Safety Data Sheet – Portland Cement

February 2018

1. Identification of the substance/preparation and of the company

1.1 Identification of the substance/preparation

Portland Cement Cem I
Portland Cement Cem II
General Purpose Cement (Bag)

1.2 Use of the substance/preparation

Portland cement is used as a hydraulic binder for the production of concrete, mortars, grouts etc.

1.3 Company identification

Company name:	O'Brien Cement
Address:	Belview Port, Waterford, Ireland
Telephone number:	051 - 832360
E-mail:	mail@obriencement.ie

1.4 Emergency telephone

Emergency Telephone number 051 - 832360

Emergency telephone number:
Available outside office hours? No

2. Hazard Identification

When portland cement comes into contact with water a strong alkaline solution is produced.

2.1 Hazard characterisation

Hazard Statements

H318 Causes serious eye damage
H315 Causes skin irritation
H317 May cause an allergic skin reaction
H335 May cause respiratory irritation

Danger

Precautionary statements

P102 Keep out of reach of children
P280 Wear protective gloves/protective clothing/eye protection/face protection
P305+P351+P338+P310: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor
P302+P352+P333+P313: IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention
P261+P304+P340+P312: Avoid breathing dust/fume/gas/mist/vapours/spray. IF INHALED: Remove casualty to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell.
P501 Dispose of contents/container to licenced facility.

Supplemental information

Skin contact with wet cement, fresh concrete or mortar may cause irritation, dermatitis or burns.
May cause damage to products made of aluminium or other non-noble metals.

2.2 Primary routes of entry

Inhalation: Yes
Skin - eyes: Yes
Ingestion: No, except in accidental cases

2.3 Human health

Inhalation: Frequent inhalation of large quantities of portland cement dust over a long period of time increases the risk of developing lung diseases.

Eyes: Eye contact with portland cement dust (dry or wet) may cause serious and potentially irreversible injuries.

Skin: Portland cement may have an irritating effect on moist skin (due to transpiration or humidity) or may cause contact dermatitis after prolonged contact. Repeated skin contact between portland cement dust and moist skin may cause irritation, dermatitis or burns.

2.4 Environment

Under normal use, the product is not expected to be hazardous to the environment.

3. Composition/information on ingredients

3.1 Chemical composition

80 - 95%	Portland Cement Clinker	EINECS 266-043-4
0 - 20%	Limestone	EINCS 215-279-6
0 - 5%	Calcium Sulphate	EINCES 231-900-3
< 1%	Furrous Sulphate	EINCES 231-753-5

3.2 Components presenting a health hazard

	Concentration %	EINECS	Symbol	R
Portland Cement Clinker	80 - 95%	266-043-4	Xi	R37/38, R41, R43

4. First Aid Measures

When contacting a physician, take this SDS with you.

4.1 After significant accidental inhalation

Move person to fresh air. Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists or later develops or if discomfort, coughing or other symptoms subside.

4.2 After contact with eyes

Do not rub eye as additional corneal damage is possible by mechanical stress. Remove any contact lenses and open the eyelids widely to flush eye(s) immediately by thoroughly rinsing with plenty of clean water for at least 45 minutes to remove all particles. If possible, use isotonic water (0,9% NaCl). Contact a specialist of occupational medicine or an eye specialist.

4.3 After skin contact

For dry portland cement, remove and rinse abundantly with water. For wet portland cement, wash skin with water.
Remove contaminated clothing, footwear, watches, etc. And clean thoroughly before re-using them. Seek medical treatment in all cases of irritation or burns.

4.4 After significant accidental ingestion

Do not induce vomiting. If person is conscious, wash out mouth with water and give plenty of water to drink. Get immediate medical attention

5. Fire-Fighting Measures

5.1 Flashpoint and method

Cements are non-combustible and non-explosive and will not facilitate or support combustion of other materials.

5.2 Extinguishing media

Not applicable

5.3 Fire fighting equipment
Not applicable

5.4 Combustion products
Not applicable

5.5 Flammable limits
Not applicable

6. Accidental Release Measures
6.1 Personal protective measures
Wear protective equipment as described under heading 8 and follow the advice for safe handling and use given under heading 7. Emergency procedures are not required

6.2 Environmental protection measures
Do not wash cement down sewage and drainage systems or into bodies of water.

6.3 Methods for cleaning up
Recover the spillage in a dry state if possible.

Dry Cement
Use dry clean-up methods that do not cause airborne dispersion. E.g.: Vacuum cleaner. Wipe-up the dust by mopping, wet brushing or water spraying and remove slurry (see wet cement). When vacuum cleaning or wet cleaning are not possible and only dry cleaning with brushes can be done, ensure that the workers wear appropriate personal protective equipment and prevent dust from spreading. Avoid inhalation of cement and contact with skin. Place spilled material into a container. Solidify before disposal as described under heading 13.

