



REFRO 50 Calcium Aluminate Cement EN 14647

MATERIAL SAFETY DATA SHEET

Prepared in accordance with the Regulation on the Registration, Evaluation, Authorization and Restriction of Chemicals (Official Gazette dated 23.06.2017, No. 30105) and its amendments dated 23.12.2023.

Release Date: 29 April 2021
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Form No: EYS-MSDS-FR-132
Page No: 1

1- IDENTIFICATION OF SUBSTANCE/ MIXTURE AND OF THE COMPANY

1.1. Identification of the substance/mixture

REFRO 50 Calcium Aluminate Cement / EN 14647

UFI Code: C830-J0WK-G00R-6FWY

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

Cement is used as an hydraulic binder for the production of concrete, mortars, grouts, etc.

1.3. Company Identification

Company Name : Çimsa Çimento San. Ve Tic. A.Ş.
Address : Toroslar Mah. Tekke Cad. Yeni Taşkent 33013 Mersin /TURKEY
Telephone Number : +90 (0) 324 454 00 60
Fax Number : +90 (0) 324 454 00 75
Internet Address : www.cimsa.com.tr
E-mail : cimsa@cimsa.com.tr

1.4. Emergency Telephone Number

ÇİMSA : +90 (0) 324 454 00 60

Emergency telephone number is also available outside office hours.

2- HAZARD IDENTIFICATION

2.1 Classification of the substance or mixture

Physical hazards Not Classified

Health hazards Not Classified

Environmental Hazards Not Classified

2.2 Label Elements

Not Classified

Hazard Statements

-

2.3 Others hazards

Calcium Aluminate Cement does not contain any soluble chromium VI. The chromium content (VI) controlled in accordance with the standard EN 196-10 (below 2 ppm). Chrome reducing agents are not used.

When Calcium Aluminate Cement mixed with water, Calcium aluminates react chemically and harden. The reaction takes place is exothermic which results a temperature rise. If large quantities of cement is mixed with water, the temperature may increase enough to cause a risk of burns.

When Calcium Aluminate Cement contacts with water, an alkaline solution occurs with a pH of 10-12. In spite of the pH level, the alkaline reserve is limited.

Does not contain free crystalline silica.

3- COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances: Cement, Alumina.

3.2. Mixtures: Cement according to the EN 14647.

Substances which present a health or environmental hazard:

Substance	CAS No	EC No	Concentration (%)	Hazard Class	Hazard statements
Calcium Aluminate Cement	65997-16-2	266-045-5	100	-	-

CE Number of Calcium Aluminate Cement: 2404 – CPR – 0344

4- FIRST AID MEASURES

4.1 Description of first aid measures

General notes

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

After significant accidental inhalation

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

After contact with eyes

Don't rub eye as additional cornea damage is possible as a result of mechanical stress. Remove any contact lenses and open the eyelid(s) widely to flush eye(s) immediately by thoroughly rinsing with plenty of clean water for at least 20 minutes to remove all particles. Contact a specialist of occupational medicine or an eye specialist.

After skin contact

For dry cement, remove and rinse abundantly with water.

For wet cement, wash skin with water.

Remove contaminated clothing, footwear, watches, etc. and clean thoroughly before re-using them. Seek medical treatment in all cases of irritation or burns.

After significant accidental ingestion

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

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

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

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

Prolonged skin contact with wet cement or wet concrete may cause serious burns because they develop without pain being felt (for example when kneeling in wet concrete even when wearing trousers).

For more details see Reference (1).

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

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

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

When contacting a physician, take this SDS with you.

5- FIREFIGHTING MEASURES

Calcium Aluminate cement is not a flammable and explosive mixture.

5.1 Extinguishing media

All fire fighting methods are suitable.

5.2 Special hazards arising from the substance or mixture

Cements are non-combustible and non-explosive and will not facilitate nor support combustion of other materials.

5.3 Advise for fire-fighters

Cement poses no fire-related hazards. No need for specialist protective equipment for fire fighters. All equipment used for fire fighting is valid.

6- ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

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

6.1.2 For emergency responders

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

6.2 Environment precautions

Do not wash cement down sewage and drainage systems or into bodies of water (e.g. streams).

6.3 Methods and material for containment and cleaning up

Recover the spillage in a dry state if possible.

Dry cement:

Use dry cleanup methods that do not cause airborne dispersion, e.g. :

- Vacuum cleaner (Industrial portable units, equipped with high efficiency particulate filters (HEPA filter) or equivalent technique).
- Wipe-up the dust by mopping, wet brushing or by using water sprays or hoses (fine mist to avoid that the dust becomes airborne) and remove slurry.

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

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

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

Wet cement:

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

6.4. Reference to other sections

See sections 8 and 13 for more details.

7- HANDLING AND STORAGE

Do not handle or store near food and beverages or smoking materials.

