

PORTLAND CEMENTS

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1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Trade name : COMMON PORTLAND CEMENT (UNE-EN 197-1:2000): DRAGON, DRAGON I, DRAGON AL and SUPERDRAGÓN.
PORTLAND CEMENT RESISTANT TO SULFATES (UNE 80303-1:2001): DRAGON SR.

Use : Hydraulic binder. Concrete, mortars and grouts.

Company identification : Cementos Molins Industrial, S.A.
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2 HAZARDS IDENTIFICATION

Hazards identification : Xi : Irritant
R36/37/38 : Irritating to eyes, respiratory system and skin.
R43 : May cause sensitization by skin contact.

Environmental hazard : No specific risk for the environment.

Primary route of exposure : Inhalation of dust. Skin and eyes contact. Ingestion.

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

- Skin contact : Product may have an irritating effect on moist skin (due to transpiration or humidity) or may cause contact dermatitis after prolonged contact.

- Eye contact : Eye contact without proper protection may cause serious and potentially irreversible injuries.

- Ingestion : May cause irritation of the linings of the mouth, throat, and gastrointestinal tract. Must not come into contact with food or be consumed.

Caution : When product is mixed with water, the grouts has elevated pH. Repeated or prolonged skin contact may cause irritation. Direct contact by splashing may cause damage to eyes.

Note : Cement is poor in chromate by itself or by reducing the content of sensitising soluble chromium (VI) to below 0.0002% in the cement ready for use according to legislation specified under heading 15.

3. COMPOSITION / INFORMATION ON INGREDIENTS

* **Components** : This product contains hazardous components in variable compositions. Common cement types according to the EN 197-1 (Common cements) and EN 197-4 (Blast furnace cements) standards. See annex.

Substance name	Contents	CAS No	EC No	Index No	Classification
Ashes (residues)	< 5 %	68131-74-8	268-627-4	----	Xn; R48/20
Cement, portland, chemicals	> 75 %	65997-15-1	266-043-4	----	Xi; R36/37/38 R43

Contains : Portland cement is a mixture of chemical substances produced by burning or sintering at high temperatures (greater than 1200°C (2192°F)) raw materials which are predominantly calcium carbonate, aluminium oxide, silica, and iron oxide. The chemical substances which are manufactured are confined in a crystalline mass. This category includes all of the chemical substances specified below when they are intentionally manufactured in the production of Portland cement. The primary members of the category are Ca₂SiO₄ and Ca₃SiO₅. Other compounds listed below may also be included in combination with these primary substances. CaAl₂O₄, Ca₂Al₂SiO₇, CaAl₄O₇, Ca₄Al₆SO₁₆, CaAl₁₂O₁₉, Ca₁₂Al₁₄Cl, Ca₃Al₂O₆., Ca₁₂Al₁₄F₂, Ca₁₂Al₁₄O, Ca₄Al₂Fe₂., CaO, Ca₆Al₄Fe₂., Ca₂Fe₂O₅.

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PORTLAND CEMENTS

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3. COMPOSITION / INFORMATION ON INGREDIENTS (continued)

Contains : The residuum from the burning of a combination of carbonaceous materials. The following elements may be present as oxides: aluminum, calcium, iron, magnesium, nickel, phosphorus, potassium, silicon, sulfur, titanium, and vanadium.

4. FIRST AID MEASURES*** First aid measures**

- **Inhalation** : Assure fresh air breathing. Drink water to clear throat and blow nose. Obtain medical attention if pain, blinking or redness persist.
- **Skin contact**
 - : *Dry cement.*
 - : After contact with skin, first remove product with a dry cloth and then wash the skin with plenty of water.
 - : *Wet cement.*
 - : Remove affected clothing and wash all exposed skin area with mild soap and water. Wash clothing before re-using. Seek medical attention if ill effect or irritation develops.
- **Eye contact** : Do not rub eye. Rinse immediately with plenty of water. Contact ophthalmologist immediately.
- **Ingestion** : Do not induce vomiting. Rinse mouth. Give large quantities of water. Seek medical attention immediately.
- Prevention** : If you feel unwell, seek medical advice (show the document where possible).

