

Hydraulic Cement

Portland cement and blended cements — ASTM C150 and ASTM C1157 types

1. Identification of the substance and the supplier

Product	Hydraulic cement (portland cement and blended cements), powder.
Recommended use	Soil and base stabilisation; cement-treated bases; concretes and mortars for drainage works, structures and rigid pavements.
Restrictions on use	Do not use without personal protective equipment. Prolonged contact with fresh concrete or mortar causes severe chemical burns.
Supplied by	PRO-ROAD® — Soluciones en Suministros, Ingeniería y Construcción S.A.S. (Colombia) · Escher Infrastructure LLC (USA) · Penrose Solutions LLC. Cra. 14B No. 106-60 Of. 403, Bogotá D.C., Colombia. www.proroadglobal.com · info@proroadglobal.com
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2. Hazards identification

Signal word	DANGER
GHS classification	Skin irritation category 2 · Skin sensitisation category 1B (from soluble chromium VI) · Serious eye damage category 1 · Specific target organ toxicity, single exposure, category 3 (respiratory tract irritation) · Specific target organ toxicity, repeated exposure, category 1 (lungs, from respirable crystalline silica) · Carcinogenicity category 1A (from the respirable crystalline silica content).
Hazard statements (H)	H315 — Causes skin irritation. · H318 — Causes serious eye damage. · H335 — May cause respiratory irritation. · H350 — May cause cancer. · H372 — Causes damage to organs through prolonged or repeated exposure.
Precautionary statements (P)	P201 — Obtain special instructions before use. · P260 — Do not breathe dust, fume, gas, mist, vapours or spray. · P264 — Wash thoroughly after handling. · P280 — Wear protective gloves, clothing, eye and face protection. · P302+P352 — IF ON SKIN: wash with plenty of soap and water. · P305+P351+P338 — IF IN EYES: rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. · P308+P313 — IF exposed or concerned: get medical advice/attention. · P501 — Dispose of contents and container in accordance with applicable local regulations.
Pictograms	GHS05 (corrosion) · GHS07 (exclamation mark) · GHS08 (health hazard)
NFPA 704 — Health / Flammability / Reactivity	Health 2 · Flammability 0 · Reactivity 1

Dry cement is a moderate irritant, but mixed with water it becomes strongly alkaline (pH 12–13) and corrosive. The most frequent and most underestimated injury in the sector is the fresh-concrete burn: mix trapped inside a boot or against the knee produces, within a few hours, second- and third-degree burns that often require grafting, and the worker does not notice in time because the initial pain is mild. Cement contains soluble hexavalent chromium in trace amounts, responsible for bricklayer's allergic eczema. The crystalline silica present in the raw materials poses the chronic risk of silicosis and lung cancer.

3. Composition / information on ingredients

Component	CAS No.	Concentration
Portland cement clinker	65997-15-1	50 – 95 %
Calcium sulfate (gypsum)	13397-24-5	2 – 6 %
Limestone (calcium carbonate)	1317-65-3	0 – 15 %

Component	CAS No.	Concentration
Respirable crystalline silica (quartz)	14808-60-7	< 5 %
Water-soluble hexavalent chromium	18540-29-9	< 2 mg/kg (< 0.0002 %)

The percentages indicated are representative ranges of the formulation. Components not listed are either not classified as hazardous or are below the concentration limits that require declaration under GHS. The precise chemical identity of the additives is proprietary information; it is disclosed to health authorities and to medical personnel who require it to respond to an emergency.

