

Safety data sheet - SDS of White cements

Edition n.9 of 1 May 2022

1. IDENTIFICATION OF THE MIXTURE AND THE COMPANY/ENTERPRISE

1.1 Product identifier

White common cement (hereinafter referred to as white cement) complies with the specific technical standards.

Trade name	Normal name	UFI Code
ITALBIANCO	I 52,5 R (1) White I 52,5 R White	2200-U0CW-500E-QU85
ROCCABIANCA	II/B-LL 42,5 R White	YK00-V0H9-000D-PVSN
AQUILABIANCA	II/B-LL 32,5 R (1) White	

1.2 Relevant identified uses of the mixture and discouraged uses

White cement is used as a hydraulic binder for the manufacture of concrete, mortars, plasters, etc. Cement and cement-containing mixtures are used industrially in the production of building materials and in construction by professional users and end consumers. The identified uses of cements and mixtures containing cement cover dry products and wet suspension products (dough).

Process Categories (PROCs) and Usage Descriptors

PROC	Identified uses – Description of use	Production/ Formulation of	Professional/industrial use of
		Building and construction materials	
2	Use in a closed, continuous process , with occasional controlled exposure	X	X
3	Use in a closed batch process (synthesis or formulation)	X	X
5	Mixing or mixing in batch processes for the formulation of preparations* and articles (contact at different stages and/or significant contact)	X	X
7	Industrial spray application		X
8th	Transfer of a substance or preparation* (filling/emptying) from/to containers/large containers, in non-dedicated facilities		X
8b	Transfer of a substance or preparation* (filling/emptying) from/to containers/large containers, in dedicated facilities	X	X
9	Transfer of a substance or preparation* into small containers (dedicated filling line, including weighing)	X	X
10	Application with rollers or brushes		X
11	Non-industrial spray application		X
13	Treatment of diving and casting articles		X
14	Production of preparations* or articles for compression in tablets, compression, extrusion, pelletizing	X	X

PROC	Identified uses – Description of use	Production/ Formulation of	Professional/industrial use of
		Building and construction materials	
19	Manual mixing with direct contact, with the sole use of personal protective equipment (PPE)		X
22	Processing operation in potentially closed processes with minerals/metals at high temperatures . Industrial environment		X
26	Handling of solid inorganic substances at room temperatures	X	X

* To maintain consistency with the system of Descriptors given in EUCLID5.2, in the Table the term "preparation" has not been replaced with the new term "mixture"

1.2 Information on the safety data sheet supplier

Italcementi S.p.A.
Via Stezzano, 87 – 24126 Bergamo, Italy
Phone: 035 – 396111 itc-reach@italcementi.it

1.3 Emergency phone number

Hospital	City	Address - Zip Code	Telephone
University hospital of Foggia	Foggia	V.le Luigi Pinto, 1 - 71122	800183459
Hospital "A. Cardarelli"	Naples	Via A. Cardarelli, 9 - 80131	081-5453333
CAV Policlinico "Umberto I"	Rome	V.le del Policlinico,155 - 00161	06-49978000
CAV Polyclinic "A. Gemelli"	Rome	Largo Agostino Gemelli, 8 - 00168	06-3054343
Hospital "Careggi" U.O. Medical Toxicology	Florence	Largo Brambilla, 3 - 50134	055-7947819
CAV National Toxicological Information Centre	Pavia	Via Salvatore Maugeri, 10 - 27100	0382-24444
Niguarda Ca' Granda Hospital	Milan	Piazza Ospedale Maggiore,3 - 20162	02-66101029
Papa Giovanni XXII Hospital	Bergamo	OMS Square, 1 - 24127	800883300
CAV "Ospedale Pediatrico Bambino Gesù", Dip. Emergency and DEA Acceptance	Rome	Piazza Sant'Onofrio, 4 - 00165	06-68593726
Integrated Hospital Verona	Verona	Piazzale Aristide Stefani, 1 - 37126	800011858

Available outside office hours YES x NO

2. HAZARD IDENTIFICATION

2.1 Classification of the mixture Pursuant to Regulation (EU) 1272/2008 (CLP)

Hazard class	Hazard category	HAZARD STATEMENTS
Skin irritation	2	H315: Causes skin irritation
Severe eye damage/eye irritation	1	H318: Causes serious eye damage
Skin sensitization	1 B	H317: May cause an allergic skin reaction
Specific target organ toxicity (single exposure) Respiratory irritation	3	H335: May irritate the respiratory tract



2.2 Label elements

Pursuant to Regulation 1272/2008 (CLP)

Hazard pictograms



Warnings

Danger

Hazard statements

H318: Causes severe eye damage

H315: Causes skin irritation

H317: May cause an allergic skin reaction

H335: May irritate the respiratory tract

Precautionary statements

P102 Keep out of reach of children.

