SAFETY DATA SHEET

According to Regulation on Preparation of Safety Data Sheets for Hazardous Substances and Mixtures

(13.12.2014-29204 Turkish Official Gazette)

COMMON PORTLAND CEMENT

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1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

1.1. Identification of the Product

Product Name: Portland Cement; CEM I 42,5R,
Portland Cement; CEM I 52,5N,
Portland Limestone Cement; CEM II/A-LL 42,5R,
Pozzolanic Cement; CEM IV/B (P) 32,5N,
Portland Cement; Type I/II,
Portland-Limestone Cement; Type IL.

EINECS: 266-043-4
CAS: 65997-15-1

1.2. Use of the Substance / Application Area

Cements are used in industrial installations to manufacture/formulate hydraulic binders for building and construction work, such as ready-mixed concrete, mortars, renders, grouts, plasters as well as precast concrete.

Common cements and cement containing mixtures (hydraulic binders) are used industrially, by professionals as well as by consumers in building and construction work, indoor and outdoor.

Any uses not mentioned above, are advised against.

1.3. Identification of the Company

Manufacturer's
Name: Adoçim Çimento Beton San. ve Tic. A.Ş.
Address: Kızılca Mah. Keşliközü Mevkii Artova TOKAT
Telephone Number: + 90 356 611 25 00 **Fax:** + 90 356 611 22 32
E-mail: info@adocim.com **Web:** www.adocim.com

1.4. Emergency Telephone Number

Company Information: + 90 356 611 25 00/ Internal: 280-281
Working Hours: 08:00-18:00
Call the emergency telephone number of your town and provide the information contained in this sheet. If not available, call the National Toxicology Centre.

2. HAZARDS IDENTIFICATION

2.1. Classification[(1)]

The product has been classified according to Regulation 11.12.2013-28848 CLP and Regulation (EC) No 1272/2008 of the European Parliament and of the Council.

Physico-chemical Hazard: Not relevant.

Health Hazard:

According to Regulation 11.12.2013-28848 CLP;
Skin Irritation 2; H315: Causes skin irritation.
Skin Sensitisation 1B; H317: May cause an allergic skin reaction.
Serious Eye Damage/Eye Irritation 1; H318: Causes serious eye damage.
STOT Single Exposure Respiratory Tract Irritation 3; H335: May cause respiratory irritation.

Environmental Hazard: Not relevant.

2.2. Label Elements

Hazard Pictograms:

Signal Word: Danger

Hazard Statements:

H318 Causes serious eye damage.
H315 Causes skin irritation.
H317 May cause an allergic slin reaction.
H335 May cause respiratory irritation.

Precautionary Statements:

Measure

P102 Keep out of reach of children.
P264 Wash hands, forearms, exposed areas thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P272 Contaminated work clothing must not be allowed out of the workplace.
P271 Use only outdoors or in a well-ventilated area.

Response

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/physician.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P321 Specific treatment (see on this label).
P332+P313 If skin irritation occurs: Get medical advice/attention.
P362 Take off contaminated clothing and wash it before reuse.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P363 Wash contaminated clothing before reuse.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312 Call a POISON CENTER or doctor/physician if you feel unwell.

Storage

P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

Disposal

P501 Dispose of waste material in accordance with all local, regional, state, national, provincial, territorial and international regulations.

Additional Information

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

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

3.2. Mixtures

Portland cement is produced from portland cement clinker created by burning and sintering at high temperatures of raw material predominantly including calcium carbonate, aluminium oxide, silica, and iron oxide. Produced chemical substances form crystal structucture of the product. This crystalline structure included in Portland Cement is a combination of following chemical compounds. Ca_2SiO_4, Ca_3SiO_5, $CaAl_2O_4$, $Ca_2Al_2SiO_7$, $CaAl_4O_7$, $Ca_4Al_6SO_{16}$, $CaAl_{12}O_{19}$, $Ca_{12}Al_{14}Cl$, $Ca_3Al_2O_6$, $Ca_{12}Al_{14}F_2$, $Ca_{12}Al_{14}O$, $Ca_4Al_2Fe_2$, CaO, $Ca_6Al_4Fe_2$, $Ca_2Fe_2O_5$. Cement includes low amount of gypsum.

Composition	EC NO	CAS NO	Concentration Range % (weight)				
			CEM I 42,5R/52,5N	CEM II/A-LL 42,5R	CEM IV/B (P) 32,5N	Type I/II	Type IL
Portland cement clinker, K	266-043-4	65997-15-1	90,25-100,0	76,0-94,0	42,75-64,0	90,0-100,0	80,0-<95,0
Gypsum	231-900-3	7778-18-9	0,0-5,0	0,0-5,0	0,0-5,0	0,0-5,0	0,0-5,0
Limestone; L	215-279-6	1317-65-3	0,0-5,0	5,7-20,0	0,0-5,0	0,0-5,0	>5,0-15,0
Pozzolan, P	-	-	-	-	34,2-55,0	-	-

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.