7.1 Precautions for safe handling

Follow the recommendations as given under heading 8.

Avoid dust development:

- For (bagged) cement used in open-ended mixers: first add the water and then carefully add cement. Keep the height of fall low. Start the mixing smoothly. Do not compress empty bags, except when contained in another clean bag.
- To clean up dry cement See heading 6.3

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

7.2 Conditions for safe storage

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

To prevent burial or suffocation, do not enter a confined space, such as a silo, bin, bulk truck, or other storage container or vessel that stores or contains cement without taking the proper security measures. Cement can build-up or adhere to the walls of a confined space. The cement can release, collapse or fall

unexpectedly.

Packed products should be stored in unopened bags clear of the ground in cool, dry conditions and protected from excessive draught in order to avoid degradation of quality.

Bags should be stacked in a stable manner.

7.3 Specific end use(s)

Calcium Aluminate Cement does not contain any soluble chromium VI. Chrome reducing agents are not used.

8- EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Use local exhaust or general dilution ventilation or other suppression methods to maintain dust levels below exposure limits.

8.2 Exposure Controls

8.2.1 Appropriate engineering controls

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

8.2.2 Occupational exposure controls

General: During work avoid kneeling in fresh mortar or concrete wherever possible. If kneeling is absolutely necessary then appropriate waterproof personal protective equipment must be worn. Do not eat, drink or smoke when working with cement to avoid contact with skin or mouth.

Immediately after working with cement or cement- containing materials, workers should wash or shower or use skin moisturisers. Remove contaminated clothing, footwear, watches, etc. And clean thoroughly before re-using them.

Respiratory Protection: When a person is exposed to dust levels above exposure limits, use appropriate respiratory protection. It should be adapted to the dust level and conform to the relevant EN standart. Avoid creating airborne dust conditons. Local exhaust ventillation is preferred since it prevents release of contaminants in to the work area by controlling it at the source. If local or general ventillation is not adequate to control dust levels below exposure limits, use OES approved respirators.



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



Skin Protection: Use impervious, abrasion and alkali resistant gloves (made of low soluble Cr(VI) containing material) internally lined with cotton, boots, closed long- sleeved protective clothing as well as

skin care products (including barrier creams) to protect the skin from prolonged contact with wet cement. Particular care should be taken to ensure that wet cement does not enter the boots. In some circumstances, such as when laying concrete or screed, waterproof trousers or kneepads are necessary.



Thermal hazards

Not applicable.

8.2.3 Environmental exposure controls

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

Water : Do not wash cement into sewage systems or into bodies of water, to avoid high pH. Above pH 9 negative ecotoxicological impacts are possible.

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

9- PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

(a) **Appearance:** Dry cement is a finely ground solid inorganic brown dust.

(b) **Odour:** Odourless

(c) **Odour threshold:** Odourless

(d) **pH:** (T = 20°C in water, water-solid ratio 1:2): 10-12

(e) **Melting point:** > 1100 °C

(f) **Initial boiling point and boiling range:** Not applicable

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

(h) **Evaporation rate:** Not applicable as is not a liquid

(i) **Flammability (solid, gas):** Not applicable

(j) **Upper/lower flammability or explosive limits:** Not applicable as is not a flammable gas

(k) **Vapour pressure:** Not applicable.

(l) **Vapour density:** Not applicable.

(m) **Relative density:** 3,20-3,30; **Apparent density:** 1,0 -1,3 g/cm³

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

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

(p) **Auto-ignition temperature:** Not applicable

(q) **Decomposition temperature:** Not applicable as no organic peroxide present

(r) **Viscosity:** Not applicable as not a liquid

(s) **Explosive properties:** Not applicable. Not explosive or pyrotechnic. Not capable of a self-sustaining exothermic chemical reaction.

(t) **Oxidising properties:** Not applicable as does not cause or contribute to the combustion of other materials

9.2. Other information

Not applicable.

10- STABILITY AND REACTIVITY

10.1 Reactivity

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

10.2 Chemical stability

Dry Calcium Aluminate Cements are stable as long as they are stored properly (see Heading 7). When mixed with water, cements will harden into form a stable calcium aluminate hydrates. This reaction is exothermal and may last up to 24 hours.

10.3 Possibility of hazardous reactions

Cements dont cause hazardous reactions.

10.4 Conditions to avoid

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

10.5 Incompatible materials

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

10.6 Hazardous decomposition products

Cements will not decompose into other hazardous products and do not polymerise.

11- TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

- a) Acute Toxicity: Not applicable.
- b) Skin corrosion / irritation: Non-irritant
- c) Eye Damage/ irritation: Non-irritant
- d) Respiratory / skin sensitisation: Non-irritant

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

Some individuals may exhibit eczema upon exposure to wet cement, caused either by the high pH

which induces irritant contact dermatitis, or by an immunological reaction to soluble Cr (VI) which elicits allergic contact dermatitis [Reference (4)]. The response may appear in a variety of forms ranging from a mild rash to severe dermatitis and is a combination of those two mechanisms. An exact diagnosis is often difficult to assess.