P280: Wear protective gloves/clothing /Protect your eyes/Protect your face

P305+P351+P338+P310: IN CASE OF CONTACT WITH EYES: rinse with water thoroughly for several minutes. Remove any contact lenses if it is easy to do so. Continue to rinse. In case of malaise, immediately contact a POISON CONTROL CENTER or a doctor.

P302+P352+P333+P313: IN CASE OF CONTACT WITH SKIN: wash thoroughly with soap and water. In case of irritation or rash of the skin, consult a doctor.

P261+P304+P340+P312: Avoid breathing dust. IN CASE OF INHALATION: transport the injured person to the open air and keep him at rest in a position that favors breathing. In case of discomfort, contact a POISON CENTER or a doctor.

P501: Dispose of the product/container in accordance with current regulations.

P101 In case of consultation with a doctor, keep the product container or label available.

P501 Dispose of the contents/container in accordance with current legislation.

Additional information

Skin contact with moist cement, concrete or fresh mortar can cause irritation, dermatitis or burns.

It can cause damage to products made of aluminum or other non-noble metals .

2.3 Other hazards

White cement, in the presence of water, for example in the production of concrete or mortar, or when it gets wet, produces a strongly alkaline solution (high pH due to the formation of calcium, sodium and potassium hydroxides).

White cement can irritate the eyes, mucous membranes, throat and respiratory system and cause coughing. Repeated inhalation of white cement powder over a long period of time increases the risk of the occurrence of lung diseases. Repeated and prolonged contact of cement on damp skin, due to perspiration or moisture, can cause irritation and/or dermatitis (Bibliography [4]).

In case of significant ingestion, cement can provoke ulcerations in the digestive system.

White cement does not meet the criteria of PBT or vPvB under Annex XIII of REACH (Regulation 1907/2006/EC).

Cement may contain breathable crystalline free silica.



3. COMPOSITION/INGREDIENT INFORMATION

3.1 Substances

Not applicable

3.2 Mixtures

3.2.1 Components presenting a danger to health

Constituent	% by weight	EC No	CAS	Classification according to Regulation 1272/2008/EC		
				Hazard class	Hazard category	Hazard statements
Portland cement clinker	65-95	266-043-4	65997-15-1	STOT SE: Specific target organ toxicity (single exposure) Respiratory irritation	3	H335: May irritate the respiratory tract
				Skin irritation	2	H315: Causes skin irritation
				Severe eye injuries / eye irritation	1	H318: Causes serious eye
				Skin sensitization	1B	H317: Can cause an allergic skin reaction

Note:

- Clinker: C&L notification n°02-2119682167-31-0000 (Update notification of 01/07/2013 – Presentation Report n. QJ420702-40).

Cements and mixtures containing cement are finely ground mixtures consisting of clinker, gypsum (or other forms of calcium sulphate) and other specific constituents (limestone, etc.).

4. FIRST AID MEASURES

4.1 Description of first aid measures

General notes

No personal protective equipment is required for rescuers, who must avoid inhalation of cement dust and contact with wet cement or preparations containing it (concrete, mortar, plaster, etc.). If this is not possible, they must use the personal protective equipment described in Section 8.

In case of inhalation

Take the person to the fresh air. The powder in the throat and nostrils should clean spontaneously. Contact a doctor if irritation persists, or if it occurs later or if you have discomfort, coughing or other symptoms persist.

In case of contact with skin

For dry cement, remove and rinse thoroughly with water. For wet/damp cement, wash your skin with plenty of water and neutral pH soap or adequate light detergent. Remove contaminated clothing, shoes, glasses and clean them completely before reusing them. Consult a doctor in all cases of irritation or burn.

In case of contact with eyes

Do not rub your eyes to avoid possible corneal damage caused by rubbing.



If present, remove the contact lenses. Tilt your head in the direction of the affected eye, open your eyelids well and rinse with plenty of water for at least 20 minutes to remove all residue. If possible, use isotonic water (0.9% NaCl). If necessary, contact an occupational medicine specialist or ophthalmologist.

In case of ingestion

Do not induce vomiting. If the person is conscious, wash the mouth with water and drink plenty of water. Consult a doctor immediately or contact a Poison Control Center.

4.2 Main symptoms and effects, both acute and delayed

Eyes: Eye contact with cement dust (dry or wet) can cause serious and potentially irreversible injury.

Skin: Cement and its preparations can have an irritating effect on damp skin (due to sweating or moisture) after prolonged contact or can cause contact dermatitis, after repeated contact.

For more details , see Bibliography (1).

