift-proof and cargo spaces thoroughly cleaned. Contamination of a cementitious binder renders it useless as a binding agent.</p>