4. First-aid measures

Inhalation	Move into fresh air. Rinse the mouth and nose with water. If irritation, cough or breathing difficulty persists, seek medical attention.
Skin contact	Immediately remove contaminated clothing, footwear and gloves. Dry-brush adhered material and wash the skin with plenty of water for at least 20 minutes. Do not neutralise with acids. Pay particular attention to skin folds, the waistline and the inside of footwear, where damp material remains and produces deep burns that the worker may not notice until hours later. Seek medical attention at any sign of burn, even if pain is mild.
Eye contact	MEDICAL EMERGENCY. Do not rub the eyes. Rinse immediately with plenty of clean water or saline for at least 30 minutes, holding the eyelids apart and moving the eye in all directions to flush particles retained under the lids. Remove contact lenses after the first few minutes of irrigation. Continue irrigation during transport. Seek urgent ophthalmic assessment in all cases, even if symptoms appear mild: alkaline burn progresses over hours.
Ingestion	Do not induce vomiting. Rinse the mouth with water. If the person is conscious, give water in small sips to dilute. Seek immediate medical attention.

Notes for medical personnel

Caustic alkali injury. In ocular exposure, measure conjunctival pH and continue irrigation until normalisation (pH 7.0–7.5); perform slit-lamp examination with fluorescein staining and evert the eyelids to remove retained particles. In skin burns, the injury may progress over hours without proportionate initial pain: reassess. In chronic inhalation exposure, consider medical surveillance for crystalline silica (chest radiography and spirometry) in accordance with the applicable programme. Chemical neutralising agents are contraindicated.

5. Fire-fighting measures

Extinguishing media	The product is not combustible. Use the extinguishing agent appropriate to the surrounding material.
Specific hazards	Presents no fire or explosion risk. Avoid the use of pressurised water on the material, as it generates dust dispersion and, in lime- or cement-bearing products, an exothermic reaction with heat release.
Protective equipment for fire-fighters	Respiratory protection against particulates and sealed eye protection during fire-fighting and debris removal.

6. Accidental release measures

Avoid dust generation: do not sweep dry or use compressed air. Collect mechanically with a shovel or with an industrial vacuum fitted with a HEPA filter, and transfer to closed, labelled containers. For large spills, lightly wet the surface before collection. Prevent the material from entering drains, sewers and water bodies, where it may raise the pH and block conduits. After collection, wash the surface with plenty of water.

7. Handling and storage

Handle in closed systems wherever possible and avoid dust generation. The use of compressed air to clean clothing and surfaces is prohibited. During concrete placing and finishing, avoid kneeling directly on the fresh mix and check that no material enters boots or gloves; if it does, remove the footwear or glove immediately and wash. Remove and launder contaminated work clothing at the

end of the shift. Wash hands and face before eating, drinking or smoking. Eating, drinking and smoking are prohibited in handling areas.

Store in closed silos or sealed bags, in a dry, covered, ventilated place, on pallets and away from the ground and from walls. Contact with moisture causes hydration, lump formation and loss of strength. Do not stack more than two pallets. Before any entry into a silo, apply the confined-space procedure: there is a risk of engulfment and oxygen deficiency. The reducing agent that controls soluble chromium VI has a limited shelf life, usually 2 to 6 months; once expired, the chromium VI content may rise and with it the risk of allergic dermatitis. Observe the expiry date shown on the packaging.

8. Exposure controls / personal protection

Occupational exposure limits	Portland cement: ACGIH TLV-TWA 1 mg/m ³ (respirable fraction); OSHA PEL 15 mg/m ³ (total dust) and 5 mg/m ³ (respirable fraction); NIOSH REL 10 mg/m ³ (total dust) and 5 mg/m ³ (respirable fraction). Respirable crystalline silica: ACGIH TLV-TWA 0.025 mg/m ³ ; OSHA PEL 0.05 mg/m ³ (action level 0.025 mg/m ³ , 29 CFR 1926.1153). Hexavalent chromium: ACGIH TLV-TWA 0.0002 mg/m ³ ; OSHA PEL 0.005 mg/m ³ (29 CFR 1926.1126). Verify the limits in force in the country of use.
Engineering controls	General ventilation and local exhaust at dust generation points (bag discharge, silo feeding, mixing). Use closed transfer systems wherever possible. Wet the material to suppress dust where the process allows. Accessible safety showers and eyewash stations in the work area. Hygiene monitoring programme for respirable dust and crystalline silica.
Personal protective equipment	Sealed safety goggles (dust-tight, unvented) or face shield. Impermeable gloves. Long-sleeved work clothing covering arms and legs; remove and launder contaminated clothing before reuse. Impermeable safety-toe boots. Respiratory protection against particulates rated at least N95 / FFP2, and FFP3 or powered where monitoring indicates high concentrations or significant respirable crystalline silica content.