Following Contact with Eyes

Do not rub eyes in order to avoid possible corneal damage by mechanical stress. Remove contact lenses if any. Incline head to injured eye, open the eyelids widely and flush eye(s) immediately by thoroughly rinsing with plenty of clean water for at least 20 minutes to remove all particles. Avoid flushing particles into uninjured eye. If possible, use isotonic water (0.9% NaCl). Contact a specialist of occupational medicine or an eye specialist.

Following Skin Contact

For dry cement, remove and rinse abundantly with water. For wet/damp cement, wash skin with plenty of water. Remove contaminated clothing, footwear, watches, etc. and clean thoroughly before re-using them. Seek medical treatment in all cases of irritation or burns.

Following Inhalation

Move the 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.

Following Ingestion

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

4.2. Most Important Symptoms and Effects, Both Acute and Delayed

Eyes: 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 irritation, dermatitis or burns.[(2)]

Inhalation: Repeated inhalation of cement dust 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. FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Cements are not flammable.

5.2.Special Hazards Arising from the Product

Cements are non-combustible and non-explosive and will not facilitate or sustain the combustion of other materials.

5.3. Advice for Fire-Fighters

Cements poses no fire-related hazards. No need for special protective equipment for fire-fighters. In case of fire, common fire protective equipment should be used.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

6.1.1. Personal Protective Precautions for Non-Emergency Personnel

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

6.1.2. Personal Protective Precautions for Emergency Responders

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

6.2. Environmental 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

For dry cement;

Collect the spilled material as mentioned below and use it.

Use dry cleanup methods such as vacuum clean-up or vacuum extraction (Industrial portable units equipped with high efficiency air filters (EPA and HEPA filters, EN 1822-1:2009) which do not cause airborne dispersion. Never use compressed air.

Alternatively, wipeup the dust by mopping, wet brushing or by using water sprays or hoses and remove slurry. 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 Section 13.

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

6.4. Reference to Other Sections

See sections 8 and 13 for more details.

7. HANDLING AND STORAGE

7.1. Precautions for Safe Handling

7.1.1. Protective Measures

Follow the recommendations as given under Section 8.
To clean up dry cement, see Subsection 6.3.

Measures to Prevent Fire

Not applicable.

Measures to Prevent Aerosol and Dust Generation

Do not sweep. Use dry cleanup methods such as vacuum clean-up or vacuum extraction, which do not cause airborne dispersion.

Measure to Protect the Environment

No particular measures.

7.1.2. Information on General Occupational Hygiene

Do not handle or store near food and beverages or smoking materials. In dusty environment, wear dust mask and protective goggles.

7.2.Conditions for Safe Storage, Including Any Incompatibilities

Bulk cement should be stored in silos that are waterproof, dry conditions, clean and protected from contamination.

Engulfment Hazard: Cement can build-up or adhere to the walls of a confined space. The cement can release, collapse or fall unexpectedly. To prevent engulfment 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 safety measures.

Packed products should be stored in unopened bags in cool, dry conditions and protected from excessive draught in order to avoid degradation of quality.
Bags should be stacked in a stable manner.
Do not use aluminium containers for the storage or transport of wet cement containing mixtures due to incompatibility of the materials.

7.3. Specific End Use(s)

No additional information for the specific end uses (see section 1.2).

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1. Control Paramaters

8.1.1. Exposure Limits

According to national Dust Control Regulation;

Occupational exposure limits for dust

Name of Substance	Total Dust Amount TWA/ZAOD (mg/m^3)	Respirable Dust Amount TWA/ZAOD (mg/m^3)
Portland cement	**15**	**5**

Gypsum	**15**	**5**
Calcium carbonate (Limestone)	**15**	**5**

Exposure threshold limit values for rocks and minerals having speciality

Mineral	**Limit Value (mg/m^3)**
Portland cement	**80 mg/m^3 % SiO2+2**

8.1.2. Exposure Limits in Handling Chemical Materials

According to Regulation on Health and Safety Measures in Handling Chemical Materials, there is no exposure limit and exposure threshold limit value for water soluble Cr VI component included by cement.

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 Personal Protective Precautions

Equipment and suitable protection methods that will be used in situations where personal protection needed are defined according to Personal Protective Equipment Regulation No.28695 dated 2.7.2013.