5. FIRE-FIGHTING MEASURES

- Flammable class** : Not flammable. Not explosive. Product will not support combustion of other materials.
- Surrounding fires** : The product, when fire, allows the use of all extinguish media.
- Protection against fire** : Do not enter fire area without proper protective equipment, including respiratory protection.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions** : Equip cleanup crew with proper protection. See section 8.
- Environmental precautions** : Prevent entry to sewers and public waters.
Notify authorities if product enters sewers or public waters.
- Clean up methods**
 - : *Dry cement.*
 - : Minimize generation of dust. Dust deposited may be vacuum cleaned or the area hosed down with water. Collect spills and put it into appropriated container. See section 13.
 - : *Wet cement.*
 - : Collect spills and put it into appropriated container. After the setting of the product can be disposed as landfill solids. See section 13. Wash contaminated equipment or sites of leaks with copious quantities of water.

PORTLAND CEMENTS

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7. HANDLING AND STORAGE

Precautions in handling and storage



: When using, do not eat, drink or smoke.

Technical protective measures

: Both local exhaust and general room ventilation are usually required.

* Storage

: Bulk product should be stored in silos that are waterproof, dry (internal condensation minimised), clean and protected from contamination. Engulfment hazard: 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 product without taking the proper security measures. Product can build-up or adhere to the walls of a confined space. The product can release, collapse or fall unexpectedly. Store in tightly closed containers. Store in dry, well-ventilated area. Keep away from food, drink and animal feeding stuffs. Bags should be stacked in a stable manner.

Storage life

: 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 cement bags and/or delivery documents will 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 0.0002% , according to EN 197-10. They will also indicate the appropriate storage conditions for maintaining the effectiveness of the reducing agent.

* Handling

: See section 8.

Avoid dust dispersion.

For (bagged) product used in open-ended mixers: first add the water and then carefully add the product. Keep the height of the fall low. Start the mixing smoothly. Do not compress empty bags, except when contained in another clean bag.

Clean up methods Dry cement. See section 6.

Carrying product bags may cause sprains and strains to the back, arms, shoulders and legs. Handle with care and use appropriate control measures.

Wash hands and other exposed areas with mild soap and water before eat, drink or smoke and when leaving work.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal protection



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: Avoid all unnecessary exposure. 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. Wash hands and other exposed areas with soap and water before leaving work. Wash clothing before re-using.

- Respiratory protection

: Where excessive dust may result, wear dust respirator. Conform to the relevant EN standard.

- Skin protection

: Suitable protective clothing and gloves. Boots. Closed long-sleeved protective clothing and additionally skin care products to protect the skin from prolonged contact.

- Eye protection

: Safety glasses should be worn to prevent mechanical injury to eyes due to airborne particles which may be associated with this product.

Use splash goggles when eye contact due to splashing of dust or grout is possible. Conform to the relevant EN standard.

PORTLAND CEMENTS

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION (continued)

Technical protective measures : Use only in well-ventilated areas. When using, do not eat, drink or smoke.
Occupational Exposure Limits : Cement, portland, chemicals : VLA-ED [mg/m³] : 10

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state at 20 °C : Powder.
Colour : Grey.
Odour : Odourless.
pH value in distilled water : 11-13.5 (20 °C)
Melting point [°C] : > 1250
Density : 2.75 - 3.20 g/cm³ (20 °C)
Bulk density : 0.9 - 1.5 g/cm³ (20 °C)
Solubility in water [mg/l] : Slight. 100 - 1500 (20 °C)

10. STABILITY AND REACTIVITY

Stability and reactivity : Stable under normal conditions. See section 7.
Hazardous reactions : In contact with water produce alkaline substances.
Materials to avoid : Wet cement in contact with aluminium powder produces hydrogen.
Conditions to avoid : Moisture.

11. TOXICOLOGICAL INFORMATION

- * **Acute toxicity** : Irritating to eyes, respiratory system and skin.
May cause sensitization by skin contact.
- **Inhalation** : May cause irritation to the respiratory tract, sneezing, coughing, burning sensation of throat with constricting sensation of the larynx and difficulty in breathing.
- **Dermal** : Product may have an irritating effect on moist skin (due to transpiration or humidity) or may cause contact dermatitis after prolonged contact.
- **Ocular** : Direct contact with product may cause corneal damage by mechanical stress, immediate or delayed irritation or inflammation. Direct contact by larger amounts of product may cause keratopathies of different consideration.
- **Ingestion** : May cause irritation of the linings of the mouth, throat, and gastrointestinal tract.
- Rabbit-rat dermal [mg/kg/24 hours]** : 2000 Reference (2)
- Chronic toxicity**
- **Inhalation** : Frequent inhalation of large quantities of cement dust over a long period of time increases the risk of developing lung diseases.
- **Dermal** : May cause allergic reaction. Reference (4)
May cause dermatitis by skin contact. Eczema.
If the cement contains a soluble Cr (VI) reducing agent and as long as the mentioned period of effectiveness of the chromate reduction is not exceeded, a sensitising effect is not expected. Reference (3)
- Carcinogenicity** : No carcinogenic effects known under normal conditions of use. Reference (1)

