SECTION 1: IDENTIFICATION OF THE MIXTURE AND COMPANY

1.1. Product identifier

Trade name (according to EN 197-1)

This sheet covers the following types of cement, in accordance with Standard EN 197-1:

- Portland Cement CEM I 52.5 R
- Portland Cement CEM I 42.5 R
- Portland Cement CEM I 52.5 R (white)

UFI: J300-U0G4-X00T-GW3A

Packing Capacity

25 kg and 50 kg bags
Bulk
500 kg to 1500 kg Big-Bag

1.2. Identified uses of the mixture and uses advised against

Cements are used in industrial installations in the production/ formulation of hydraulic binders, for application in building and construction works, such as ready-mixed concrete, mortars, plasters, grouts, stuccoes as well as prefabricated concrete.

Common cements and mixtures containing cement (hydraulic binders) are used industrially, by professionals and by consumers in the production of building materials and in construction activities, indoors or outdoors.

Identified uses for cements and cement-containing mixes cover dry products and wet suspension (paste) products. See section 16.2 for more information on mixture uses and hazard categories.

Any other use not mentioned above is not recommended.

1.3. Identification of the supplier of the Safety Data Sheet

CIMPOR - Indústria de Cimentos, SA
Rua Ramalho Ortigão, 51, | 7.º-8.º|
1070-229 LISBON - PORTUGAL
Telephone: +351 21 311 81 00
***E-mail* of the person responsible for the SDS**:
dcomercial@cimpor.com

1.4. Emergency phone number

European Emergency Number: 112
INEM, CIAV - Antivenom Information Centre
Phone: (+351) 800 250 250 (Available 24 hours a day)
Language: Portuguese

SECTION 2: HAZARDS IDENTIFICATION

2.1. Mixture classification

According to Regulation No. 1272/2008 (CLP)

Hazard class	Hazard category	Hazard warnings
Skin irritation	2	H315: Causes skin irritation
Serious eye damage/eye irritation	1	H318: Causes serious eye damage
Specific target organ toxicity (single exposure), respiratory irritation	3	H335: May cause respiratory irritation

2.2. Label elements

According to Regulation No. 1272/2008 (CLP)

Hazard Pictograms

Signal identification word

Danger

Hazard Notices

H318: Causes serious eye damage
H315: Causes skin irritation
H335: May cause respiratory irritation

Precautionary Recommendations

P101: If necessary, seek medical advice, show the container or label.
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. If you wear contact lenses, remove them if possible. Continue rinsing. Immediately call a POISON CENTRE or physician.
P302+P352+P333+P313: IF ON SKIN: Wash with plenty of soap and water. In case of irritation or rash: consult a doctor.
P261+P304+P340+P312: Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. IF INHALED: Remove victim to fresh air and keep at rest in a comfortable position for breathing. If you feel unwell, contact a POISON CENTRE or doctor.
P501: Dispose of contents/ container to an appropriate waste collection point.

***Supplementary information*:**
Skin contact with wet cement, fresh concrete or mortar can cause irritation, dermatitis or burns.
It can damage products made of aluminium or other non-noble metals.
The presence of Cr(VI) can cause an allergic response in people who are sensitive or previously sensitized to the substance, or if the storage conditions and periods described are not respected.

Substances that contribute to the Classification:
Cement, Portland, chemicals
UFI: J300-U0G4-X00T-GW3A

2.3. Other hazards

Cement does not fit the classification criteria for classification as PBT or vPvB, according to Annex XIII of REACH (Regulation (CE) No. 1907/2006).

SECTION 3: COMPOSITION/ INFORMATION ON INGREDIENTS

3.1. Mixtures

Cement is composed of clinker, calcium sulphate and additives, in certain weight proportions depending on the type of cement, in accordance with Table 1 of EN 197-1. Additions can be limestone or fly ash. May also contain ferrous sulphate or stannous sulphate.

3.1.1. Substance that poses a danger to health or the environment

Substance	Portland cement clinker	
% mass in cement	85 - < 100	
REACH Registration No.	Exempt from registration (Art.º 2.7(b) and Annex V.10 of REACH)	
EINECS	266-043-4	
CAS	65997-15-1	
Classification Regulation (EC) No. 1272/2008	Hazard class/category	Hazard Notices
	Skin irritation cat. 2	H315: Causes skin irritation
	Serious eye damage/eye irritation cat. 1	H318: Causes serious eye damage
	Specific target organ toxicity, respiratory tract irritation cat. 3	H335: May cause respiratory irritation

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Notes

Rescuers do not need any personal protective equipment; however, they should avoid contact with wet cement or any wet preparation containing cement.

After eye contact

Do not rub the eyes as this may cause additional damage to the cornea due to friction.
Remove any contact lenses, open the eyelid(s) fully and immediately flush the eye(s) with water, rinsing thoroughly with plenty of clean water for at least 20 minutes to remove all particles. If possible, use isotonic water (0.9% NaCl). Contact occupational medicine specialist or an ophthalmologist.

After skin contact

In the case of dry cement, remove and wash thoroughly with water.
In the case of wet cement, wash the skin with plenty of water.
Remove contaminated clothing, footwear, watches, etc. and clean them thoroughly before using them again.
Request medical treatment whenever irritation or burns occur.