General Precautions

Do not eat, drink or smoke when working with cement to avoid contact with skin or mouth.
Before starting to work with cement, apply a barrier creme and reapply it at regular intervals.
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.

Eye /Face 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 watertight, wear- and alkali-resistant protective gloves (eg nitrile soaked cotton gloves with CE mark). Use boots, closed long-sleeved protective clothing as well as skin care products 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. For the gloves, respect the maximum wearing time to avoid skin problems. In some circumstances, such as when laying concrete or screed, waterproof trousers or kneepads are necessary.

Respiratory Protection: When a person is potentially exposed to dust levels above exposure limits, use appropriate respiratory protection. The type of respiratory protection should be adapted to the dust level and conform to EN 149 standard.

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: No special emission control measures are necessary for the exposure to the soil.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Dry cement is finely ground powdered inorganic solid material with grey or white colour. Particle size: 5-30 µm.

Odour: Odourless.

Odour Threshold: no odour threshold, odourless.

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

Melting Point: > 1250 °C

Initial Boiling Point and Boiling Range: Not applicable as under normal atmospheric conditions, melting point >1250°C

Flash Point: Not applicable as is not a liquid.

Evaporation Rate: Not applicable as is not a liquid.

Flammability (Solid, Gas): Not applicable as is a solid which is non combustible and does not cause or contribute to fire through friction.

Upper/Lower Flammability or Explosive Limits: Not applicable as is not a flammable gas

Vapour Pressure: Not applicable as melting point > 1250 °C

Vapour Density: Not applicable as melting point > 1250 °C

Relative Density: 2.75-3.20; Apparent density -: 0.9-1.5 g/cm³

Solubility(ies) in Water (T = 20 °C): Slight (0.1-1.5 g/l)

Partition Coefficient: n-octanol/water: Not applicable as is inorganic substance.

Auto-Ignition Temperature: Not applicable.

Decomposition Temperature: Not applicable as no organic peroxide present.

Viscosity: Not applicable as not a liquid.

Explosive Properties: Not applicable. Not explosive or pyrotechnic. Not in itself capable of producing gas by chemical reaction at temperature and pressure and at a speed as to cause damage to the surroundings. Not capable of a self-sustaining exothermic chemical reaction.

Oxidising Properties: Not applicable.

10. STABILITY AND REACTIVITY

10.1. Reactivity

When mixed with water, cement will harden into a stable mass that is not reactive innormal environments.

10.2. Chemical Stability

Dry cement is stable as long as it is properly stored (see Section 7) and compatible with most other building materials. It should be kept dry.

Contact with incompatible materials should be avoided.

Wet cement is alkaline and incompatible with acids, with ammonium salts, with aluminium or other non-noble metals. Cement dissolves in hydrofluoric acid to produce corrosive silicon tetrafluoride gas. Cement reacts with water to form silicates and calcium hydroxide. Silicates in cement react with powerful oxidizers such as

fluorine, boron trifluoride, chlorine trifluoride, managanese trifluoride, and oxygen difluoride.

10.3. Possibility of hazardous reactions

Cements do not cause hazardous reactions.

10.4. Conditions to avoid

Humid conditions during storage may cause lump formation and loss of product quality.

10.5. Incompatible materials

Acids, ammonium salts, aluminium or other non-noble metals. 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 any hazardous products.

11. TOXICOLOGICAL INFORMATION

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. [3]

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 to chemical burns and blindness. [4,5]

Exposure to wet cement dust may develop eczema because of the irritation caused by high pH value after prolonged exposure or allergic effect of soluble Cr (VI) salts. [6,7,8]

Cement dust may irritate the throat and respiratory tract. Exposure to cement dust over occupational exposure limits may cause coughing and shortness of breath. [2]

Cement dust may aggravate existing respiratory system disease(s) such as emphysema or asthma and/or existing skin and eye conditions.

12. ECOLOGICAL INFORMATION

12.1. Toxicity

Cement is not hazardous for ecosystem. 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 relevant as cement is an inorganic material. As a result of hydration of cement, toxicity is not emerge.

12.3. Bioaccumulative Potential

Not relevant as cement is an inorganic material. As a result of hydration of cement, toxicity is not emerge.

12.4. Mobility in Soil

Not relevant as cement is an inorganic material. As a result of hydration of cement, toxicity is not emerge.

12.5. Results of PBT and vPvB Assessment

Not relevant as cement is an inorganic material. As a result of hydration of cement, toxicity is not emerge.

12.6. Other Adverse Effects

Not relevant.

13. DISPOSAL CONSIDERATIONS

Do not dispose of into sewage systems or surface waters.

Used packages are disposed according to the Regulation on Control of Packaging Waste.