Inhalation: Repeated inhalation of cement powder or cement-containing mixtures over a long period of time increases the risk of the occurrence of lung diseases.

Ingestion: in case of accidental ingestion , cement can cause ulceration of the digestive system.

Environment: under normal conditions of use , cement is not dangerous for the environment.

4.3 Indication of the possible need to immediately consult a doctor and special treatments

See section 4.1. When contacting a doctor, take the SDS with you.

5. FIRE-FIGHTING MEASURES

5.1 Means of extinguishing

White cement is not flammable, in case of fire in the surrounding area, all means of fire extinguishing can be used.

5.2 Special hazards arising from the substance

White cement is neither combustible nor explosive and does not facilitate or fuel the combustion of other materials.

5.3 Recommendations for fire extinguishers

White cement does not present fire-related risks. No special protective equipment is required for fire workers.



6. MEASURES IN CASE OF ACCIDENTAL RELEASE

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1 For those who do not intervene directly

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

6.1.2 For those who intervene directly

No specific emergency procedures are required .

In any case , it is necessary to use personal protective equipment (PPE) for the protection of the eyes, skin and respiratory tract, in situations with high levels of dustiness.

6.2 Environmental precautions

Avoid discharging or dispersing cement into drainage systems and sewers or into water bodies (e.g. surface watercourses).

6.3 Methods and materials for containment and reclamation

Dry cement

Use dry cleaning methods such as vacuum cleaners or extractors (portable industrial units, equipped with high-efficiency particulate filters or equivalent techniques), which do not disperse dust into the environment. Never use compressed air.

Ensure that workers wear adequate personal protective equipment and prevent the spreading of cement dust (see section 8).

Avoid inhalation of cement powder and contact with skin and eyes. Deposit the spilled material in containers for future use.

Wet cement

Remove wet cement and store it in a container. Allow the material to dry and solidify before disposing of it as described in Section 13.

6.4 Reference to other sections

For more details, see Sections 8 and 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

7.1.1 Protective measures

Follow the recommendations given in Section 8. To remove dry white cement, see section 6.3.

Fire prevention measures

Not applicable

Measures to prevent the generation of aerosols and dust

Do not sweep and do not use compressed air. Use dry cleaning methods (such as eg. vacuum cleaners and extractors), which do not cause dispersion in the air.

For more information, please refer to the guidelines adopted under the Agreement on the Protection of Workers' Health through the Proper Management and Use of Crystalline Silica and the Products containing it, by the European trade associations of workers and employers. Safe handling practices can be downloaded at the following link: <https://guide.nepsi.eu/>



Environmental protection measures

During the handling of the material avoid its dispersion in the environment.

7.1.2 General workplace hygiene information

Do not handle or store near food and beverages or smoking materials. In dusty environments, wear dust masks and goggles. Use protective gloves to avoid contact with the skin.

7.2 Conditions for safe storage, including any incompatibilities

White cement must be stored in waterproof, dry (e.g. with minimal internal condensation), clean and protected from contamination.

Risk of burial: concrete can thicken or adhere to the walls of the confined space in which it is stored. Cement can collapse, collapse or fall unexpectedly.

To prevent burial or suffocation, do not enter confined spaces, such as silos, containers, bulk trucks, or other storage containers or containers that store or contain cement without taking appropriate safety measures.

Do not use aluminum containers for storage or transportation of mixtures containing wet cement due to incompatibility of materials.

7.3 Special end-uses

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

8. EXPOSURE/PERSONAL PROTECTION CONTROLS

8.1 Control parameters

The time-weighted threshold limit value (TLV-TWA) adopted in the workplace for Portland cement by the American Industrial Hygienists Association (ACGIH) is 1 mg/m³ (respirable fraction). For the indication of the level of exposure we have:

DNEL (breathable fraction): 1 mg/m³

DNEL (skin): not applicable

DNEL (ingestion): not relevant

As far as the environmental risk assessment is concerned, there is:

PNEC (water): not applicable

PNEC (sediment): not applicable

PNEC (soil): not applicable

In relation to the possible presence of free crystalline silica in the respirable fraction, for the professional user to comply with the occupational exposure limits to respirable crystalline silica in the 8 working hours (OEL (EU) = 0.1 mg/ m³ (respirable fraction, 8h) VLEP (IT) = 0.1 mg/ m³ (respirable fraction, 8h) - All. XLIII D. Lgs. 81/2008)

The American Conference of Governmental Industrial Hygienists (ACGIH) recommends a threshold value of 0.025 mg/ m³.



