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SAFETY DATA SHEET
according to
Regulation (EC) No. 1907/2006 (REACH) and Regulation (EC) No. 1272/2008, as further
amended and supplemented

Name of the product	Common cements according to SR EN 197-1: <ul style="list-style-type: none">- Portland cement EN 197-1 - CEM I- Portland-slag cement EN 197-1 – CEM II- Blast furnace cement with low heat of hydration EN 197-1 – CEM III- Portland-limestone cement EN 197-1 – CEM II- Portland-composite cement EN 197-1 – CEM II Masonry cement according to SR EN 413-1 <ul style="list-style-type: none">- Masonry cement EN 413-1 - MC
Revision	Edition 2, revision 2 (this sheet replaces previous versions)
Date of last revision	12.09.2023
Code	FDS-02

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND COMPANY

1.1. Product Identifier	Common cements according to SR EN 197-1 <ul style="list-style-type: none">- Portland cement EN 197-1 - CEM I UFI: 0800-G0KD-U000-T0VM- Portland-slag cement EN 197-1 – CEM II UFI: Q600-Y0W0-H00G-4P9J- Blast furnace cement with low heat of hydration EN 197-1 – CEM III UFI: Q600-Y0W0-H00G-4P9J- Portland-limestone cement EN 197-1 – CEM II UFI: 6C00-008T-400G-GCFP- Portland-composite cement EN 197-1 – CEM II UFI: W300-G06M-7000-GAQG Masonry cement according to SR EN 413-1: Masonry cement EN 413-1 – MC UFI: 0F00-G0Y6-E00Y-4Q1R
	According to REACH, cement is a mixture and is not subject to the obligation of registration. Cement clinker is exempted from the obligation of registration (Art. 2.7 (b) and Annex V.10. of REACH).
	The cement is placed on the market in accordance with Regulation (EU) 2020/1677 of 31 August 2020 amending Regulation (EC) No. 1272/2008 of



the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures, in order to improve the workability of information requirements related to emergency health response.

1.2. Relevant identified uses of the substance or mixture and uses advised against

Cement is used as a hydraulic binder for the preparation of concretes, mortars, grouts, paste and other mixtures for construction and for the manufacture of construction products.
The cement and cement containing mixtures are used on an industrial scale, by professional users, as well as by consumers in the field of constructions. The identified uses of cement and cement containing mixtures cover both dry and wet products (paste).
Any use which is not mentioned in this safety data sheet is not permitted.

1.3. Details of the supplier of the safety data sheet

Heidelberg Materials Romania S.A., Fieni Cement Plant, Str. Ing. Aurel Rainu, nr. 34, Fieni, Dâmbovița County (tel: 0245.774.093, fax: 0245.774.091)

Heidelberg Materials Romania S.A., Chișcădaga Cement Plant, Str. Principală, nr. 1, Chișcădaga, Hunedoara County (tel: 0254.237.000, fax: 0254.237.009)

Heidelberg Materials Romania S.A., Tașca Cement Plant, Tașca Village, Tașca Commune, Neamț County (tel: 0233.254.221, fax: 0233.253.131)

Contact: tel. 021.311.59.75 extension 1158 or e-mail: tehnic@heidelbergmaterials.com

1.4. Emergency telephone number

Emergency telephone number: 021 318.36.06 or 112
Manufacturer's telephone number: 021 311.59.75 (Monday to Friday, 8:00 a.m. - 4:00 p.m.)
Office for International Sanitary Regulations and Toxicology Information – 021 318.36.06 (Monday to Friday, 8:00 a.m. - 3:00 p.m.)
Information is in Romanian language

2. HAZARD IDENTIFICATION

2.1. Classification of the substance or mixture

2.1.1. According to Regulation (EC) No. 1272/2008

Hazard class	Hazard category	Hazard Statements
Skin irritation	2	H 315 Causes skin irritation
Serious eye damage/Eye irritation	1	H 318 Causes serious eye damage
Skin sensitization	1B	H 317 May cause an allergic skin reaction
Specific target organ toxicity - single exposure; respiratory tract irritation	3	H 335 May cause respiratory irritation

