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1. PRODUCT AND COMPANY INFORMATION

1.1. IDENTIFICATION OF THE PREPARATION

Material Identity (Synonyms) : Nuh Çimento labelled cement products include:

TS EN 197 - 1 : 2012

EN 197 - 1 : 2011

CEM I 42,5 R

1.2. USE OF THE PORTLAND CEMENT (CEM I 42.5 R)

Cement is used as an hydraulic binder in concrete and mortars that are widely used in construction. Cement is distributed in bags, totes and bulk shipment.


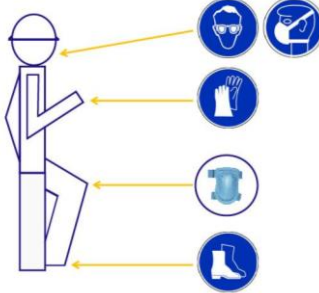
1.3. COMPANY IDENTIFICATION


Manufacturer' s Name : NUH ÇİMENTO SANAYİ A.Ş.
 Address : Akyar Mevkii Hereke 41800 Kocaeli – Turkey
 Internet Address : www.nuhcemento.com.tr

1.4. EMERGENCY TELEPHONE

(Also available outside office hours)
 Telephone Number for Emergency : 00 90 262 316 20 00
 National Poison Solidarity Center : 114

2. HAZARD IDENTIFICATION

	WARNING	
	<p>Danger</p> <p>Causes serious eye damage</p> <p>Causes skin irritation</p> <p>May cause an allergic skin reaction</p> <p>May cause respiratory irritation</p> <p>Use proper engineering controls, work practices and personel protective equipment to prevent exposure to wet or dry product.</p> <p>Read MSDS for details.</p>	

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NOTE: Wear protective gloves/protective clothing/eye protection/face protection

Danger

H318 Causes serious eye damage

H315 Causes skin irritation

H317 May cause an allergic skin reaction

H335 May cause respiratory irritation

Emergency Overview

: Cement is a solid, grey, odorless powder. A single, short-term exposure to the dry powder presents little or no hazard. Exposure of sufficient duration to wet cement or to dry cement on moist areas of the body, can cause serious, potentially irreversible tissue (skin, eye, respiratory tract) damage due to chemical (caustic) burns, including third degree burns. Use exposure control or personal protective equipments.

Potential Health Effects

Inhalation

:(Acute) Breathing dust may cause nose, throat or lung irritation, including choking, depending on the degree of exposure. Inhalation of high levels of airborne cement dust may cause chemical burns to the nose, throat and lungs.

(Chronic) Chronic bronchitis and long disease may result from chronic exposure to dust. This product contains crystalline silica. Prolonged or repeated inhalation of respirable crystalline silica from this product can cause silicosis, a seriously disabling and fatal lung disease.

Cement is not listed as a carcinogen by IARC or NTP; however cement contains trace amounts of crystalline silica and hexavalent chromium which are classified by IARC and NTP as known human carcinogens.

Some studies show that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis may be associated with the increased incidence of several autoimmune disorders such as scleroderma (thickening of the skin), diseases affecting the kidneys.

Silicosis increases the risk of tuberculosis.

Skin Contact

:Cement may cause dry skin, discomfort, irritation, severe burns and dermatitis.

Burns

:Exposure of sufficient duration to wet cement, or to dry cement on moist areas of the body, can cause serious, potentially irreversible damage to skin, eye, respiratory and digestive tracts due to chemical (caustic) burns, including third degree burns. A skin exposure may be hazardous even if there is no pain or discomfort.

Dermatitis

:Cement is capable of causing dermatitis by irritation and allergy. Skin affected by dermatitis may include symptoms such as redness, itching, rash, scaling and cracking.

Irritant dermatitis is caused by the physical properties of cement including alkalinity and abrasion.

Allergic contact dermatitis is caused by sensitization to hexavalent chromium (chromate) present in cement. The reaction can range from a mild rash to severe skin ulcers. Persons already sensitized may react to the first contact with cement. Others may develop allergic dermatitis after years of repeated contact with cement.

Eye Contact

:Airborne dust may cause immediate or delayed irritation or inflammation. Eye contact with large amounts of dry powder or with wet cement may



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cause eye irritation, chemical burns and possible corneal damage. Eye exposures require immediate first aid and medical attention to prevent significant damage to the eye.

Ingestion

:Do not ingest cement. Although ingestion of small quantities of cement is not known to be harmful, large quantities dry cement or unhardened wet cement causes esophagus and stomach burns.

Environment

:Under normal use, the product is not expected to be hazardous to the environment.