After inhalation

Move the person to fresh air. The dust in the throat and nasal passages should disappear spontaneously. Consult a physician if irritation persists, develops later, or if discomfort, coughing or other symptoms persist.

After 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 or contact the Poison Information Centre.

4.2. Most important symptoms and effects, both acute and delayed

Eyes: The contact of cement dust (dry or wet) with the eyes can cause serious and potentially irreversible injuries.

Skin: Cement can have an irritating effect on damp skin (due to perspiration or humidity) or lead to contact dermatitis after prolonged contact.
Prolonged skin contact with fresh cement or concrete can cause severe burns, as these develop without feeling pain (for example, when kneeling in fresh concrete even when wearing trousers). For more information, see Reference (1).

Inhalation: Repeated inhalation of cement dust over a long period of time increases the risk of developing lung disease.

Environment: Under normal conditions of use, ordinary cements are not expected to pose a hazard to the environment.

4.3. Indications of urgent medical care and special treatment needed

Whenever you contact a doctor following previous exposures, take this SDS with you.

SECTION 5: FIRE FIGHTING MEASURES

5.1. Extinguishing media

Cement is not flammable.

5.2. Special hazards arising from the mixture

Cement is neither combustible nor explosive and will not facilitate or contribute to the combustion of other materials.

5.3. Advice for firefighters

Cement does not pose any fire-related hazards. No specific protective equipment is required for firefighting personnel.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For personnel not involved in emergency response

Wear protective equipment as described in Section 8 and follow advice for safe handling and use in Section 7.

6.1.2. For emergency response personnel

No emergency procedures are required. However, respiratory protection masks will be required in case of emission of high levels of dust.

6.2. Environmental precautions

Do not flush cement residues into sewers, drainage systems or water lines (eg effluents).

6.3. Methods and materials for containment and cleaning up

Collect the spillage in a dry state if possible.

Dry Cement

Use dry cleaning methods that do not disperse dust, for example:

- Vacuum system (Portable industrial units, equipped with high efficiency particulate filters (HEPA filters) or equivalent technique);
- Removal of particles with a mop, wet brushing or using cloud water sprayers, to prevent dust from dispersing, with subsequent removal of residual paste.

If this is not possible, remove by slurring with water (see wet cement).

When wet or vacuum cleaning is not possible and only dry cleaning with brushes can be done, ensure that workers wear appropriate personal protective equipment and prevent dust from spreading.

Avoid cement inhalation and skin contact. Place spilled materials into a container. Solidify before disposal, as described under Section 13.

Wet Cement

Clean the wet cement and place in a container. Allow the material to dry and solidify before disposal, as described under section 13.

6.4. Reference to other sections

See Sections 8 and 13 for more details.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

“Good Practice Guides” containing advice on safe handling practices can be found at: https://guide.nepsi.eu/.
These good practices were adopted within the scope of the European Social Dialogue Agreement, on the protection of workers' health through the correct use and handling of crystalline silica and products containing crystalline silica, by Employers and Workers through European associations in the sector, among which CEMBUREAU.

7.1.1. Protective measures

Follow the recommendations described in section 8.
To clean dry cement see subsection 6.3.

Fire prevention measures: Not applicable.

Measures to prevent dust dispersion: Do not sweep. Use dry cleaning methods such as aspiration or vacuum extraction, which prevent the dispersion of dust.

Measures to protect the environment: There are no particular measures to apply.

7.1.2. General information on occupational hygiene

Do not handle or store near food and drink or smoking materials.
In dusty environments, wear a dust mask and closed protective goggles.
Wear protective gloves to avoid skin contact.

7.2. Conditions for safe storage, including any incompatibilities

Bulk cement should be stored in silos that are waterproof, dry (with minimized internal condensation), clean and protected from contamination.

Engulfment Hazard: To prevent engulfment or suffocation, do not enter a confined space, such as a silo, hopper, bulk truck, or other storage container or vessel that stores or contains cement, without taking appropriate safety measures. In a confined space, cement can build up or adhere to the walls. Cement can release, collapse or fall unexpectedly.

Packed cement should be stored above ground and in a cool, dry place, keeping bags closed.

Packed cement should be stacked in a stable manner.

Do not use aluminium containers for storage or transport wet cement containing mixtures, due to incompatibility between materials.

Control of soluble Cr(VI): For cements treated with a Cr(VI) reducing agent, in accordance with the legislative provisions referred to in Section 15, the effect of the reducing agent decreases with time. Thus, cement bags and/or delivery notes must contain information about the date of packaging and the appropriate period of time for the reducing agent to continue to maintain the level of soluble Cr(VI) below 0.0002% of the total dry weight of ready-to-use cement, according to EN 196-10. They should also indicate the proper storage conditions, in order to guarantee the effectiveness of the reducing agent.

7.3. Specific end uses

There is no additional information on specific uses (see section 1.2).

SECTION 8: EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1. Control Parameters

According to the NP 1796:2014 standard, the weighted average concentration for an 8-hour working day and a 40-hour week, to which it is considered that virtually all workers may be exposed, day after day, without adverse effects on health (VLE-MP), is:

VLE - MP	inhalable particles	10 mg/m ^{3}
	breathable particles	1 mg/m ^{3}

8.2. Exposure Control

For each PROC, users can choose option A) or B) in the table below, according to what is most suitable for their specific situation. If an option is chosen, then the same option must be chosen in the table in section "8.2.2 Individual protective measures, namely personal protective equipment" - Specification of respiratory protective equipment. Only combinations between A) - A) and B) - B) are possible.