2.2. Label elements

2.2.1. According to Regulation (EC) No. 1272/2008





Signal word

Danger

Hazard Statements

- H 315 Causes skin irritation
- H 317 May cause an allergic skin reaction
- H 318 Causes serious eye damage
- H 335 May cause respiratory irritation

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 a physician/doctor.
- P302+P352+P333+P313: IF ON SKIN. Wash with plenty of water and soap. If skin irritation or rash occurs, get medical advice.
- P261+P304+P340+P312: Avoid breathing dust. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a Poison Centre or doctor/physician if you feel unwell.
- P501 Dispose of contents/container in specially arranged places for the storage of inert waste. The provisions of the applicable waste legislation shall be complied with.

Additional information

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

2.3. Other hazards

The cement does not meet the criteria for PBT (persistent, bioaccumulative and toxic substances) or vPvB (very persistent and very bioaccumulative substances) according to Annex XIII of REACH (Regulation (EC) No. 1907/2006).

In cases of atopic hypersensitivity, the reaction threshold has not determined a threshold value. Consequently, end users should cease direct contact with cement if hypersensitivity reactions occur. In all cases, wearing personal protective equipment while handling is a necessary condition.

Cement dust may cause irritation of the respiratory system.

When cement reacts with water, for example, when preparing concrete or when cement becomes wet, an alkaline solution is produced. Due to high alkalinity, wet cement may cause eye and skin irritation.

For some people, cement dust may cause an allergic reaction due to the water-soluble Chromium (VI) content. (see Section 15).



3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Not applicable, as the product is a mixture, not a substance.

3.2. Mixtures

Common cements according to SR EN 197-1

Main types	Notation of the 27 products (types of common cement)		Composition (percentage by mass ^a)										Minor additional constituents		
			Main components												
			Clinker	Blast Furnace slag	Silica fume	Pozzolana		Fly ash		Burnt shale	Limestone				
						Natural	Naturally calcined	Siliceous	Calcareous		L	LL			
K	S	D ^b	P	Q	V	W	T	L	LL						
CEM I	Portland Cement	CEM I	95-100	-	-	-	-	-	-	-	-	-	-	0-5	
		CEM II/A-S	80-94	6-20	-	-	-	-	-	-	-	-	-	0-5	
CEM II	Portland-slag cement	CEM II/B-S	65-79	21-35	-	-	-	-	-	-	-	-	-	0-5	
		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	80-88	←-----12-20-----→										0-5	
		CEM II/B-M	65-79	←-----21-35-----→											
	CEM III	Blast furnace 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	-	←-----36-65-----→					-	-	-	0-5		
CEM V	Composite cement ^c	CEM V/A	40-64	18-30	-	←-----18-30-----→			-	-	-	-	0-5		
		CEM V/B	20-38	31-49	-	←-----31-49-----→			-	-	-	-	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)



Masonry cement according to SR EN 413-1:2011:

Type	Content % by mass	
	Portland cement clinker	Additives
MC 5	> 25	≤ 1
MC 12,5; MC 12,5 X	≥ 40	
MC 22,5; MC 22,5 X		

Components contributing to the classification of the mixture:

Substance name	Concentration range (%)	EC No.	CAS No.	REACH Registration No.	Classification according to Regulation (EC) No. 1272/2008 (CLP)	SCL, M-Factor, ATE
Portland cement clinker	5 - 100	266-043-4	65997-15-1	Exempted from the registration requirement (details under pt. 15.1)	Skin irritation, 2, (H315) Skin sensitization 1B (H317) Causes serious eye damage, 1, (H318) STOT SE, 3, (H335)	Not applicable.
Flue dust	0 - 5	270-659-9	68475-76-3	01-2119486767-17-0052	Skin irritation, 2, (H315) Skin sensitization 1B (H317) Causes serious eye damage, 1, (H318) STOT SE, 3, (H335)	Not applicable.

4. FIRST AID MEASURES

When you visit the physician, please take this Safety Data Sheet with you.

4.1. Description of first aid measures

General Notes

No personal protective equipment is necessary for first aid responders. First aid workers should avoid contact with wet cement or a wet cement containing mixtures.