PORTLAND CEMENTS

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12. ECOLOGICAL INFORMATION

- * **Ecological effects information** : Ecological damage caused by this product is not known.
In case of accidental release, the addition of large amounts of the product to water may, however, cause a rise in pH and may therefore be toxic to aquatic life under certain circumstances.
- Persistence - degradability** : Not relevant. Inorganic material.
After hydration, product lumps present no toxicity risks.
- Mobility** : Product is not volatile but might become airborne during handling operations.

13. DISPOSAL CONSIDERATIONS

- * **General** : Avoid release to the environment.
: *Product that has exceeded its shelf life.*
: (and when demonstrated that it contains more than 0.0002% soluble Cr (VI)): shall not be used/sold other than for use in controlled closed and totally automated processes or should be recycled or disposed of according to local legislation or treated again with a reducing agent.
: *Unused residue or dry spillage*
: Pick up dry. Mark the containers. Possibly reuse depending upon shelf life considerations and the requirement to avoid dust exposure. In case of disposal, harden with water and dispose according to section 13.
: *Wet cement.*
: Allow to harden, avoid entry in sewage and drainage systems or into bodies of water (e.g. streams) and dispose of as indicated in 13.
: *Product - after addition of water, hardened*
: Dispose in a safe manner in accordance with local/national regulations. Prevent entry to sewers and public waters.
Dispose of the hardened product as concrete waste. Due to the inertisation, concrete waste is not a dangerous waste.
: *Packaging*
: Dispose in a safe manner in accordance with local/national regulations. EWC entry: 15 01 01 (waste paper and cardboard packaging).

14. TRANSPORT INFORMATION

- General information** : Not dangerous good under transport regulations.

15. REGULATORY INFORMATION

- EU Labelling** : According to the Preparation Directive 1999/45/EC this product is classified as :
- Symbols



- R Phrases** : Xi : Irritant
: R36/37/38 : Irritating to eyes, respiratory system and skin.
: R43 : May cause sensitization by skin contact.
- S Phrases** : S2 : Keep out of the reach of children.
: S22 : Do not breathe dust.
: S24/25 : Avoid contact with skin and eyes.
: S26 : In case of contact with eyes, rinse immediately with plenty of water and seek

PORTLAND CEMENTS

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15. REGULATORY INFORMATION (continued)

medical advice.

S36/37/39 : Wear suitable protective clothing, gloves and eye/face protection.

S46 : If swallowed seek medical advice immediately and show this container or label.

Local/national regulations :*** Further information**

: REACH requirements : According to REACH, this product is considered preparation and so, registration is not required. Cement clinker is exempted from registration (article 2.7(b) and annex V.10) However, some substances presents in the preparation may require registration and an exposure scenario. Every required exposure scenario will be included as an annex of this safety data sheet as soon as the substances are registered and registration responsible send exposure scenarios.

Cement contains Cr (VI) reducing agent, which guarantees the level of soluble Cr (VI) below the limit of 0,0002 % verified according to EN 197-10 to ensure accomplishment of European Directive 2003/53/EC. Effectiveness of the reducing agent is:

- Bags: two months from the date shown on the packaging, (storing conditions: closed bags in a cool area, dry conditions and isolated from floor

- Bulk cement: one month from the delivery note emission. In any case, it is limited to first cement handling , (cement will be stored in closed silo)

The content of soluble chrome (VI) of this cement is under the directive 2003/53/EC.

16. OTHER INFORMATION**Revision**

: Revision - See : *

*** Further information**

: VLA/ED: Occupational Exposure Limits (OEL)

: *Reference*

: (1) Portland Cement Dust - Hazard assessment document EH75/7, UK Health and Safety Executive, 2006. Available from: <http://www.hse.gov.uk/pubns/web/portlandcement.pdf>

(2) Observations on the effects of skin irritation caused by cement, Kietzman et al, Dermatosen, 47, 5, 184-189 (1999).