8.2.1. Adequate technical controls

Measures to reduce generation of dust and to avoid dust propagating in the environment such as dedusting, exhaust ventilation and dry clean-up methods which do not cause airborne dispersion.

Use	PROC*	Exposure	Localised controls	Efficiency
Industrial manufacture/ formulation of hydraulic building and construction materials	2, 3	Duration is not limited (up to 480 minutes per shift, 5 shifts per week); (#)<240 minutes.	Not required.	-
	14, 26		A) Not required. or B) Generic local exhaust ventilation.	- 78%
	5, 8b, 9		Generic local exhaust ventilation.	78%
Industrial uses of dry hydraulic binders and building and construction materials (indoor and outdoor)	2		Not required.	-
	14, 22, 26		A) Not required. or B) Generic local exhaust ventilation.	- 78%
	5, 8b, 9		Generic local exhaust ventilation.	78%
Industrial uses of wet suspension of hydraulic building and construction materials	7		A) Not required. or B) Generic local exhaust ventilation.	- 78%
	2, 5, 8b, 9, 10, 13, 14		Not required.	-
Professional use of dry hydraulic building and construction material (indoor, outdoor)	2		A) Not required. or B) Generic local exhaust ventilation.	- 72%
	9, 26		A) Not required. or B) Generic local exhaust ventilation.	- 72%
	5, 8a, 8b, 14		Generic local exhaust ventilation	72%
	19 (#)		Localised controls are not applicable, process only in well-ventilated areas or outdoor	-
Professional uses of wet suspensions of hydraulic building and construction materials	11		A) Not required. or B) Generic local exhaust ventilation.	- 72%
	2, 5, 8a, 8b, 9, 10, 13, 14, 19		Not required.	-

*PROC are the uses identified and defined in section 16.2.

8.2.2. Individual protection measures, namely personal protective equipment

General: While working, avoid kneeling in fresh mortar or concrete whenever possible. If necessary, then suitable waterproof personal protective equipment must be worn.
Do not eat, drink or smoke when working with cement to avoid skin or mouth contact.
Before starting work with cement, apply a barrier cream to the skin and reapply at regular intervals.
Immediately after working with cement or cement-containing materials, workers should wash and apply moisturizing skin creams.
Take off contaminated clothing, shoes, watches, etc. and clean them thoroughly before using them again.

Eye/face protection:

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

Skin protection:

Wear impervious, abrasion- and alkali-resistant gloves (e.g. nitrile gloves soaked in CE-marked cotton), cotton-lined inside, boots, closed protective clothing with long sleeves, and additionally skin protection products (including barrier creams) to protect the skin from prolonged contact with cement. Special care must be taken to ensure that cement paste does not get into the boots. In certain applications, such as laying mortar and concrete, it is necessary to wear waterproof pants and knee pads.

Breath protection:

When a person is exposed to dust above exposure limits, appropriate respiratory protection must be used. This must be adapted to the dust level and comply with the appropriate EN standard (eg EN149, EN140, EN14387, EN1827).

Thermal Hazards: Not applicable.

Use	PROC *	Exposure	Specification of respiratory protective equipment (RPE)	RPE Efficiency (APF**)
Industrial manufacture/ formulation of hydraulic building and construction materials	2,3	Duration is not limited (up to 480 minutes per shift, 5 shifts per week); (#) <240 minutes.	not required.	-
	14, 26		A) Mask FFP2 or B) Mask FFP1	APF = 10 APF = 4
	5, 8b, 9		Mask FFP2	APF = 10
Industrial uses of dry hydraulic building and construction materials (indoor, outdoor)	2		not required.	-
	14, 22, 26		A) Mask FFP2 or B) Mask FFP1	APF = 10 APF = 4
	5, 8b, 9		Mask FFP2	APF = 10
Industrial uses of wet suspension of hydraulic building and construction materials	7		A) Mask FFP3 or B) Mask FFP2	APF = 20 APF = 10
	2, 5, 8b, 9, 10, 13, 14		not required.	-
Professional use of dry hydraulic building and construction material (indoor, outdoor)	2		A) Mask FFP2 or B) Mask FFP1	APF = 10 APF = 4
	9, 26		A) Mask FFP3 or B) Mask FFP2	APF = 20 APF = 10
	5, 8a, 8b, 14		Mask FFP3	APF = 20
	19 (#)		Mask FFP3	APF = 20
Professional uses of wet suspensions of hydraulic building and construction materials	11		A) Mask FFP3 or B) Mask FFP2	APF = 20 APF = 10
	2, 5, 8a, 8b, 9, 10, 13, 14, 19		not required.	-

*PROC are the uses identified and defined in section 16.2.
** APF Assigned protection factor.