8.2 Exposure controls

For each individual Process Category (PROC), the user can choose between options A) and B) set out in Table 8.2.1 below, depending on what is best suited to their specific situation. If an option is chosen, it shall be selected in Table 8.2.2 of Section 8.2.2 "Personal Protective Measures , Such as Personal Protective Equipment – Specifications for Respiratory Protective Equipment". Therefore, only combinations between A) – A) and B) – B) are possible.

8.2.1 Suitable technical inspections

In plants where cement is handled, transported , loaded, loaded and discharged and stored, measures must be taken to protect workers and to contain dust inputs into the workplace as indicated in the table (**DNEL = 1 mg/ m³**). The localized controls will be defined in relation to the situations in place and consequently the corresponding specific equipment for respiratory protection will be identified, indicated in the table in point 8.2.2.

Utilisation	PROC*	Exhibition	Localized controls	Efficiency
Industrial Production/Formulation of Hydraulic Materials for Building and Construction	2, 3	Duration not limited (up to 480 minutes per shift, 5 shifts per week); (#) < 240 minutes	Not required	-
	14, 26		A) not required or B) general local exhaust ventilation	- 78 %
			5, 8b, 9	local general exhaust ventilation
Industrial uses of hydraulic materials for building and construction (indoor, outdoor)	2		Not required	-
	14, 22, 26		A) Not required or B) general local exhaust ventilation	- 78 %
			5, 8b, 9	local general exhaust ventilation
Industrial uses of wet suspensions or hydraulic materials for building and construction	7		A) Not required or B) general local exhaust ventilation	- 78 %
	2, 5, 8b, 9, 10, 13, 14		Not required	-
Professional use of hydraulic materials for building and dry construction (indoor, outdoor)	2		A) Not required or B) general local exhaust ventilation	- 72 %
	9, 26		A) Not required or B) general local exhaust ventilation	- 72 %
			5, 8a, 8b, 14	local general exhaust ventilation
	19 (#)		Localized controls are not applicable, the process only in well-ventilated or outdoor environments	-
Professional uses of wet suspensions of hydraulic materials for building and construction	11	A) Not required or B) general local exhaust ventilation	- 72 %	
	2, 5, 8a, 8b, 9, 10, 13, 14, 19	Not required	-	

*PROC are the uses identified as defined in Section 1.2.

8.2.2 Personal protective measures such as personal protective equipment

General: In plants where white cement is handled, transported, loaded and discharged, stored, appropriate measures must be taken to protect workers and to contain emissions into the workplace. You should not eat, drink or smoke while working with the mixture to avoid contact with your skin or mouth.

Immediately after moving/handling cement or products/preparations that contain it, it is necessary to wash with neutral soap or adequate light detergent or use moisturizers.

Dispose of contaminated clothes, footwear, glasses, etc. and clean them completely before reusing them.



Eye/face protection



Wear approved goggles or safety masks in accordance with EN 166 when handling dry or damp cement to prevent contact with eyes.

Skin protection



Use gloves with mechanical resistance to abrasion according to EN ISO 388 with nitrile coating or alternatively neoprene, preferably for 3/4 or totally in case of heavier activities. In the case of possible contact with wet substance use a glove with specific chemical protection according to EN ISO 374 with specific thickness and degree of permeation (in particular alkalis) according to the type of use (immersion or possible accidental contact). Always change damaged or soaked gloves immediately. In some circumstances, such as for laying concrete or screed, waterproof pants or knee pads are required.

Respiratory protection



When a person is potentially exposed to dust levels above the exposure limits, use appropriate respiratory protections commensurate with the level of dustiness and comply with the relevant EN standards (e.g. filtering facial certified according to EN 149).

Personal protective equipment defined according to localized controls and evaluated for a DNEL value = 1 mg/m³, are shown in the Table.

Utilization	PROC*	Exhibition	Specific equipment for respiratory protection (RPE)	RPE Efficiency – Assigned Protection Factor (APF)
Industrial Production/Formulation of Hydraulic Materials for Building and Construction	2, 3	Duration not limited (up to 480 minutes per shift, 5 shifts per week); (#) < 240 minutes	Not required	-
	14, 26		A) P2 mask (FF) or B) P1 mask (FF)	APF = 10 APF = 4
	5, 8b, 9		P2 Mask (FF)	APF = 10
Industrial uses of hydraulic materials for building and dry construction (indoor, outdoor)	2		Not required	-
	14, 22, 26		A) P2 mask (FF) or B) P1 mask (FF)	APF = 10 APF = 4
	5, 8b, 9		P2 Mask (FF)	APF = 10
Industrial uses wet suspensions or hydraulic materials for building and construction	7		A) P3 mask (FF) or B) P2 mask (FF)	APF = 20 APF = 10
	2, 5, 8b, 9, 10, 13, 14		Not required	-
Professional use of hydraulic materials for building and dry construction (indoor, outdoor)	2		A) P2 mask (FF) or B) P1(FF) Mask	APF = 10 APF = 4
	9, 26		A) P3 mask (FF) or B) P2 mask (FF)	APF = 20 APF = 10