Wet cement
Clean up wet cement and place in a container. Allow material to dry and solidify before disposal as described under heading 13.

7. Handling and Storage
7.1 Handling
For bagged cement only carry one bag at a time. Follow safe manual handling practices.
Further Handling recommendations given under heading 8. Avoid dust development. To clean up dry Portland cement see heading 6.3.

7.2 Storage
Bulk cement should be stored in silos that are waterproof, dry (internal condensation minimised) clean and protected from contamination. 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 security measures. Cement can build-up or adhere to the walls of a confined space. The cement can release, collapse or fall unexpectedly.

Bagged Cement should be stored in a dry environment. Weatherproof bags protect against rain but are not deigned to be submersed in water. Once a bag has been opened it should be re-sealed as best as possible to prevent moisture and water ingress. Cement bags weigh 25Kg so store at a safe height for manual handling considerations.

7.3 Control of soluble Cr (VI)
For cements treated with a Cr (VI) reducing agent according to the regulations given in heading 15. The effectiveness of the reducing agent diminishes with time. Therefore delivery documents contain information on the period of time (‘shelf life’) for which the manufacturer has established that the reducing agent will continue to maintain the level of soluble Cr (VI) below the imposed limit of .0002%, when tested in accordance with EN 197-10. The information will also indicate the appropriate storage conditions for maintaining the effectiveness of the reducing agent.

8 Exposure Controls/ Personal Protection

8.1Exposure limit values

	OELV 8Hr TWA	OELV STEL 15mins TWA
Cement (portland)	10mg/m^3	

8.2 Exposure controls

8.2.1 Occupational exposure controls

General: During work avoid kneeling in fresh mortar or concrete wherever possible. If kneeling is absolutely necessary then appropriate waterproof personal protective equipment must be worn. Do not eat, drink or smoke when working with cement to avoid contact with skin or mouth. Remove any contaminated clothing, footwear, watches etc. and clean thoroughly before re-using them. Immediately after working with cement or cement-containing materials, workers should wash thoroughly.

Respiratory protection: When a person is exposed to dust above exposure limits, use appropriate reparatory protection. It should be adapted to the dust level and conform to EN 149.

Eye protection: Wear approved glasses or safety goggles according to EN 166 when handling dry or wet cement to prevent contact with eyes.

Skin protection: Use impervious, abrasion and alkali resistant gloves (made of low soluble Cr (VI) material), boots, closed long sleeved protective clothing to protect the skin from prolonged contact with wet cement. Particular care should be taken to ensure that wet cement does not enter the boots. In some circumstances such as laying concrete or screeds. Waterproof trousers or kneepads are necessary.

8.2.2 Environmental exposure controls

Use closed systems or local exhaust ventilation to maintain exposure within OELEV's where necessary.

9 Physical and Chemical Properties

9.1 General information

Portland cement is a finely ground inorganic material (odourless, grey powder).

9.2 Physical data

Mean particle size 5-30µm
Solubility in water (T=20^{o}C): slight (0.1-1.5 g/l)
Density: 2.75-3.20 g/cm^3
Bulk density: 0.9-1.5 g/cm^3
PH (T=20^{o}C in water) 11-13.5
Boiling/melting point, flash point, flammability, oxidising properties, explosive properties, partition coefficient noctanol/ water, vapour pressure, vapour density, evaporation rate, viscosity: Not relevant

10. Stability and Reactivity

10.1 Stability

Portland cement is stable as long as it is stored properly (see Heading 7).
When mixed with water, Portland cement will harden into a stable mass that is not reactive to normal environments.

10.2 Conditions to avoid

Humidity during storage may cause lump formation and loss of product quality.

10.3 Materials to avoid

Uncontrolled use of aluminium powder in wet cement should be avoided as hydrogen is produced

10.4 Hazardous decomposition products
Portland cement will not decompose into other hazardous by-products and does not polymerise.

11. Toxicological Information
11.1 Acute effects
Eye contact: Direct contact with portland cement may cause corneal damage by mechanical stress, immediate or delayed irritation or inflammation. Direct contact with larger amounts of dry portland cement dust or splashes of wet portland cement may cause effects ranging from moderate eye irritation (E.g. conjunctivitis or blepharitis) to chemical burns and blindness.