An overview of the APFs of different RPE (according to EN 529:2005) can be found in the MEASE glossary (16).
Any RPE as defined above shall only be worn if the following principles are implemented in parallel:
The duration of work (compare “duration of exposure” above) should reflect the additional physiological stress to the worker due to the breathing resistance and the weight of the RPE itself, due to the increased thermal stress caused by enclosing the head. In addition, it shall be considered that the workers’ capability of using tools and to communicate are reduced during the wearing of RPE.
Therefore, for the reasons given above, the worker must (i) be healthy (especially in view of medical issues that may affect the use of the RPE) (ii) have adequate facial features to reduce leakage between the mask and the face. The devices recommended above, which rely on a tight facial seal, will not provide the necessary protection unless they fit the contours of the face properly and securely.
Employers and self-employed workers are required by law to provide and maintain respiratory protective equipment available in the workplace and to ensure its correct use. Thus, a policy for respiratory protection equipment that includes worker training must be defined and documented.

8.2.3. Environmental exposure control

Air: The environmental exposure control for the emission of cement particles in the air must be carried out in accordance with the available technology and the standards related to the emission of particles in general.

Water: Do not wash or pour cement waste into sewers, drainage systems or watercourses, to avoid an increase in pH (pH > 9 can cause ecotoxicological impacts).

Soil: No special control measures required.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

This information applies to the whole mixture.

a) **Physical state**: Dry cement is a finely ground solid inorganic material.

b) **Colour**:

Cement: grey, with shades ranging from lighter to darker tones, or even other colours.

White cement: white.

c) **Odour**: Odourless

d) **Melting point/ freezing point**: Melting point > 1 250 °C

e) **Boiling point or initial boiling point and boiling range**: Not applicable as under normal atmospheric conditions, melting point >1 250°C

f) **Flammability (solid, gas)**: Not applicable as is a solid which is non-combustible and does not cause or contribute to fire through friction

g) **Upper/ lower explosive limits**: Not applicable as is not a flammable gas

h) **Flash point**: Not applicable as is not a liquid

i) **Auto-ignition temperature**: Not applicable (no pyrophoricity – no organo-metallic, organo-metalloid or organo-phosphine bindings or of their derivatives, and no other pyrophoric constituent in the composition)

j) **Decomposition temperature**: Not applicable, as no organic peroxide present

k) **pH: (T = 20°C in water, water-solid ratio 1:2)**: 11-13.5

l) **Kinematic viscosity**: Not applicable, as not a liquid

m) **Solubility: in water (T = 20 °C):** slight (0.1-1.5 g/l)

n) **Partition coefficient: n-octanol/water:** Not applicable as is inorganic mixture

o) **Vapour pressure**: Not applicable as melting point > 1250 °

p) **Density and/ or relative density:** 2.75-3.20; **Apparent density**: 0.9-1.5 g/cm³

q) **Relative vapour density**: Not applicable as melting point > 1250 °C

r) **Particle characteristics**: Typical particle size: 5-30 µm

9.2. Other information

Not applicable.

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

When mixed with water, cements harden to form a stable mass that does not react in normal environments.

10.2. Chemical stability

Dry cements are stable provided they are stored properly (see Section 7.) and compatible with most other building and construction materials. They must be kept dry.
Contact with incompatible materials should be avoided.
Wet cement is alkaline and incompatible with acids, ammonium salts, aluminium or other non-noble metals. Cement dissolves in hydrofluoric acid and produces silicon tetrafluoride gas which is corrosive. Cement reacts with water and forms silicates and calcium hydroxide. Cement silicates react with strong oxidizers such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride and oxygen fluoride.

10.3. Possibility of hazardous reactions

Cements do not cause hazardous reactions.

10.4. Conditions to avoid

Humid conditions during storage can lead to lump formation and loss of product quality.

10.5. Incompatible Materials

Acids, ammonium salts, aluminium and other non-noble metals. Uncontrolled use of aluminium powder in wet cement should be avoided as it leads to the formation of hydrogen.