In case of eye contact

Do not rub eyes in order to avoid possible cornea damage as a result of mechanic stress.

Remove contact lenses if wearing any. Incline the head to injured eye, open the eyelids widely and wash the eye(s) immediately by thoroughly rinsing with plenty of clean water, for at least 20 minutes, to remove all particles. Avoid particle leakage into the uninjured eye. If possible, use isotonic water (0.9 % NaCl). Contact an occupational medicine specialist or an ophthalmologist.

In case of skin contact

For dry cement, remove and rinse with plenty of water.

For wet cement, wash your skin with plenty of water.

Remove contaminated clothing, footwear, watches, etc. and fully clean them before reuse.

Seek medical treatment in all cases of irritation or burns.

In case of inhalation

Move the person to fresh air. Dust present in the throat and nasal pathways should be cleaned immediately. Contact a physician if the irritation persists or occurs later, or if the feeling of discomfort, cough, or other symptoms persist.

In case of ingestion

Do not induce vomiting. If the person is conscious, wash their mouth with water and give them plenty of water to drink. Get immediately medical attention or contact a Poison Center.



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

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

Skin: Cement may have an irritating effect on wet skin (due to sweat or humidity) after prolonged contact or may cause contact dermatitis after repeated exposures.

Prolonged skin contact with wet cement or wet concrete may cause skin irritation, dermatitis or burns which develop without feeling pain (for example, when coming into contact with wet concrete)

For more details see [Reference (1)].

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

Ingestion: In case of accidental ingestion, cement may cause digestive system ulcers.

Environment: Under normal use, cement is not hazardous to the environment.

4.3. Indications of any immediate medical attention and special treatment needed

When contacting a physician, take this safety data sheet with you.

5. FIREFIGHTING MEASURES

5.1. Extinguishing media

Cement is not flammable.

5.2. Special hazards arising from the substance or mixture

Cement is non-combustible, does not explode, does not sustain nor facilitate combustion of other materials.

5.3. Advice for firefighters

Cement poses not a fire-related hazard. No need for special protective equipment for fire-fighters.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

Wear the personal protective equipment described under Section 8 and follow the advice for safe handling and use given under Section 7.

6.1.2 For emergency responders

Emergency procedures are not necessary. However, respiratory protection is necessary in situations with high dust levels.

6.2. Environmental precautions

Do not discharge cement in the sewerage drainage system or watercourses (rivers).

6.3. Methods and material for containment and cleaning up

Collect spilled material in a dry state if possible.

Dry cement

Use vacuum cleaning methods (example: portable industrial units, equipped with high efficiency particle filters (EPA and HEPA filter, EN 1822-1 or an



equivalent technique)), that do not cause airborne dispersion. Never use compressed air.
Another option is to remove dust using a mop, wet brush or water spray or hose (fine spraying to avoid that the dust becomes airborne), then remove the resulted slurry.
If it is not possible, remove by slurring with water (see the paragraph on wet cement).
When wet or vacuum cleaning is not possible, and only dry cleaning is possible, ensure that the workers wear adequate personal protection equipment and that the spreading of dust is avoided.
Avoid cement inhalation and skin contact. Place the material in a container/recipient, solidify it, and follow the disposal indications described in Section 13.

Wet cement

Clean up the wet cement and place it in a container/recipient. Allow material to dry and solidify before disposal according to Section 13.

6.4. Reference to other sections

For further details, see Sections 7, 8 and 13.

7. HANDLING and STORAGE

7.1. Precautions for safe handling

7.1.1. Protection measures

Follow the recommendations provided in Section 8.
To clean up dry cement, see Sub-Section 6.3.

Measures to prevent fire

Not applicable.

Measures to prevent aerosol and dust generation

Do not sweep. Use dry cleaning methods, such as vacuum cleaning, which do not cause airborne dispersion.
For further information, please consult the guidelines adopted under the "Social Dialogue Agreement on Workers Health Protection through the Good Handling and Use of Crystalline Silica and Products containing it", concluded between the European Sectoral Associations of Employees and Employers, among which CEMBUREAU. These safe handling practices may be found accessing the following link: <http://www.nepsi.eu/agreement-good-practice-guide/good-practice-guide.aspx>.