Swallowing large quantities may cause irritation to the gastrointestinal tract.

- e) **Mutagenicity:** Not applicable.
- f) **Carcinogenicity:** Not applicable.
- g) **Toxic for reproduction:** Not applicable.
- h) **Specific target organ toxicity (single exposure)** Not applicable.
- i) **Specific target organ toxicity (repeated exposure):** Not applicable.
- j) **Aspiration hazard:** Not applicable.

12- ECOLOGICAL INFORMATION

12.1 Toxicity

The product is not expected to be hazardous to the environment (LC50 aquatic toxicity not determined). The addition of large amounts of cement to water may, however, cause a rise in pH and may, therefore, be toxic to aquatic life under certain circumstances.

12.2 Persistence and degradability

Not applicable. After hardening, cement presents no toxicity risks.

12.3 Bioaccumulative potential

Not applicable. After hardening, cement presents no toxicity risks.

12.4 Mobility in soil

Not applicable. After hardening, cement presents no toxicity risks.

12.5 Results of PBT and vPvB assessment

Not applicable as cement is an inorganic material. After hardening, cement presents no toxicity risks.

12.6 Other adverse effects

Not applicable.

13- DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Do not dispose of into sewage systems or surface waters.

Product-Cement that has exceeded its shelf life

EWC entry: 10 13 99 (wastes 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.

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Form No: EYS-MSDS-FR-132
Page No: 10

Product-unused residue or dry spillage

EWC entry: 10 13 06 (Other particulates and dust)

Pick up dry. Mark the containers. Possibly reuse depending upon shelf-life considerations and the requirement to avoid dust exposure. In case of disposal, harden with water and dispose according to "Product-after addition of water, hardened".

Product-slurries

Allow to harden, avoid entry in sewage and drainage systems or into bodies of water (e.g. streams) and dispose of as indicated in "Product-after addition of water, hardened".

Product-after addition of water, hardened.

Dispose of according to the local legislation. Avoid entry into the sewage water system. Dispose of the hardened product as concrete waste. Due to the inertisation, concrete waste is not a dangerous waste.

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

Packaging

Completely empty the packaging and process it according to local legislation.

EWC entries: 15 01 01(wastepaper 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 precautions are needed apart from those mentioned under Heading 8.

14.1. UN number

Not relevant

14.2. UN proper shipping name

Not relevant

14.3. Transport hazard class(es)

Not relevant

14.4. Packing group

Not relevant

14.5. Environmental hazards

Not relevant

14.6. Special precautions for user

Not relevant

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

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Form No: EYS-MSDS-FR-132
Page No: 11

Not relevant

15- REGULATORY INFORMATION

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

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).

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

REACH requirements:

Cement is a mixture according to REACH and is not subject to registration. Cement clinker is exempt from registration (Art 2.7 (b) and Annex V.10 of REACH). However, some substances in the mixture cement might require registration and an exposure scenarios. The necessary exposure scenarios will be added in the annex to this SDS as soon as these substances have been registered and the exposure scenarios have been received from the registrant.

15.2 Chemical Safety Assessment

No chemical safety assessment has been carried out for this mixture by the supplier.

16- OTHER INFORMATION

Hazard Statements

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Storage / Disposal

There is no Precautionary Statement.

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Form No: EYS-MSDS-FR-132
Page No: 12

Abbreviations:

- IMDG : International Maritime Dangerous Goods
- IATA : International Air transport Association
- ADR/RID : Agreement on the transport of dangerous goods by road/Regulations on the international transport of dangerous goods by rail
- LC50 : Lethal Concentration where 50% of the test animals dies.
- VPvB : Very persistent, very bio-accumulative
- PBT : Persistent, bio-accumulative and toxic
- EWC : European Waste Catalogue
- REACH : Registration, Evaluation and Authorisation of Chemicals

References:

- (1) Portland Cement Dust- Hazard assessment document EH75/7, UK Health and Safety Executive, 2006. Available from:
<http://www.hse.gov.uk/pubns/web/portlandcement.pdf>
- (2) Observations on the effects of skin irritation caused by cement, Kietzman et al, Dermatosen, 47, 5, 184-189 (1999).
- (3) European Commission's Scientific Committee on Toxicology, Ecotoxicology and the Environment (SCTEE) opinion of the risks to health from Cr (VI) in cement (European Commission, 2002).
- (4) Epidemiological assessment of the occurrence of allergic dermatitis in workers in the construction industry related to the content of Cr (VI) in cement, NIOH, Page 11, 2003.

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

Certificate Number of Expert : TÜV/01.274.16