Skin contact: Portland cement in contact with wet skin may cause thickening, cracking or fissuring of the skin. Prolonged contact in combination with abrasion can cause severe burns.

Ingestion: Swallowing large quantities may cause irritation to the gastrointestinal tract.

Inhalation: Portland cement dust may irritate the throat and respiratory tract. Coughing, sneezing, and shortness of breath may occur following exposures in excess of occupational exposure limits.

11.2 Chronic effects
Inhalation: Chronic exposure to respirable dust in excess of occupational exposure limits may cause coughing, shortness of breath and may cause chronic obstructive lung disease (COPD).

Carcinogenicity: No causal association has been established.

Contact dermatitis/Sensitising effects: Some individuals may exhibit eczema upon exposure to wet cement, caused either by the high pH which induces irritant contact dermatitis after prolonged contact, or by an immunological reaction to soluble Cr (VI) which elicits allergic contact dermatitis.

11.3 Medical conditions aggravated by exposure
Portland cement dust may aggravate existing respiratory system disease(s) and/or medical conditions such as emphysema or asthma and/or existing skin and/or eye conditions.

12. Ecological Information
12.1 Ecotoxicity
The product is not expected to be hazardous to the environment. The addition of large amounts of portland cement clinker to water may, however, cause a rise in pH and may therefore be toxic to aquatic life under certain circumstances.

12.2 Mobility
Portland cement is not volatile but might become airborne during handling operations.

12.3 Persistence and degradability/Bio accumulative potential/Results of PBT assessment/Other adverse effects
Not relevant as Portland cement is an inorganic material. After hydration, Portland cement presents no toxicity risks.

13. Disposal Considerations
13.1 Cement that has exceeded its shelf life (contains more than .0002% soluble Cr (VI)):
Shall not be used/sold other than for use in controlled closed and totally automated processes or should be recycled or disposal of according to local legislation or treated again with a reducing agent.

13.2 Unused residue or dry spillage
Pick up dry material. Possibly reuse depending upon shelf life considerations and the requirements to avoid dust exposure. In case of disposal, harden with water and dispose according to 13.4.

13.3 Slurries
Allow to harden, avoid entry in sewage and drainage systems or into bodies of water and dispose according to 13.4.

13.4 After addition of water, hardened

Dispose of according to local legislation. Avoid entry into the sewage water system. Dispose of the hardened product as concrete waste. Due to inertisation, concrete waste is not a dangerous waste. EWC entry 10 13 14 (waste concrete or concrete sludge) or 17 01 01 (concrete)

14. Transport Information

Portland cement is not covered by the international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID); no classification is required. No special precautions are needed apart from those mentioned under Heading 8.

15. Regulatory Information

15.1 EU regulatory information

Cement is a mixture according to REACH and is not subject to registration.
Cement clinker is exempt from registration (Art 2.7 (b) and Annex V.10 of REACH).

The marketing and use of cement is subject to a restriction on the content of soluble Cr (VI) (REACH Annex XVII point 47 Chromium VI compounds):

1. Cement and cement-containing mixtures shall not be placed on the market, or used, if they contain, when hydrated, more than 2 mg/kg (0.0002 %) soluble chromium VI of the total dry weight of the cement.
2. If reducing agents are used, then without prejudice to the application of other Community provisions on the classification, packaging and labelling of substances and mixtures, suppliers shall ensure before the placing on the market that the packaging of cement or cement-containing mixtures is visibly, legibly and indelibly marked with information on the packing date, as well as on the storage conditions and the storage period appropriate to maintaining the activity of the reducing agent and to keeping the content of soluble chromium VI below the limit indicated in paragraph 1.
3. By way of derogation, paragraphs 1 and 2 above shall not apply to the placing on the market for, and use in, controlled closed and totally automated processes in which cement and cement-containing mixtures are handled solely by machines and in which there is no possibility of contact with the skin.

16. Other information

Abbreviations

-IMDG: International Maritime Dangerous Goods
-IATA: International Air Transport Association
-ADR/RID: Agreement on the transport of dangerous goods by road/Regulations on the international transport of dangerous goods by rail.

The information on this data sheet reflects the currently available knowledge and is reliable provided that the product is used under the prescribed conditions and in accordance with the application specified on the packaging and/or in the technical guidance literature. Any other use of the product, including the use of the product in combination with any other product or any other process, is the responsibility of the user. It is implicit that the user is responsible for determining appropriate safety measures and for applying the legislation covering their own activities.