Measures to protect the environmental

No special measures are needed.

7.1.2 Information on general occupational hygiene

Do not handle or store near foods and drinks.
In a dusty environment, wear dust protection mask and goggles.
Use protective equipment to avoid skin contact.
Wash your hands after use.
Remove contaminated clothing and protective equipment before eating.

7.2. Conditions for safe storage, including any incompatibilities

Bulk cement must be stored in dry and impermeable silos (with internal condensation minimized) that are clean and protected from contamination.
Asphyxiation hazard: To avoid being buried or suffocation, do not enter confined areas, such as a silo, a bin, transportation means, other containers or storage areas containing cement, without taking the necessary safety measures. Cement can build up or adhere to the walls of a confined space. Cement may fall or dislodge accidentally from the walls of storage areas.
Packaged products must be stored in closed bags, without contact with the



ground, in dry and cool areas, protected from excessive draft to avoid quality degradation. Bags must be stored so as to avoid the risk of overturning. Do not use aluminum containers for storage or transport of wet cement containing mixtures due to the incompatibility of the materials.

7.3. Specific end use

No additional information available for specific end uses (see Section 1.2.)

Control of soluble chromium (VI)

For cements treated with a Cr (VI) reducing agent according to the regulations given in Section 15, the effectiveness of the reduction agent decreases in time. Consequently, cement bags and/or delivery documents contain information on the date of packaging, storage conditions and maximum storage period appropriate for the reduction agent to keep its properties and maintain the content of soluble chromium VI below 0.0002 % of the total dry weight of the cement ready to use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

DNEL inhalation (8h): 3 mg/m³
DNEL skin: not applicable
DNEL oral: not applicable
Determined No-Effect Levels (DNEL) refer to respirable dust. In contrast, the method used for risk assessment (MEASE) works with the inhalable fraction. Therefore, an additional safety coefficient, as well as the risk management measures are included as an integral part of the assessment result. For workers, no DNEL is available for dermal exposure, either from risk studies or from human experience. As the product is classified as an irritant to skin and eyes, dermal exposure should be minimized as much as technically possible.
PNEC water: not applicable
PNEC sediment: not applicable
PNEC soil: not applicable

8.2. Exposure controls

For each individual PROC (process category), users can choose from either option A) or B) in the table found in Section 8.2.1, according to what is best suited to their specific situation. If one option is chosen (A or B), then the same option has to be chosen in the table from section 8.2.2 "Individual protection measures such as personal protection equipment" - Specification of respiratory protective equipment. Only combinations between A) – A) and B) – B) are possible.

8.2.1. Appropriate engineering controls

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

Use	PROC*	Duration	Localized controls	Efficiency
Industrial manufacture of hydraulic building and construction materials	2, 3	Duration is not restricted (up to 480 minutes)	not required	-
	14, 26		A) not required or B) general local exhaust ventilation	78%
	5, 8b, 9		A) general ventilation or B) general local exhaust ventilation	17% 78%
2	not required		-	



Industrial uses of dry hydraulic binders and building materials (indoor, outdoor)	14, 22, 26	A) not required or B) general local exhaust ventilation	- 78%
	5, 8b, 9	A) general ventilation or B) general local exhaust ventilation	17% 78%
Industrial uses of wet suspensions of hydraulic binders and building materials	7	A) not required or B) general local exhaust ventilation	- 78%
	2, 5, 8b, 9, 10, 13, 14	not required	-
Professional use of dry hydraulic binders and building materials (indoors and outdoors)	2	not required	-
	9, 26	A) not required or B) general local exhaust ventilation	- 72%
	5, 8a, 8b, 14	A) not required or B) integrated local exhaust ventilation	- 87%
	19	localized controls are not applicable, process carried out only in well ventilated rooms or outdoor	-
Professional uses of wet suspensions of hydraulic binders and building materials	11	A) not required or B) general local exhaust ventilation	- 72%
	2, 5, 8a, 8b, 9, 10, 13, 14, 19	not required	-

* PROCs are identified uses and defined in Section 16.2.