10.6. Hazardous Decomposition Products

Cements will not decompose into any hazardous products.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Hazard Class	Cat.	Effect	Ref.
Acute toxicity - cutaneous	-	Limit test, rabbit, 24 hours contact, 2,000 mg/kg body weight – no lethality. Based on available data, the classification criteria are not met.	(2)
Acute toxicity - inhalation	-	No acute toxicity by inhalation observed. Based on available data, the classification criteria are not met.	(9)
Acute toxicity - ingestion	-	No indication of oral toxicity from studies with cement kiln dust. Based on available data, the classification criteria are not met.	Literature survey
Skin corrosion and irritation	2	Cement in contact with wet skin may cause thickening, cracking or fissuring of the skin. Prolonged contact in combination with abrasion may cause severe burns. Some individuals may develop eczema upon exposure to wet cement dust caused by the high pH which induces irritant contact dermatitis after prolonged contact.	(2) Human Experience
Serious eye damage/ irritation	1	Portland cement clinker caused a mixed picture of corneal effects, and the calculated irritation index was 128. Common cements contain varying quantities of Portland cement clinker, fly ash, blast furnace slag, gypsum, natural pozzolans, burnt shale, silica fume and limestone. Direct contact with cement may cause corneal damage by mechanical stress, immediate or delayed irritation or inflammation. Direct contact by larger amounts of dry cement or splashes of wet cement may cause effects ranging from moderate eye irritation (e.g. conjunctivitis or blepharitis) to chemical burns and blindness.	(10), (11)
Skin sensitisation	1B	Some individuals may develop eczema upon exposure to wet cement dust, caused by an immunological reaction to soluble Cr (VI) which elicits allergic contact dermatitis. The response may appear in a variety of forms ranging from a mild rash to severe dermatitis. If the cement contains a soluble Cr (VI) reducing agent and if the mentioned period of effectiveness of the chromate reduction is not exceeded, an allergic sensitising effect is not expected [Reference (3)] and a labelling with H317 is not necessary [Reference (18)].	(3), (4), (17), (18)
Respiratory sensitisation	-	There is no indication of sensitisation of the respiratory system. Based on available data, the classification criteria are not met.	(1)
Germ cell mutagenicity	-	No indication. Based on available data, the classification criteria are not met.	(12), (13)
Carcinogenicity	-	No causal association has been established between Portland cement exposure and cancer. The epidemiological literature does not support the designation of Portland cement as a suspected human carcinogen Portland cement is not classifiable as a human carcinogen (According to ACGIH A4: Agents that cause concern that they could be carcinogenic for humans, but which cannot be assessed conclusively because of a lack of data. In vitro or animal studies do not provide indications of carcinogenicity that are sufficient to classify the agent with one of the other notations.). Based on available data, the classification criteria are not met.	(1), (14)
Reproductive toxicity	-	Based on available data, the classification criteria are not met.	No Evidence from Human Experience
STOT - single exposure	3	Cement dust may irritate the throat and respiratory tract. Coughing, sneezing, and shortness of breath may occur following exposures more than occupational exposure limits. Overall, the pattern of evidence clearly indicates that occupational exposure to cement dust has produced deficits in respiratory function. However, evidence available at the present time is insufficient to establish with any confidence the dose-response relationship for these effects.	(1)
STOT - continuous exposure	-	Long-term exposure to respirable cement dust above the occupational exposure limit may lead to coughing, shortness of breath and chronic obstructive changes in the respiratory tract. No chronic effects were observed at low concentrations. Based on the available data, the classification criteria are not met.	(15)
Aspiration hazard	-	Not applicable as cements are not used as an aerosol.	-

Apart from skin sensitisation, Portland cement clinker and Common cements have the same toxicological and eco-toxicological properties.

11.2 Information about other hazards

11.2.1. Endocrine-disrupting properties

Not applicable.

11.2.2. Other information

Health conditions aggravated by exposure

Inhalation of cement dust can aggravate existing respiratory diseases and/ or health conditions such as emphysema or asthma and/ or skin and/ or eye problems.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

The product is not dangerous for the environment. Ecotoxicological tests with Portland cement on *Daphnia* magna (Reference (5)) and *Selesnastrum* coli (Reference (6)) have shown low toxicological impact. Therefore, LC50 and EC50 values could not be determined (Reference (7)). There is no indication of sediment phase toxicity (Reference (8)).
The addition of large amounts of cement to water can, however, cause a rise in pH and may, therefore, be toxic to aquatic life under certain circumstances.

12.2. Persistence and degradability

Not relevant. After hardening, cement presents no toxicity risk.

12.3. Bioaccumulative potential

Not relevant. After hardening, cement presents no toxicity risk.

12.4. Mobility in Soil

Not relevant. After hardening, cement presents no toxicity risk.

12.5. Results of PBT and vPvB assessment

Not relevant. After hardening, cement presents no toxicity risk.

12.6. Endocrine disrupting properties

Not relevant.

12.7. Other adverse effects

Not relevant.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Do not dispose of cement waste in surface water or in storm drains or sewers.

Product - Cement that exceeded the effectiveness period of the chromium reducer:

EWC entry: 10 13 99 (wastes not otherwise specified).
(and when demonstrated to contain more than 0.0002% soluble Cr(VI)): it must only be used/sold for uses in closed controlled and fully automated processes or it must be recycled or disposed of in accordance with local legislation or common new treaty reducing agent.

Product - Unused waste or dry spillage:

EWC entry: 10 13 06 (Other particulates and dust)
Recover dry. Mark the containers. Possibly reuse depending on chromium reducer shelf life considerations and requirements to avoid exposure to dust. In case of disposal, mix with water, allow to harden and dry and dispose of according to **"Product – After adding water, hardened"**.

Product - Slurries:

Allow to harden, prevent entry into sewers or drainage systems or watercourses (eg effluents) and dispose of as explained in **"Product – After adding water, hardened"**.

Product - After adding water, hardened:

Disposal in accordance with local legislation. Avoid entry into the sewage water system. Disposal of the hardened product as concrete waste. Due to the inertisation the concrete waste is not a dangerous waste.
EWC entries: 10 13 14 (waste from manufacturing of cement – waste concrete or concrete sludge) or 17 01 01 (construction and demolition wastes - concrete).
Packaging:

Management of packaging waste in accordance with applicable legislation.

Uncontaminated packaging should be handled according to the following classification:
EWC entry: 15 01 01 (paper and cardboard packaging waste);
EWC entry: 15 01 02 (plastic packaging waste);
EWC entry: 15 01 03 (wood packaging waste).

Packaging contaminated with cement must be sent for mixed waste collection or to authorised waste management operators.

SECTION 14: TRANSPORT INFORMATION

Transport of the product is not covered by international regulations for the transport of dangerous goods (IMDG, IATA, ADR/RID). Cement is transported in an appropriate bag or in bulk in an appropriate tank. No special precautions other than those mentioned in Section 8 are required.