Utilization	PROC*	Exhibition	Specific equipment for respiratory protection (RPE)	RPE Efficiency – Assigned Protection Factor (APF)
	5, 8a, 8b, 14		P3 Mask (FF)	APF = 20
	19 (#)		P3 Mask (FF)	APF = 20
Professional uses of wet suspensions of hydraulic materials for building and construction	11		A) P3 mask (FF) or B) P2 mask (FF)	APF = 20 APF = 10
	2, 5, 8a, 8b, 9, 10, 13, 14, 19		Not required	-

*PROC are the uses identified as defined in Section 1.2.

A review of the APF of the different RPEs (in accordance with EN 529:2005) can be consulted in the MEASE glossary (16).

Thermal hazards

Not applicable

8.2.3 Environmental exposure controls

See roadworthiness measures (section 8.2.1) to avoid dispersion of the mixture into the environment.

Take measures to ensure that the mixture does not reach the water (sewage systems or groundwater or surface water).

In plants where white cement is handled, transported, loaded, loaded and discharged and stored, appropriate measures must be taken to contain inputs into the workplace. In particular, preventive measures must ensure that the concentration of respirable particulate matter is contained within the time-weighted threshold limit value (TLV-TWA) adopted by the Association of American Industrial Hygienists (ACGIH) for cement Portland.

The control of environmental exposure for the emission of cement particles into the air must be carried out according to the available technology and the regulations concerning dust particle emissions in general.

The control of environmental exposure is relevant to the aquatic environment as cement emissions at different stages of the life cycle (production and use) applied mainly to soil and wastewater. The aquatic effect and risk assessment cover the effect on organisms/ecosystems due to possible pH changes related to hydroxide release. It is believed that the toxicity of other dissolved inorganic ions may be negligible compared to the potential effect of pH.

Any other effects that may occur during production and use are to be deemed to take place on a local scale. The pH of the drain and surface water should not exceed the value 9. Otherwise, it could have an impact on urban wastewater treatment plants (STPs) and industrial wastewater treatment plants (WWTPs). For such an exposure assessment, a step-by-step approach is recommended.

Level 1: Retrieve information on the pH of the discharge and the contribution of the cement to the resulting pH. If the pH were to be above 9 and predominantly attributable to cement, then further action would be required to demonstrate safe use.

Level 2: Retrieve information about the pH of the water collected after the discharge point. The pH value should not exceed the value of 9.

Level 3: Measure the pH in the collected water after the discharge point. If the pH is below 9, safe use is reasonably demonstrated. If the pH is higher than 9, risk management measures must be implemented: the discharge must be subjected to neutralization, so as to make the use of cement safe during production or the use phase.

No special emission control measures are required for exposure to the terrestrial environment.

For more details, see Section 6.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on fundamental physical and chemical properties



- a) Physical state: cement is a powdered inorganic solid material
- b) Color: gray or white powder (dry cement)
- c) Odour: odourless
- d) Melting point / freezing point: > 1250 ° C / n.p.
- e) Boiling point or initial boiling point and boiling range: Not applicable since, under normal atmospheric conditions, the melting point > 1250 °C
- f) Flammability (solid, gas): Not applicable as it is a solid that is not combustible and does not cause or contribute to the ignition of fires by rubbing
- g) Upper/lower explosive limits: Not applicable as it is not a flammable gas
- h) Flash point: not applicable as it is not a liquid
- i) Auto-ignition temperature: not applicable (no pyrophoricity - no organo-metallic, organo-metalloid or organo-phosphine bond or their derivatives, and no other pyrophoric constituents in the composition)
- j) Decomposition temperature: not applicable, as there is no organic peroxide present
- k) pH: (T = 20 ° C in water, water-to-solid ratio 1:2): 11-13.5
- l) Kinematic viscosity: not applicable, as it is not liquid
- m) Solubility in water (T = 20 ° C): light (0.1-1.5 g / l)
- n) Partition coefficient: n-octanol/water: not applicable as it is an inorganic mixture
- o) Vapour pressure: not applicable since the melting point > 1250°C
- p) Density and/or relative density: 2.75-3.20 g/ cm³; bulk density: 0.9-1.5 g/cm³
- q) Relative vapour density: Not applicable since the melting point > 1250°C
- r) Particle characteristics: main particle size: 5-30 µm

9.1 Other information

Not applicable.