8.2.2. Individual protection measures, such as protective equipment

General: during work, avoid the direct contact of skin with mortar or fresh concrete whenever possible. If it is not possible, then you must use waterproof personal protection equipment.

Do not eat, drink or smoke when working with cement to avoid skin and mouth contact.

Before starting to work with cement, apply a protection cream and reapply it at regular intervals.

Immediately after working with cement or cement-containing materials, workers should wash, take a shower and use skin moisturizing creams.

Remove contaminated clothing, footwear, watches, etc. and fully clean them before reuse.



Eye/face protection



Wear protection goggles according to EN 166 when handling dry or wet cement to prevent eye contact.

Skin protection



Use waterproof, abrasion and alkali proof gloves, internally lined with cotton, boots, full body protection clothing, as well as skin care products (for example, protection creams), to protect skin against extended contact with wet cement.

Special attention must be paid to make sure wet cement does not enter the footwear.

With regard to gloves, research has shown that cotton gloves impregnated with nitrile (layer thickness of approx. 0,15 mm) provide sufficient protection over a period of 480 minutes, subject to normal wear and tear, which may depend on the load being handled. Always replace damaged or wet gloves immediately. Always ensure an available stock of spare gloves.

In certain circumstances, such as when pouring concrete or screeds, it is necessary to wear waterproof trousers or knee pads.

Respiratory protection



When a person may be exposed to dust levels over the exposure limits, use adequate respiratory protection. The type of respiratory protection must be adapted to the dust level and comply with the EN 149 standard and applicable legislation.

Thermal hazards

Not applicable.

Uses	PROC*	Exposure	Specification of respiratory protective equipment (RPE)	RPE efficiency - assigned protection factor (APF)
Industrial manufacture of hydraulic building and construction materials	2, 3	Duration is not restricted (up to 480 minutes per shift, 5 shifts a week)	not required	-
	14, 26		A) FFP1 or B) not required	APF = 4 -
	5, 8b, 9		A) FFP2 or B) FFP1	APF = 10 APF = 4
Industrial uses of dry hydraulic binders and building materials (indoor, outdoor)	2		not required	-
	14, 22, 26		A) FFP1 or B) not required	APF = 4 -
	5, 8b, 9		A) FFP2 or B) FFP1	APF = 10 APF = 4
Industrial uses of wet suspensions of hydraulic binders and building materials	7		A) FFP1 or B) not required	APF = 4 -
	2, 5, 8b, 9, 10, 13, 14		not required	-
	2		FFP1	APF = 4



Professional use of dry hydraulic binders and building materials (indoors and outdoors)	9, 26		A) FFP2 or B) FFP1	APF = 10 APF = 4
	5, 8a, 8b, 14		A) FFP3 or B) FFP1	APF = 20 APF = 4
	19		FFP2	APF = 10
Professional uses of wet suspensions of hydraulic binders and building materials	11		A) FFP2 or B) FFP1	APF = 10 APF = 4
	2, 5, 8a, 8b, 9, 10, 13, 14, 19		not required	-

* PROCs are identified uses and defined in Section 16.2.

An overview of the assigned protection factors of different respiratory protective equipment according to the standards in force can be found in reference (16).

Any respiratory protective equipment should be worn so that the working time reflects the additional physiological stress on the worker due to the breathing resistance and mass of the equipment itself, as well as increased thermal stress. In addition, it shall be considered that the worker's capability of using tools and of communicating verbally are reduced while wearing the equipment.

In this context, the worker must: (i) be medically fit, (ii) use equipment suitable to the particular facial features for a good isolation against dust. The legal responsibilities for the maintenance and provision of respiratory protective equipment, as well as the monitoring of its correct use in the workplace, lie with the employer or persons established according to the law. Therefore, they should define and document a suitable procedure on the correct use of respiratory protective equipment, and train the workers.

8.2.3 Environmental exposure controls

Environmental exposure control for the emission of cement particles into air has to be in compliance with the available technology and the regulations for the emission of general dust particles.

Air: Environmental exposure control for the emission of cement particles into air has to be in compliance with the available technology and the regulations for the emission of general dust particles.