3.1 CHEMICAL COMPOSITION


Substance	Concentration range (by weight in cement)	CAS NO	EINECS	Symbol [C&L]	H	Pre-register numbers
Portland Cement Clinker	85-98 %	65997-15-1	266-043-4		H318 H315 H317 H335	Exempt from register, (See REACH Regulation, Annex V)
Gypsum	2-10 %	13397-24-5				Exempt from register see REACH Regulation, Annex V)
Calcium carbonate (minor additional constituent)	0-5 %	1317-65-3	215-279-6			Exempt from register see REACH Regulation, Annex V)

Cement is made from materials mined from the earth and is processed using energy provided by fuels. Trace amounts of chemicals may be detected during chemical analysis. For example, cement may contain trace amounts of calcium oxide (also known as free lime or quick lime), free magnesium oxide, potassium and sodium sulfate compounds, chromium compounds and other trace compounds.

Relevant standard: TS EN 197-1:2012, EN 197-1:2011 CEM I 42.5 R PORTLAND CEMENT

3.2 COMPONENTS PRESENTING A HEALTH HAZARD

This cement contains soluble chromium (Cr(VI+)). May produce an allergic reaction. This cement is for controlled closed and totally automated processes only – must not be in contact with human skin because it may contain above 0.0002 % soluble chromium (Cr(VI+)).

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4. FIRST AID MEASURES

When contacting a physician, take this MSDS with you.


- Eye Contact** :Do not rub eyes as additional cornea damage is possible by mechanical stress. Remove any contact lenses and open the eyelids widely to flush eyes immediately by thoroughly rinsing with plenty of clean water for at least 45 minutes to remove all particles. If possible, use isotonic water (0.9 % NaCl). Contact a specialist of occupational medicine or an eye specialist.
- 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.
- 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 subside.
- 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 anti poison centre.

5. FIRE-FIGHTING MEASURES

- Flashpoint and Method** :Cement is non-combustible and non-explosive and will not facilitate nor support combustion of other materials.
- Extinguishing Media**:All types of extinguishing media are suitable.
- Fire Fighting Equipment** :Cement poses no fire-related hazards. No need for specialist protective equipment for fire fighters.
- Combustion Products**:None
- Flammable Limits** :Lower explosion limit LEL – Upper explosion limit UEL: Not applicable.
- Special Fire Fighting Limit** :Be aware of runoff from fire control methods. Do not release material to sewers or waterways as product reacts with water and hardens within 1 to 6 hours. Hardened material may clog sewers and waterways.

6. ACCIDENTAL RELEASE MEASURES

- Personel Protective Measures** : Wear protective equipment as described under Heading 8 and follow the advice for safe handling and use given under Heading 7. Emergency procedures are not required.
- Environmental Protection Measures** : Do not wash cement down sewage and drainage systems or into bodies of water (e.g. streams)
- Methods for 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:

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- Vacuum cleaner (industrial portable units, equipped with high efficiency particulate filters (HEPA filter) or equivalent technique).
- Wipe-out the dust by mopping, wet brushing or 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 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 under Heading 13.

7. HANDLING AND STORAGE

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

Handling : Follow the recommendation as given under Heading 8.

Avoid dust development:

- For (bagged) cement used in open-ended mixers: first add the water and then carefully add the cement. Keep the height of the 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.

Storage:

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

Engulfment hazard: To prevent burial or suffocation, do not enter a confined space, such as a silo, bin, bulk truck, or other storage container or vessel that stores or contains 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. Avoid from direct sunlight .

Control of Soluble Chromium(VI+):

See heading 15. Contains soluble chromium (Cr(VI+)) which may cause allergic reaction. Hence do not touch the cement to human skin. Use personal protection equipment.

8 .EXPOSURE CONTROLS AND PERSONEL PROTECTION

Name	Limit Value for	Limit value type	Value (as 8 h TWA)	Unit
Portland Cement *	General dust	OEL inhalable	10	mg/m ³



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Calcium oxide	General dust	OEL inhalable	5	mg/m ³
Magnezium Oxide		OEL inhalable	15	mg/m ³
Crystalline Silica		OEL Respirable	0.05	[(10) / (%SiO ₂ +2)] (R);

Note: Exposure limits for components noted with an * contain no asbestos and <1% crystalline silica.

Exposure controls:

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 moisturers.


Remove contaminated clothing, footwear, watches, etc and clean thoroughly before re-using them.

Respiratory Protection: Provide local exhaust or general ventilation system to control dust levels below the OSHA, PEL, MSHA, PELs and ACGIH TLVs. Avoid creating airborne dust conditions. Local exhaust ventilation is preferred since it prevents release of contaminants in to the work area controlling it at the source. If local or general ventilation is not adequate to control dust levels below exposure limits use MSHA/NIOSH approved respirators. When a person is exposed to dust above exposure limits, use appropriate respiratory protection. It should be adapted to the dust level and conform to the relevant EN standard.

Skin Production :If hands or feet will be immersed in cement, wear impervious, abrasion and alkali resistant gloves (made of low soluble chromium (Cr(VI+)) containing material and internally lined with cotton), boots, closed long- sleeved protective shirt, long pants or other protective clothing to prevent skin contact. Use additionally 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. Wash work clothes after each use. If contact occurs, wash areas contacted by material with pH neutral soap and water.