14.1. UN number or ID number

Not relevant.

14.2. UN proper shipping name

Not relevant.

14.3. Hazard class(es) for transport purposes

Not relevant.

14.4. Packing group

Not relevant.

14.5. Dangers to the environment

Not relevant.

14.6. Special precautions for the user

Not relevant.

14.7. Bulk maritime transport in accordance with IMO instruments

Not relevant.

SECTION 15: REGULATORY INFORMATION

15.1. Specific regulations/ laws for mixing in terms of health, safety and the environment

EU regulatory information

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

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

Portuguese regulatory information

(1) Decree-Law No. 220/2012 of 10 October (ensures the execution in the internal legal order of the obligations arising from Regulation (EC) no. 1272/2008).
(2) Decree-Law No. 293/2009 of 13 October (transposes Regulation (EC) no. 1907/2006, of the European Parliament and of the Council, of 18 December (REACH) and creates the European Products Agency Chemicals).
(3) Decree-Law No. 72/2005 of March 18 (transposition of Directive No. 2003/53/EC).
(4) EN 197-1 - Cement Part 1: Composition, specifications and compliance criteria for current cements.
(5) NP 1796: 2014 - Safety and Health at Work. Limit values for occupational exposure to chemical agents.
(6) EN 196-10 - Test methods for cements-Part 10: Determination of water-soluble chromium (VI) content in cement.

15.2. Chemical safety assessment

A chemical safety assessment on the mixture has not been carried out by the producer.

SECTION 16: OTHER INFORMATION

16.1. Modification information

This Safety Data Sheet replaces the previous revision dated 30 July 2025. The designation “grey cement” has been corrected to “cement” in accordance with the applicable regulations. The description of the colour of the cements in section 9.1(b) has also been updated.

16.2. Identification of uses, descriptions and categories

The table below explains the descriptions of all uses identified for the use of cement or hydraulic mixtures containing cement. All uses have been grouped into identified classes due to different and specific exposure conditions for human and environmental health. For each specific use of use, a set of management measures and localized controls have been defined (See Section 8), which need to be implemented by the user of cement or hydraulic mixes containing cement to reduce exposure to acceptable levels.

PROC	Identified Uses - Use Description	Manufacture / Formulation of Building and Construction Materials	Professional / Industrial use of Building and Construction Materials
2	Use in continuous and closed process with sporadic controlled exposures (eg industrial production of hydraulic binders).	X	X
3	Use in a closed process, by batch production or dosing. (Ex. Industrial production of ready-mixed concrete).	X	X
5	Mixing or blending in batch process for formulation of mixtures and articles (Ex. Industrial production of prefabricated concrete).	X	X
7	Projection / industrial spraying.		X
8a	Transfer of substances or mixtures from and to ships, large deposits in non-specific and appropriate installations.		X
8b	Transfer of substances or mixtures from and to ships, large deposits in specific and appropriate facilities.	X	X
9	Transfer of substances or products to packages or small containers.	X	X
10	Roller and brush applications.		X
11	Non-Industrial Projection/Spraying.		X
13	Treatment of articles by immersion or deposition.		X
14	Production of articles or mixtures by cold agglomeration, compression-extrusion and pelletizing (eg production of tiles).	X	X
19	Manual mixing with direct contact and whenever personal protective equipment (PPE) is available.		X
22	Potentially closed mineral/metal processing operations at high temperatures in an industrial context.		X
26	Handling solid inorganic substances at room temperature.	X	X

16.3. Abbreviations and acronyms

ACGIH	American Conference of Industrial Hygienists (American Association of Industrial Hygienists)
ADR/RID	European Agreements on the transport of Dangerous goods by Road / Railway
APF	Assigned protection factor
CAS	Chemical Abstracts Service
CLP	Classification, labelling and packaging
COPD	Chronic Obstructive Pulmonary Disease
Cr (VI)	Chromium (VI)
DNEL	Derived no-effect level
EC50	Half maximal effective concentration
ECHA	European Chemicals Agency
EINECS	European Inventory of Existing Commercial chemical Substances
ES	Exposure scenario
EWC	European Waste Catalogue
FFP	Filtering facepiece against particles (disposable)
HEPA	Type of high efficiency air filter (High Efficiency Air Filter Type)
IATA	International Air Transport Association
IMDG	International agreement on the Maritime transport of Dangerous Goods
LC50	Median Lethal dose
MEASE	Metals estimation and assessment of substance exposure, EBRC Consulting GmbH for Eurometaux, http://www.ebrc.de/ebrc/ebrc-mease.php
PBT	Persistent, Bioaccumulative and Toxic
PROC	Process category
REACH	Registration, Evaluation and Authorization of Chemicals
RPE	Respiratory Protective Equipment
SCOEL	Scientific Committee on Occupational Exposure Limit Values
SDS	Safety Data Sheet
STOT	Specific Target Organ Toxicity
VLE-MP	Exposure Limit Value - Weighted Average
vPvB	Very persistent and very bioaccumulative

16.4. Key reading references and data sources

(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). http://ec.europa.eu/health/archive/ph_risk/committees/sct/documents/out158_en.pdf.

(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.

(5) *US EPA, Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, 3rd ed. EPA/600/7-91/002, Environmental Monitoring and Support Laboratory, US EPA, Cincinnati, OH (1994a) and 4th ed. EPA-821-R-02-013, US EPA, office of water, Washington DC (2002).