Water: Do not wash cement in the sewerage system or watercourses, to avoid a high pH. At a pH value above 9, negative ecotoxicological impacts are possible.

Soil and terrestrial environment: No special emission control measures are necessary for the exposure to the terrestrial environment.

For further information, see Section 6 entitled "Accidental release measures".

9. PHYSICAL and CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

This information applies to the entire mixture.

- a) Physical state: Dry cement is a solid, finely ground inorganic material
- b) Color: Grey or white powder (dry cement)
- c) Odor: Odorless
- 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, the melting point is > 1,250 °C
- f) Flammability (solid, gas): Not applicable as it is a solid which is non-combustible, and does not cause or contribute to fire through friction
- g) Upper/lower explosive limit: 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 their derivatives, nor any other pyrophoric constituent in its composition)
- j) Decomposition temperature: Not applicable as no organic peroxide is 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 an inorganic mixture
- o) Vapor pressure: Not applicable as melting point > 1250 °C
- p) Density and/or relative density: 2.75-3.20; Apparent density: 0.9-1.5 g/cm³
- q) Relative vapor density: Not applicable as melting point > 1250 °C
- r) Particle characteristics: Typical particle size: 5-30 µm

9.2. Other information

Not applicable

9.2.1 Information with regard to physical hazard classes

Not applicable

9.2.2 Other safety characteristics

Not applicable

10. STABILITY and REACTIVITY

10.1. Reactivity

When mixed with water, cement will harden into a stable mass, which is not reactive in normal environments.

10.2. Chemical stability

Dry cement is stable as long as is properly stored (see Section 7) and it is compatible with most other building materials. It must be stored dry and avoiding contact with incompatible materials.
Wet cement is alkaline and incompatible with acids, ammonium salts, aluminum or other non-noble metals. Cement dissolves into hydrofluoric acid and produces a silicon tetrafluoride corrosive gas. Cement reacts with water to form silicates and calcium hydroxide. Cement silicates react with powerful oxidizers such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride and oxygen difluoride.

10.3. Possibility of hazardous reactions

Cement does not cause hazardous reactions.

10.4. Conditions to avoid

Humidity during storage may cause the formation of lumps and lead to product quality loss.

10.5. Incompatible materials

Acids, ammonium salts, aluminum or other non-noble metals. Uncontrolled use of aluminum powder in wet cement should be avoided, as hydrogen is produced.

10.6. Hazardous decomposition products

Cement does not decompose into other hazardous products, nor does it polymerize.



11. TOXICOLOGICAL INFORMATION

11.1. Information on the hazard classed as defined in Regulation (EC) No. 1272/2008

Hazard class	Category	Effect	Reference
Acute toxicity - dermal	-	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 - oral	-	No indication of oral toxicity from studies with cement kiln dust (filter dust/electrostatic precipitator). Based on available data, the classification criteria are not met.	Literature study
Skin corrosion/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, pozzolan, 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 with larger amounts of dry cement or splashes of wet cement may cause effects ranging from moderate eye irritation (for example, conjunctivitis or blepharitis) to chemical burns and blindness.	(10), (11)
Skin sensitization	1B	Some individuals may develop eczema upon exposure to wet cement dust, caused by an immunological reaction to soluble Cr (VI) which causes 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 as long as the mentioned period of effectiveness of the chromate reduction is not exceeded, a sensitizing effect is not expected [Reference (3)].	(3), (4), (17), (18)
Respiratory sensitization	-	There is no indication of sensitization 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	(1) (14)



		to classify the agent with one of the other notations). Based on available data, the classification criteria are not met.	
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 in excess of occupational exposure limits. In general, the pattern of evidence clearly indicates that occupational exposure to cement dust has produced deficits in the 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-repeated exposure	-	Long term exposure to respirable cement dust exceeding the professional exposure limit may cause coughing, shortness of breath and chronic obstructive changes of the respiratory tract. No chronic effects have been observed at low concentrations. Based on available data, the classification criteria are not met.	(15)
Aspiration hazard	-	Not applicable as cements are not used as an aerosol.	

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

Medical conditions aggravated by exposure

Inhaling 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.

11.2. Information on other hazard

11.2.1. Endocrine disrupting properties

Not applicable.