9.2.1 Information relating to the classification of physical hazard

Not applicable

9.2.2 Other security features

Not applicable

10. STABILITY AND REACTIVITY

10.1 Reactivity

When mixed with water, white cement hardens forming a stable mass that does not react with the environment.

10.2 Chemical stability

Cement as it stands is stable the longer the more properly stored it is (see Section 7). It must be kept dry. Contact with incompatible materials should be avoided.

Wet cement is alkaline and incompatible with acids, ammonium salts, aluminum and other non-noble metals. Cement in contact with hydrofluoric acid decomposes to produce corrosive silicon tetrafluoride gas. Cement reacts with water and forms silicates and calcium hydroxide. The silicates in cement react with powerful oxidants such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride and oxygen bifluoride.

The integrity of the packaging and compliance with the storage methods mentioned in point 7.2 (special closed containers, cool and dry place and absence of ventilation) are indispensable conditions for maintaining the effectiveness of the reducing agent during the storage period specified on the bag or on the DDT.

10.3 Possibility of dangerous reactions

Cement does not cause dangerous reactions.

10.4 Conditions to avoid

Moisture conditions during storage can cause the formation of lumps and loss of product quality.



10.5 Incompatible materials

Wet white cement is alkaline and incompatible with acids, ammonium salts, aluminum and other non-noble metals. In contact with aluminum powders, wet white cement causes hydrogen to form.

10.6 Dangerous decomposition products

White cement does not decompose into any dangerous product.

11. TOXICOLOGICAL INFORMATION

11.1 Information on the hazard classes defined in Regulation (EC) No 1272/2008

Hazard class	Cat	Effect	Bibliograph
Acute - dermal toxicity	-	Limit test on rabbit, contact 24 hours, 2,000 mg/kg body weight – non-lethal. Based on available data, it does not fall within the classification criteria	(2)
Acute toxicity - inhalation	-	No acute inhalation toxicity observed. Based on available data, it does not fall within the classification criteria	(9)
Acute - oral toxicity	-	No indication of oral toxicity from studies with cement kiln powder. Based on available data, it does not fall within the classification criteria	From bibliographic review
Skin corrosion/irritation	2	Cement in contact with damp skin can cause thickening, cracking and cracking of the skin. Prolonged contact in combination with existing abrasions can cause severe burns. Some individuals may develop eczema as a result of exposure to wet cement dust, caused by the high pH that can induce irritating contact dermatitis after prolonged contact.	(2) Experiences on man
Severe eye damage/irritation	1	Clinker caused a set of heterogeneous effects on the cornea and the calculated irritation index was 128. Direct contact with cement can cause corneal lesions due to mechanical stress, irritation or immediate or delayed inflammation. Direct contact with large amounts of dry cement or with wet cement projections can cause effects ranging from moderate eye irritation (e.g. conjunctivitis or blepharitis) to chemical burns and blindness.	(10), (11)
Skin sensitization	1B	Some individuals may develop eczema as a result of exposure to wet cement powder, caused by an immunological reaction to soluble Cr(VI) that causes allergic contact dermatitis. The response can appear in a variety of forms that can range from a mild rash to severe dermatitis. No sensitisation effect is expected if the cement contains a water-soluble Cr(VI) reducing agent until the indicated period of efficacy of that reducing agent has been exceeded (reference (3)).	(3), (4), (17)
Respiratory sensitization	-	There are no indications of sensitization of the respiratory system. Based on available data, it does not fall within the classification criteria.	(1)
Germ cell mutagenicity	-	No indication. Based on available data, it does not fall within the classification criteria.	(12), (13)
Carcinogenicity	-	No causal association has been established between exposure to Portland cement and cancer. Epidemiological literature does not support the identification of Portland cement as suspected carcinogenic to humans. Portland cement is not classifiable as carcinogenic to humans (under ACGIH A4: agents that cause concern about the possibility of being carcinogenic to humans but that cannot be definitively evaluated due to 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, it does not fall within the classification criteria.	(1) (14)
Reproductive toxicity	-	Based on available data, it does not fall within the classification criteria.	No evidence from human experience
STOT – single exposure	3	Cement dust can irritate the throat and respiratory system. Coughing, sneezing and wheezing may occur as a result of exposure above occupational exposure limits. Overall, the elements collected clearly indicate that occupational exposure to cement dust produced deficits in respiratory function. However, the evidence available at the moment is insufficient to establish with certainty the dose-response relationship for these effects.	(1)



Hazard class	Cat	Effect	Bibliograph
STOT – repeated exposure	-	Long-term exposure to respirable cement dust above the occupational exposure limit can 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)
Danger in case of suction	-	Not applicable since cement is not used as an aerosol.	

Except for skin sensitization, Portland cement clinker and cements have the same toxicological and eco-toxicological properties.