(6) *US EPA, Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, 4th ed. EPA/600/4-90/027F, Environmental Monitoring and Support Laboratory, US EPA, Cincinnati, OH (1993) and 5th ed. EPA-821-R-02-012, US EPA, office of water, Washington DC (2002).

(7) *Environmental Impact of Construction and Repair Materials on Surface and Ground Waters. Summary of Methodology, Laboratory Results, and Model Development*. NCHRP report 448, National Academy Press, Washington, DC, 2001.

(8) *Final report Sediment Phase Toxicity Test Results with Corophium volutator for Portland clinker* prepared for Norcem AS by AnalyCen Ecotox AS, 2007.

(9) TNO report V8801/02, *An acute (4-hour) inhalation toxicity study with Portland Cement Clinker CLP/GHS 03-2010-fine in rats*, August 2010.

(10) TNO report V8815/09, *Evaluation of eye irritation potential of cement clinker G in vitro using the isolated chicken eye test*, April 2010.

(11) TNO report V8815/10, *Evaluation of eye irritation potential of cement clinker W in vitro using the isolated chicken eye test*, April 2010.

(12) *Investigation of the cytotoxic and proinflammatory effects of cement dusts in rat alveolar macrophages*, Van Berlo et al, Chem. Res. Toxicol., 2009 Sept; 22(9):1548-58.

(13) *Cytotoxicity and genotoxicity of cement dusts in A549 human epithelial lung cells in vitro*; Gminski et al, Abstract DGPT conference Mainz, 2008.

(14) *Comments on a recommendation from the American Conference of governmental industrial Hygienists to change the threshold limit value for Portland cement*, Patrick A. Hessel and John F. Gamble, EpiLung Consulting, June 2008.

(15) *Exposure to Thoracic Aerosol in a Prospective Lung Function Study of Cement Production Workers;* Noto, H., et al; Ann. Occup. Hyg., 2015, Vol. 59, No. 1, 4–24.

(16) MEASE, Metals estimation and assessment of substance exposure, EBRC Consulting GmbH for Eurometaux, http://www.ebrc.de/ebrc/ebrc-mease.php .

(17) *Occurrence of allergic contact dermatitis caused by chromium in cement. A review of epidemiological investigations*, Kåre Lenvik, Helge Kjuus, NIOH, Oslo, December 2011.

(18) ECHA Support Questions and answers agreed with National Helpdesks. ID1695 May 2020. https://echa.europa.eu/es/support/qas-support/qas-agreed-with-national-helpdesks

16.5. Advice for training

In addition to health, safety and environmental training programs for workers, companies should ensure that workers read, understand and apply the requirements of this safety data sheet.

16.6. Supplementary information

Since substances are not incorporated in the cement mixtures mentioned in Section 1.1 in relevant quantities, which are subject to the registration process or which are considered dangerous by the REACH Regulation, specific annexes with additional exposure scenarios are not presented in addition to those relating to the mixture itself.

In Section 11.1, the values and test methods used to define the classification of common cements are explained or referred to.

16.7. Classification and procedure used to determine the classification of mixtures according to Regulation (EC) No. 1272/2008

Classification according to Regulation (EC) No. 1272/2008	Classification Procedure
Skin irritation. 2, H315	Based on experimental data
Serious eye damage and eye irritation. 1, H318	Based on experimental data
Specific target organ toxicity (single exposure), respiratory irritation. 3, H335	human experience

16.8. Disclaimer

The information contained in this safety data sheet reflects current knowledge available and is reliable provided that the product is used in accordance with the indicated conditions and with the application specified on the packaging and/or in the technical guide literature. Any other use of the product, including its use in combination with any other product or any other process, is at the user's risk.
It is understood that the user is responsible for determining the appropriate security measures and for applying the legislation covering his own activities.

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Annex: Complementary tables with technical control measures and individual protection measures for section 8.2

1 - Inhalation DNEL of 1 mg/m ^{3}

8.2.1. Appropriate technical control measures

Use	PROC*	Exposure	Localised controls	Efficiency
Industrial manufacture/ formulation of hydraulic building and construction materials	2, 3	Duration is not limited (up to 480 minutes per shift, 5 shifts per week); (#) < 240 min	not required.	-
	14, 26		A) not required or B) generic local exhaust ventilation	- 78%
	5, 8b, 9		Generic local exhaust ventilation.	78%
Industrial uses of dry hydraulic building and construction materials (indoor, outdoor)	2		not required.	-
	14, 22, 26		A) not required. or B) Generic local exhaust system.	- 78%
	5, 8b, 9		Generic local exhaust ventilation.	78%
Industrial uses of wet suspension of hydraulic building and construction materials	7		A) Not required. or B) Generic local exhaust ventilation.	- 78%
	2, 5, 8b, 9, 10, 13, 14		not required.	-
Professional use of dry hydraulic building and construction material (indoor, outdoor)	2		A) Not required. or B) Generic local exhaust ventilation.	- 72%
	9, 26		A) Not required. or B) Generic local exhaust ventilation.	- 72%
	5, 8a, 8b, 14		Generic local exhaust ventilation.	72%
	19 (#)		Localised controls are not applicable, process in well-ventilated areas or outdoors	-
Professional use of hydraulic binders in wet suspension and building and construction materials	11		A) Not required. or B) Generic local exhaust ventilation.	- 72%
	2, 5, 8a, 8b, 9, 10, 13, 14, 19		not required.	-

*PROC are the uses identified and defined in section 16.2.