11.2.2. Other information

Not applicable.

12. ECOLOGICAL INFORMATION

12.1. Toxicity

The product is not dangerous for the environment. Eco-toxicological tests with Portland cement on Daphnia magna [Reference (5)] and Selenastrum coli [Reference (6)] have shown a little toxicological impact. Therefore, LC50 and EC50 values could not be determined. [Reference (7)]. There are no indications for toxicity in the sediment phase. [Reference (8)]. The addition of large amounts of cement to water, may, however, cause an increase in pH and therefore, cement may be toxic for aquatic life in certain circumstances.

12.2. Persistence and degradability

Not applicable. After hardening, cement presents no risk of persistence and degradability.



12.3. Bioaccumulative potential

Not applicable. After hydration, cement presents no risk of bioaccumulation.

12.4. Mobility in soil

Not applicable. After hydration, cement presents no risk of soil mobility.

12.5. Results of PBT and vPvB assessment

Not applicable. After hydration, cement presents no toxicity risk.

12.6. Endocrine disrupting properties

Not applicable.

12.7. Other adverse effects

Not applicable.

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Do not dispose in sewerage systems or surface water.

Product - cement that has exceeded its shelf life

EWC entry: 10 13 99 (waste not otherwise specified)

(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.

Product - unused residue or dry spillage

EWC entry: 10 13 06 (particulates and dust)

Collect unused residue or dry spillage as is, and mark the containers. Reuse if possible, considering the shelf life and the requirement to avoid dust exposure. In case of disposal, mix with water and dispose of the hardened product as per "Product – hardened, after addition of water".

Product – slurries

Allow to harden, avoid entry in sewage and drainage systems or into bodies of water, and dispose of as per the provision "Product - hardened, after addition of water".

Product - hardened, after addition of water

Dispose of according to the national legislation in force. Avoid entry into the sewage and drainage systems or into bodies of water. Dispose of the hardened product as concrete waste. Due to the inertisation, concrete waste is not dangerous.

EWC entries: 10 13 14 (waste from cement manufacture - waste concrete and concrete sludge) or 17 01 01 (waste from construction and demolition - concrete).

Packaging

Completely empty the packaging and process it according to the legislation in force.

EWC entry: 15 01 01 (paper and cardboard packaging).



14. TRANSPORT INFORMATION

Cement is not covered by the international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID), , therefore no classification is required. No special measures are required, apart from those mentioned under Section 8.

14.1. UN number or identification number	Not applicable.
14.2. UN proper shipping name	Not applicable.
14.3. Transport hazard class(es)	Not applicable.
14.4. Packing group	Not applicable.
14.5. Environmental hazards	Not applicable.
14.6. Special precautions for user	Not applicable.
14.7. Maritime transport in bulk, according to the IMO instruments	Not applicable.

15. REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Under REACH, cement is a mixture and is not subject to the obligation of registration. Cement clinker is exempted from the obligation of registration (Art. 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):

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 placing it 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) 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 where there is no possibility of skin contact.



Additional information may also be found in Government Decision No. 1218 of 6 September 2006 laying down minimum requirements for safety and health at work to ensure the protection of workers against the risks related to chemical agents (as further amended and supplemented).

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

16. OTHER INFORMATION

16.1. Indications on changes

This document was updated on 12.09.2023, to include changes related to UFI and the name of the company.

16.2. Identified uses and descriptions for uses and categories

The table below provides an overview of all identified relevant uses of cement or cements containing hydraulic binders. All uses have been grouped into these identified uses considering the specific exposure conditions for human health and the environment. For each specific use, a set of risk management or control measures has been mentioned (see Section 8) which need to be put in place by the user of cement or cement containing hydraulic binders to reduce the exposure to an acceptable level.