Eye Production :Wear approved safety glasses with side shields or goggles according to EN 166 to protect the eyes. In high dusty environments wear tightly fitting goggles to avoid eye irritation or injury.

Environmental Exposure Controls :According to available technology.

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9 .PHYSICAL AND CHEMICAL PROPERTIES

General Information	:Dry cement is a finely ground inorganic material (odourless, grey or white powder)
Physical Data	:Main particle size: 5 – 30 micrometer :Solubility in water (T=20°C); slight (0.1 – 1.5 g/l) :Density 2.75 – 3.20 g/cm ³ :Apparent density density (ES): 0.9 – 1.5 g/cm ³ :pH (T= 20°C in water): 11 – 13.5 :Boiling /melting point:>1 250°C :Vapour pressure, vapour density, evaporation rate, freezing point, viscosity: Not relevant

10. STABILITY AND REACTIVITY

Stability	:Dry cements are stable as long as they are stored properly (see Heading 7) and compatible with most other building materials. When mixed with water, cements will harden into stable mass that is not reactive to normal environments.
Conditions to avoid	:Humidity during storage may cause lump formation and loss of product quality
Materials to avoid	:Uncontrolled use of aluminium powder in wet cement should be avoided as hydrogen produced.
Hazardous	: Cement will not decompose into other hazardous by-products and do not polymerise decomposition products

11. TOXICOLOGICAL INFORMATION

Acute Effects

Eye contact	:Direct contact with cement may cause corneal damage by mechanical stress, immediate or delayed eye contact irritation or inflammation. Direct contact by larger amounts of dry cement or splashes of wet cement may cause effects ranging from moderate eye irritation (e.g. conjunctivitis or blepharitis) to chemical burns and blindness.
Skin contact	:Dry cement in contact with wet skin or exposure to moist or wet cement may cause thickening, cracking or fissuring of the skin. Prolonged contact in combination with abrasion can cause severe burns.
Acute Dermal Toxicity	:Limit test, rabbit, 24 hours, 2.000 mg/kg body weight – no lethality [Referance(2)].
Ingestion	:Swallowing large quantities may cause irritation to the gastrointestinal tract.
Inhalation	:Cement may irritate the throat and respiratory tract. Coughing, sneezing, and shortness of breath may occur following exposures in excess of occupational exposure limits.

Chronic Effects



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- Inhalation** :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).
- Carcinogenicity** :A casual association between cement exposure and cancer has not been established [Reference (1)].
- Contact Dermatitis/
Sensitising Effects** :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 chromium (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.
- 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.

12. ECOLOGICAL INFORMATION

- Exotoxicity** :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.
- Mobility** :Dry cement is not volatile but might become airborne during handling operations.
- Persistence and
degradability/Bio
accumulative potential/
Results of PBT assessment
/Other adverse effects** :Not relevant as cement is an inorganic material. After hardening, cement presents no toxicity risks.

13. DISPOSAL CONSIDERATIONS

- 13.1. Product-cement
that has exceeded its
shelf life** :Since it contains more than 0.0002% soluble Chromium (Cr(VI+)) it 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.
- 13.2. Product-Unused
Residue or Dry Spillage** :Pick up dry. Mark the containers. Possibly reuse depending upon shelf life considerations and the requirement to avoid dust exposure. In case of disposal, harden with water and dispose according to 13.4.
- 13.3. 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 13.4.
- 13.4. 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.

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

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

EWC Entry :15 01 01 (waste 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), no classification is required.

Bulk cement should be carried in completely closed and tightness containers. The bags should be kept dry during the transportation and should be opened carefully.

No special precautions are needed apart from those mentioned under Heading 8.

15. REGULATORY INFORMATION

15.1. Classification and labelling of cement according to Regulation (EC) No 1272/2008



Danger

H318 Causes serious eye damage

H315 Causes skin irritation

H317 May cause an allergic skin reaction

H335 May cause respiratory irritation

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 doctor/physician

P302+P352+P333+P313: IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention

P261+P304+P340+P312: Avoid breathing dust/fume/gas/mist/vapours/spray. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

P501 Dispose of contents/container to appropriate waste collection point

5.2.The marketing and use of cement is subject to a restriction on the content of solute chromium (Cr (VI+)).

The restriction on marketing and use of cement is subject to the requirements from REACH Annex XVII point 47.

Cement for controlled closed and totally automated processes only – must not be in contact with human skin because it contains above 0.0002 % soluble chromium (Cr(VI+)). May produce an allergic reaction.



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15.3. National legislation/requirements

This item is not valid.

16. OTHER INFORMATION

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.
- **OEL** :occupational exposure limit
- **TWA** :Time Weighted Averages

MSDS prepared by: Asuman KÜÇÜK
00 90 262 316 20 00

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Information about revision of SDS

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 the 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 own activities.