8.2.2 Individual protection measures such as personal protective equipment

Use	PROC *	Exposure	Specification of respiratory protective equipment (RPE)	RPE Efficiency (APF**)
Industrial manufacture/ formulation of hydraulic building and construction materials	2,3	Duration is not limited (up to 480 minutes per shift, 5 shifts per week); (#) <240 minutes.	not required.	-
	14, 26		A) Mask FFP2 or B) Mask FFP1	APF = 10 APF = 4
	5, 8b, 9		Mask FFP2	APF = 10
Industrial uses of dry hydraulic building and construction materials (indoor, outdoor)	2		not required.	-
	14, 22, 26		A) Mask FFP2 or B) Mask FFP1	APF = 10 APF = 4
	5, 8b, 9		Mask FFP2	APF = 10
Industrial uses of wet suspension of hydraulic building and construction materials	7		A) Mask FFP3 or B) Mask FFP2	APF = 20 APF = 10
	2, 5, 8b, 9, 10, 13, 14		not required.	-
Professional use of dry hydraulic building and construction material (indoor, outdoor)	2		A) Mask FFP2 or B) Mask FFP1	APF = 10 APF = 4
	9, 26		A) Mask FFP3 or B) Mask FFP2	APF = 20 APF = 10
	5, 8a, 8b, 14		Mask FFP3	APF = 20
	19 (#)		Mask FFP3	APF = 20
Professional uses of wet suspensions of hydraulic building and construction materials	11		A) Mask FFP3 or B) Mask FFP2	APF = 20 APF = 10
	2, 5, 8a, 8b, 9, 10, 13, 14, 19		not required.	-

*PROC are the uses identified and defined in section 16.2.
** APF Assigned protection factor.

2 - Inhalation DNEL of 5 mg/m ^{3}

8.2.1 Appropriate technical control measures

Use	PROC *	Exposure	Localised controls	Efficiency
Industrial manufacture/ formulation of hydraulic building and construction materials	2, 3	Duration is not limited (up to 480 minutes per shift, 5 shifts per week).	not required.	-
	14, 26		A) Not required. Or B) Generic local exhaust ventilation.	- 78%
	5, 8b, 9		A) Not required. Or B) Generic local exhaust ventilation.	- 82%
Industrial uses of dry hydraulic building and construction materials (indoor, outdoor)	2		They are not required.	-
	14, 22, 26		B) not required. Or B) Generic local exhaust system.	- 78%
	5, 8b, 9		A) Not required. Or B) Generic local exhaust ventilation.	- 82%
Industrial uses of wet suspension of hydraulic building and construction materials	7		A) Not required. Or B) Generic local exhaust ventilation.	- 78%
	2, 5, 8b, 9, 10, 13, 14		not required.	-
Professional use of dry hydraulic building and construction material (indoor, outdoor)	2		A) Not required. Or B) General ventilation.	- 29%
	9, 26		A) Not required. Or B) Generic local exhaust ventilation.	- 77%
	5, 8a, 8b, 14		A) Not required. Or B) Generic local exhaust ventilation.	- 72%
	19		Localised controls are not applicable, process in well-ventilated areas or outdoors	-
Professional use of hydraulic binders in wet suspension and building and construction materials	11		A) Not required. Or B) Generic local exhaust ventilation.	- 77%
	2, 5, 8a, 8b, 9, 10, 13, 14, 19		not required.	-

*PROC are the uses identified and defined in section 16.2.

8.2.2 Individual protection measures such as personal protective equipment.

Use	PROC *	Exposure	Specification of respiratory protective equipment (RPE)	RPE Efficiency (APF**)
Industrial manufacture/ formulation of hydraulic building and construction materials	2,3	Duration is not limited (up to 480 minutes per shift, 5 shifts per week).	not required.	-
	14, 26		A) FFP1 or B) Not required.	APF = 4 -
	5, 8b, 9		A) FFP2 or B) Not required.	APF = 10 -
Industrial uses of dry hydraulic building and construction materials (indoor, outdoor)	2		not required.	-
	14, 22, 26		A) FFP1 or B) Not required.	APF = 4 -
	5, 8b, 9		A) FFP2 or B) Not required.	APF = 10 -
Industrial uses of wet suspension of hydraulic building and construction materials	7		A) FFP2 or B) Not required.	APF = 10 -
	2, 5, 8b, 9, 10, 13, 14		not required.	-
Professional use of dry hydraulic building and construction material (indoor, outdoor)	2		A) FFP1 or B) Not required.	APF = 4 -
	9, 26		A) FFP2 or B) Not required.	APF = 10 -
	5, 8a, 8b, 14		A) FFP3 or B) FFP1	APF = 20 APF = 4
	19		FFP2	APF = 10
Professional use of hydraulic binders in wet suspension and building and construction materials	11		A) FFP2 or B) Not required.	APF = 10 -
	2, 5, 8a, 8b, 9, 10, 13, 14, 19		not required.	-

*PROC's are the uses identified and defined in section 16.2.
** APF Assigned protection factor.