Clinical conditions aggravated by exposure

Inhalation of cement can aggravate existing diseases of the respiratory system and/or clinical conditions such as emphysema or asthma and/or existing skin and eye situations.

11.2 Information on other hazards

11.2.1 Endocrine interference properties

Not applicable

11.2.2 Other information

Not applicable

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Cement is not dangerous for the environment. Ecotoxicity tests with Portland cement on *Daphnia magna* [Bibliography (5)] and *Selenastrum coli* [Bibliography (6)] demonstrated a small toxicological impact. Therefore the LC50 and EC50 values cannot be determined [Bibliography (7)]. There are no indications of toxicity in the sedimentary phase [Bibliography (8)]. Adding large amounts of cement to the water can, however, cause an increase in pH and can, therefore, be toxic to aquatic life under certain circumstances.

12.2 Persistence and degradability

Not relevant, since white cement is an inorganic material. After hardening, the cement does not present a risk of toxicity.

12.3 Bioaccumulation potential

Not relevant, since white cement is an inorganic material. After hardening, the cement does not present a risk of toxicity.

12.4 Mobility in the soil

Not relevant, since white cement is an inorganic material. After hardening, the cement does not present a risk of toxicity.

12.5 PBT and vPvB Assessment Results

Not relevant, since white cement is an inorganic material. After hardening, the cement does not present a risk of toxicity.

12.6 Endocrine disrupting properties

Not relevant

12.7 Other adverse effects

Not relevant



13. DISPOSAL CONSIDERATIONS

White cement and any packaging destined for disposal must be managed according to the provisions of Part IV "Waste management standards" of Legislative Decree 152/2006 "Environmental standards" and s.m.i. and related implementing decrees.

13.1 Waste treatment methods

Do not dispose of in sewage systems or surface water.

Product – unused residue or dry spillage

Collect unused dry residues or dry spills as is. Where appropriate, reuse based on shelf life considerations and the obligation to avoid exposure to dust. In case of disposal manage pursuant to Legislative Decree 152/2006 and subsequent.

Product – sludge

Allow to harden, avoid entry into sewage and drainage systems or into water bodies (for example, streams) and dispose of as explained below in "Product - after adding water, hardened".

Product - after adding water, hardened

Dispose of according to Legislative Decree 152/2006 and subsequent . Avoid entry into the sewage system.

Packaging

Empty the packaging and handle it in accordance with current regulations. The assignment of the EER code must be carried out in accordance with the Guidelines adopted pursuant to art. 184, co.4 of Legislative Decree 152/2006 and subsequent.

14. TRANSPORT INFORMATION

Cement is not regulated by international regulations for the transport of dangerous goods: IMDG (by sea), ADR (by road), RID (by rail), IATA (by air), and therefore no classification is required. No special precautions are necessary apart from those mentioned in Section 8. During transportation, avoid wind dispersion, using closed containers.

14.1 UN number or ID number

Not relevant.

14.2 Official UN Transport Designation

Not relevant.

14.3 Transport hazard classes

Not relevant.

14.4 Packing group

Not relevant.

14.5 Dangers to the environment

Not relevant.

14.6 Special precautions for users

Not relevant.

14.7 Maritime transport in bulk in accordance with IMO acts

Not relevant.



15. REGULATORY INFORMATION

15.1 Mixture-specific laws and regulations on health, safety and the environment

- Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of use of Chemicals (REACH) and s.m.i.
- Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures, with amendment and repeal of Directives 67/548/EEC and 1999/45/EC and Regulation 1907/2006/EC (CLP) and subsequent amendments.
- Legislative Decree 9/04/2008 n. 81 and subsequent .m.i. "Implementation of Article 1 of Law 3 August 2007, n. 123, on the protection of health and safety in the workplace".
- EN 196/10 - "Test methods for cement – Part 10: Determination of the water-soluble chromium VI content of cement
- EN 197/1 – "Cement – Composition, specifications and conformity criteria for common cements"
- EN 15368 Hydraulic binder for non-structural applications - Definition, specifications and conformity criteria
- EN 413-1 Masonry cement - Part 1: Composition, specifications and conformity criteria
- EN 14216 Cement - Composition, specifications and conformity criteria for special heat-hydration cements
- Legislative Decree 152/2006 "Environmental regulations" and subsequent .
- Regulation 2020/1677/EU 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 practicability of health emergency response information requirements
- Legislative Decree no. 44 of 1 June 2020 "Implementation of Directive (EU) 2017/2398 of the European Parliament and of the Council of 12 December 2017 amending Council Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work.
- Decree no. 47 of 9 August 2021 approving the "Guidelines on the classification of waste" referred to in the resolution of the Council of the National System for the Protection of the Environment of 18 May 2021, n.105, as required by art. 184, paragraph 5 of d.lgs. n. 152 of 2006, as amended by d.lgs. n. 116 of 2020.

Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), in Annex XVII, point 47, as amended by Regulation No. 552/2009, imposes a ban on the marketing and use of cement and its preparations if they contain, once mixed with water, more than 0.0002% (2 ppm) of water-soluble chromium VI on the total dry weight of the cement itself. **Considering that white cement, when mixed with water, contains no more than 0.0002% (2 ppm) of water-soluble Cr(VI) by total dry weight, the same mixture can be marketed without the addition of reducing agents.**

Since cement is a mixture, as such it is not subject to the registration requirement of REACH, which concerns substances. Cement clinker is a substance, but it is exempt from registration under Article 2.7(b) and Annex V.10 of REACH.

If some substances used in cement require the registration and preparation of the related exposure scenarios, they will be included in the annex to the SDS when they are available.

15.2 Chemical Safety Assessment

No chemical safety assessment is required

16. OTHER INFORMATION

16.1 Indication of changes

This Safety Data Sheet has been revised pursuant to Regulation (EU) 2020/878 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and to take account of the updating of the reference standards for Protective Equipment Individual.



16.2 Abbreviations and acronyms

ACGIH: American Conference of Industrial Hygienists

ADR/RID: Agreement on the transport of dangerous goods by road/Regulations on the international transport of dangerous goods by rail

APF: Assigned Protection Factor

CAS: Chemical Abstract Service

CLP: Classification, Labelling and Packaging (Regulation 1272/2008)

COPD: Chronic Obstructive Pulmonary Disease

DDT: Transport document

DNEL: Derived no-effect level

PPE: Personal Protective Equipment

EC50: half maximale effective concentration

ECHA: European Chemical Health Agency

EPA: High Efficiency Air Filters (Particulate Matter)

FF P: Filtering Facepiece against Particles (disposable)

FM P: Filtering Mask against Particles with filter cartridge

IATA: International Air Transport Association

IMDG: International Maritime Dangerous Goods

IMO: International Maritime Organization

IMSBC: International Maritime Solid Bulk Cargoes

LC50: Median lethal dose

MEASE: Metal Estimation and Assessment of Substance Exposure, EBRC Consulting GmbH for Eurometaux, <http://www.ebrc.de/industrial-chemicals-reach/projects-and-references/mease.php>

OEL: occupational exposure limit

PBT: Persistent, bioaccumulative and toxic

PNEC: Predicted no-effect concentration

PROC: Process Categories

RPE: Respiratory Protective Equipment

REACH: Registration, Evaluation and Authorization of Chemicals

SDS: Safety Data Sheet

STOT RE: Specific target organ toxicity (repeated exposure)

STOT SE: Specific target organ toxicity (single exposure)

TLV-TWA: Threshold Limit Value-Time Weighted Averages

UFI: Unique Formula Identifier

vPvB: very persistent, very bioaccumulative

16.3 References and main 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) 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 GmgH for Eurometaux,
- (17) Occurrence of allergic contact dermatitis caused by chromium in cement. A review of epidemiological investigations, Kåre Lenvik, Helge Kjuus, NIOH, Oslo, December 2011.

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

The following table lists the classification and procedures adopted to derive the classification of the mixture in accordance with Regulation 1272/2008/EU (CLP)

Classification according to Regulation (EC) 1272/2008	Classification procedure
Skin irritation 2, H315	Based on test data
Eye lesions 1, H318	Based on test data
Skin sensitization 1B, H317	Human experience
STOT SE 3, H335	Human experience

The data and test methods used for the classification of common cements are given in Section 11.1.

16.5 Current hazard statements and precautionary statements (Respiratory or skin sensitization Severe eye injuries / severe eye irritation STOT-single exposure)

See Section 2

16.6 Training advice

In addition to environmental, health and safety training programmes for their workers, companies must ensure that workers read, understand and apply the requirements of this Safety Data Sheet.

16.7 Further information – Methods

If applicable, the manufacturer/importer may attach the exposure scenario (SE) of the relevant substances subject to



registration and classified as hazardous, if the information is not already contained in the card.

16.8 Disclaimer

The information contained in this SDS reflects the current available knowledge and it is reliable to expect the product to be used according to the prescribed conditions and in accordance with the indications provided on the packaging and / or in the technical literature. For any other use of the product, including the use of the product in combination with other products or in other processes, the responsibility lies with the user.

It is implied that the user is responsible for the security measures specifically identified and for the application of the appropriate operating procedures concerning the prevention of risks in its activities.

This SDS is also available in electronic format on the website: www.italcementi.it