(3) European Commission's Scientific Committee on Toxicology, Ecotoxicology and the Environment (SCTEE) opinion of the risks to health from Cr (VI) in cement (European Commission, 2002).

(4) Epidemiological assessment of the occurrence of allergic dermatitis in workers in the construction industry related to the content of Cr (VI) in cement, NIOH, Page 11, 2003.

The contents and format of this SDS are in accordance with REACH Regulation (CE) N° 1907/2006 and the agreement of the United Nations ADR 2007 ECE/TRANS/185.

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ANNEX

Main types	Notation of the 27 products (types of common cement)		Composition (percentage by mass ^a)												
			Main constituents										Minor additional constituents		
			Clinker K	Blast-furnace slag S	Silica fume D ^b	Pozzolana natural P natural calcined Q		Fly ash siliceous V calca-reous W		Burnt shale T	Limestone L LL				
CEM I	Portland cement	CEM I	95-100	–	–	–	–	–	–	–	–	–	–	–	0-5
CEM II	Portland-slag cement	CEM II/A-S	80-94	6-20	–	–	–	–	–	–	–	–	–	–	0-5
		CEM II/B-S	65-79	21-35	–	–	–	–	–	–	–	–	–	–	0-5
	Portland-silica fume cement	CEM II/A-D	90-94	–	6-10	–	–	–	–	–	–	–	–	–	0-5
	Portland-pozzolana cement	CEM II/A-P	80-94	–	–	6-20	–	–	–	–	–	–	–	–	0-5
		CEM II/B-P	65-79	–	–	21-35	–	–	–	–	–	–	–	–	0-5
		CEM II/A-Q	80-94	–	–	–	6-20	–	–	–	–	–	–	–	0-5
		CEM II/B-Q	65-79	–	–	–	21-35	–	–	–	–	–	–	–	0-5
	Portland-fly ash cement	CEM II/A-V	80-94	–	–	–	–	6-20	–	–	–	–	–	–	0-5
		CEM II/B-V	65-79	–	–	–	–	21-35	–	–	–	–	–	–	0-5
		CEM II/A-W	80-94	–	–	–	–	–	6-20	–	–	–	–	–	0-5
		CEM II/B-W	65-79	–	–	–	–	–	21-35	–	–	–	–	–	0-5
	Portland-burnt shale cement	CEM II/A-T	80-94	–	–	–	–	–	–	–	6-20	–	–	–	0-5
		CEM II/B-T	65-79	–	–	–	–	–	–	–	21-35	–	–	–	0-5
	Portland-limestone cement	CEM II/A-L	80-94	–	–	–	–	–	–	–	–	6-20	–	–	0-5
		CEM II/B-L	65-79	–	–	–	–	–	–	–	–	21-35	–	–	0-5
		CEM II/A-LL	80-94	–	–	–	–	–	–	–	–	–	6-20	–	0-5
		CEM II/B-LL	65-79	–	–	–	–	–	–	–	–	–	–	21-35	0-5
	Portland-composite cement ^c	CEM II/A-M	80-94	<----- 6-20 ----->										0-5	
CEM II/B-M		65-79	<----- 21-35 ----->										0-5		
CEM III	Blastfurnace cement	CEM III/A	35-64	36-65	–	–	–	–	–	–	–	–	–	–	0-5
		CEM III/B	20-34	66-80	–	–	–	–	–	–	–	–	–	–	0-5
		CEM III/C	5-19	81-95	–	–	–	–	–	–	–	–	–	–	0-5
CEM IV	Pozzolanic cement ^c	CEM IV/A	65-89	–	<----- 11-35 ----->					–	–	–	–	0-5	
		CEM IV/B	45-64	–	<----- 36-55 ----->					–	–	–	–	0-5	
CEM V	Composite cement ^c	CEM V/A	40-64	18-30	–	<----- 18-30 ----->			–	–	–	–	–	0-5	
		CEM V/B	20-38	31-50	–	<----- 31-50 ----->			–	–	–	–	–	0-5	

a The values in the table refer to the sum of the main and minor additional constituents.
b The proportion of silica fume is limited to 10 %.
c In Portland-composite cements CEM II/A-M and CEM II/B-M, in pozzolanic cements CEM IV/A and CEM IV/B and in composite cements CEM V/A and CEM V/B the main constituents other than clinker shall be declared by designation of the cement (for example see clause 8).