PROC	Identified Uses - Use Description	Manufacture	Professional/Industrial use of
		building materials	
2	Use in closed, continuous process with occasional controlled exposure, e.g., industrial or professional manufacture of hydraulic binders	X	X
3	Use in closed batch process, e.g., industrial or professional manufacture of ready-mix concrete	X	X
5	Mixing or blending in batch process for formulation of mixtures and articles, e.g., industrial or professional manufacture of pre-cast concrete	X	X
7	Industrial spraying, e.g., industrial use of wet suspensions of hydraulic binders by spraying		X
8a	Transfer of substances or mixtures from/to vessels/large containers at non-dedicated facilities, e.g., use of cement in bags to prepare mortar		X
8b	Transfer of substances or mixtures from/to vessels/large containers at dedicated facilities, e.g., filling of silos, trucks or barges at cement plants	X	X
9	Transfer of substances or mixtures into small containers, e.g., filling of cement bags in cement plants	X	X
10	Roller application or brushing, e.g., products to improve adherence between building surfaces and finishing products		X



11	Non-industrial spraying, e.g., professional use of wet suspensions of hydraulic binders by spraying		X
13	Treatment of articles by dipping and pouring, e.g., covering of construction products with a layer to improve the performance of the product		X
14	Production of mixtures or articles by tableting, compression, extrusion, palletization, e.g., production of floor tiling	X	X
19	Hand-mixing with direct contact and only PPE available, e.g., mixture of wet hydraulic binder on a construction site		X
22	Potentially closed processing operations with minerals/metals at elevated temperature in industrial setting, e.g., production of bricks		X
26	Handling of solid inorganic substances at ambient temperature. e.g., mixing wet hydraulic binders	X	X

16.3. Abbreviations and acronyms

ACGIH	American Conference of Governmental 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 (Regulation (EC) No. 1272/2008)
EC50	Half maximal effective concentration
ECHA	European Chemicals Agency
EPA	Efficient particulate air filter
ES	Exposure scenario
FFP	Filtering facepiece against particles (disposable)
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/industrial-chemicals-reach/projects-and-references/mease.php
PBT	Persistent, bio-accumulative and toxic
PROC	Process category
REACH	Registration, Evaluation, Authorization and Restriction of Chemicals
RPE	Respiratory protective equipment
SDS	Safety Data Sheet
SE	Single exposure
STOT	Specific target organ toxicity
TLV-TWA	Threshold limit value - time-weighted average
vPvB	Very persistent, very bioaccumulative

16.4. Key references in literature and sources of data

- (1) *Portland Cement Dust - Hazard assessment document EH75/7, UK Health and Safety Executive, 2006. Available at: <http://www.hse.gov.uk/pubns/web/portlandcement.pdf>.*
- (2) *Observations on the effects of skin irritation caused cement, Kietzman et al, Dermatosen, 47, 5, 184-189 (1999).*



- (3) *European 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) *U.S. 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, U.S. EPA, Cincinnati, OH (1994a) and 4th ed. EPA-821-R-02-013, US EPA, office of water, Washington D.C. (2002).*
- (6) *U.S. 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, U.S. EPA, Cincinnati, OH (1993) and 5th ed. EPA-821-R-02-012, US EPA, office of water, Washington D.C. (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, D.C., 2001.*
- (8) *Final report Sediment Phase Toxicity Test Results with Corophium volutator for Portland clinker prepared for Norcem A.S. 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/industrial-chemicals-reach/projects-and-references/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. Current hazard statements and precautionary statements

Hazard statements and precautionary statements are already listed under Section 2 "Hazard identification", 2.1 "Classification of the substance or mixture" and 2.2 "Labelling elements".

16.6. Training advice

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

16.7. Further information

The data and test methods used for the purpose of classification of common cements are indicated or mentioned in Section 11.1.

16.8. Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]

Classification according to Regulation (EC) No. 1272/2008	Classification procedure
Skin corrosion/irritation 2, H315	based on test data
Serious eye damage/Eye irritation1, H318	based on test data
Skin sensitisation 1B, H317	human experience
STOT SE 3, H335	human experience

16.9. Disclaimer

The information on this safety data sheet reflects the currently available knowledge and is valid provided that the product is used in the conditions specified and in compliance with the applications specified on the packaging



and/or in the technical literature. Any other use of the product, including the use of the product in combination with any other products or processes, falls under the responsibility of the user.

Implicitly, the user is responsible for establishing and applying the appropriate safety and health measures, and for applying the legislation governing its own activities.