Waste materials should be disposed according to “Regulation on the General Principles of Waste Management”.

Cement that has exceeded its shelf life:

Dispose of according to local legislation.

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

Unused residue or dry spillage:

Pick up dry unused residue or dry spillage as is. 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”

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

Slurries:

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

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 concrete or concrete sludge)
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 (waste paper and cardboard packaging).
15 01 02 (Plastic package-Big bag, Sling bag)

14. TRANSPORT INFORMATION

Cement is not classified as dangerous by Regulation on Carriage of Dangerous Goods by Road, Regulation on Carriage of Dangerous Goods by Seaway and the international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID).

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: Not relevant.

15. REGULATORY INFORMATION

15.1. Safety, Health and Environmental Regulations/Legislation Specific for the Substance

National regulations used in the preparation of material safety data sheet and that can be related are given below.

Regulation on Classification, Packaging and Labelling of Dangerous Substances
Regulation Classification, Labelling and Packaging of Substances and Mixtures
Regulation on Carriage of Dangerous Goods by Road
Regulation on Carriage of Dangerous Goods by Seaway
Regulation on Control of Packaging Waste
Dust Control Regulation
Regulation on Health and Safety Measures in Handling Chemical Materials
Personal Protective Equipment Regulation

16. OTHER INFORMATION

Hazard Statements

Skin Irritation 2; H315: Causes skin irritation.

Skin Sensitisation 1B; H317: May cause an allergic skin reaction.
Serious Eye Damage/Eye Irritation 1; H318: Causes serious eye damage.
STOT Single Exposure Respiratory Tract Irritation 3; H335: May cause respiratory irritation.

Abbreviations

1272/2008/EC: Regulation of the European Parliament and of the Council on Classification, Labelling and Packaging of Substances and Mixtures
ADR/RID: European Agreement Concerning the International Carriage of Dangerous Goods by Road/Railway
CAS: Chemical Abstracts Service
CLP: Regulation on Classification, Labelling and Packaging of Substances and Mixtures.
EC: European Commission
EINECS: European Inventory of Existing Commercial Chemical Substances
EWC: European Waste Catalogue
IATA: International Air Transport Association
IBC Code: International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk
IMDG: International Maritime Code for Dangerous Goods
IUPAC: The International Union of Pure and Applied Chemistry
MARPOL 73/78: International Convention for the Prevention of Pollution from Ships
mg / m^3 : at 20^{0}C temperature and under 101,3 kPa (760 mm Hg) pressure miligram equivalent amount of substance in 1 m^3 of air.
PBT: Persistent, Bio-accumulative and Toxic
STOT: Specific Target Organ Toxicity
TWA/ZAOD: Time-weighed average
vPvB: Very Persistent, Very Bio-accumulative

Key Literature References and Sources of Data

(1) ECHA European Chemicals Agency C&L Inventory Database, Available from: http://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/cl-inventory/view-notification-summary/6670
(2) *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.
(3) *Observations on the effects of skin irritation caused by cement*, Kietzman et al, Dermatosen, 47, 5, 184-189 (1999).
(4) TNO report V8815/09, Evaluation of eye irritation potential of cement clinker G in vitro using the isolated chicken eye test, April 2010.
(5) TNO report V8815/10, Evaluation of eye irritation potential of cement clinker W in vitro using the isolated chicken eye test, April 2010.
(6) *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.
(7) *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.
(8) *Occurrence of allergic contact dermatitis caused by chromium in cement. A review of epidemiological investigations*, Kåre Lenvik, Helge Kjuus, NIOH, Oslo, December 2011.

Training Advice

In addition to health, safety and environmental training programs for their workers, companies must ensure that

workers read, understand and apply the requirements of this Safety Data Sheet.

Revision

Prepared for the first time. This Safety Data Sheet has been prepared according to Regulation on Preparation of Safety Data Sheets for Hazardous Substances and Mixtures (13.12.2014-29204 Turkish Official Gazette).

Prepared by

Name: Evrim ŞENGÜN
Telephone Number: + 90 312 444 50 57/ 1136
E-mail: evrims@turkcimento.org.tr
Sertificate Number: TÜV/01.274.09

Additional Information

The Material Safety Data Sheet is prepared according to the information given by manufacturer and reliable literature references available on the date preparation. Although maximum effort expended for the accuracy of the information, the accuracy of information on this document is not guarenteed . The precautions and advices given in this document may not be applicable/sufficient to all individuals and/or cases. Using the product safely and following related laws/regulations is the responsibility of the user. Also, the manufacturer is not responsible from any damage and/or injury that might be a result of not following the precautions and/or advices given in this document.