9. Physical and chemical properties

Property	Value
Physical state and appearance	Fine powder
Colour and odour	Grey to greenish grey, or white; odourless
pH (aqueous suspension)	12 – 13
Specific gravity	3.0 – 3.2
Bulk density	1.0 – 1.5 g/cm ³
Solubility in water	Slightly soluble (0.1 – 1 %); reacts with water and sets
Flammability	Non-combustible

10. Stability and reactivity

Stable under normal dry storage conditions. Conditions to avoid: contact with moisture, which causes the material to set with heat release. Incompatible materials: acids (exothermic reaction), aluminium and its alloys in a damp alkaline medium (release of flammable hydrogen), ammonium salts, hydrogen fluoride. Hazardous decomposition products: none under normal conditions.

11. Toxicological information

Acute toxicity: low; oral LD50 in the rat > 2,000 mg/kg. The determining effect is local. Skin irritation and corrosion: dry cement irritates the skin; wet cement, mortar and fresh concrete are corrosive on account of their alkalinity and produce chemical burns that may reach the second and third degree, often without proportionate initial pain. Eye injury: serious, with risk of permanent corneal opacity; abrasion by the particles compounds the caustic action. Skin sensitisation: the soluble hexavalent chromium present in traces causes allergic contact dermatitis — bricklayer's eczema — in sensitised individuals, with reaction at very low concentrations. The soluble chromium VI content is controlled by adding a reducing agent with a limited shelf life. Inhalation: respiratory tract irritation. Chronic exposure: silicosis and lung cancer from respirable crystalline silica, classified by IARC in Group 1; chronic bronchitis.

12. Ecological information

Not classified as hazardous to the aquatic environment. The hazard is chemical, through pH elevation: discharge of significant quantities into a water body may raise the pH above the range tolerable by aquatic fauna and cause mortality. The effect is local and transient if the receiving body has buffering capacity. Neither bioaccumulative nor persistent in the organic sense. Once set, the material is essentially inert and does not leach significantly. Do not discharge mixer or pump wash water to the sewer or to the natural environment without prior neutralisation and pH verification.

13. Disposal considerations

Dispose of residual product and its packaging in accordance with applicable local, regional and national regulations, through an authorised waste manager. In Colombia, Decree 4741 of 2005 and Resolution 1362 of 2007 on hazardous waste management apply; in the United States, RCRA (40 CFR parts 260-273); in the European Union, Directive 2008/98/EC. Do not discharge into the sewer system, onto soil or into water bodies. Do not reuse empty containers without prior decontamination.

14. Transport information

Property	Value
Road (ADR / DOT), sea (IMDG) and air (IATA-DGR)	Not regulated as a dangerous good.
Marine pollutant	Not classified as a marine pollutant under Annex III of MARPOL 73/78.
HS code	2523.29

Bulk transport requires control of moisture and fugitive dust. The IMSBC Code applies to bulk sea transport.

15. Regulatory information

Colombia: Decree 1496 of 2018 (adoption of GHS) and Resolution 0773 of 2021 of the Ministry of Labour. United States: OSHA Hazard Communication Standard, 29 CFR 1910.1200; for sales in California, the Proposition 65 warning applies. European Union: Regulation (EC) 1272/2008 (CLP) and Annex II of Regulation (EC) 1907/2006 (REACH). Brazil: ABNT NBR 14725. International transport: UN Recommendations (Orange Book), IMDG Code, ICAO Technical Instructions / IATA-DGR.

16. Other information

This sheet is issued as revision 01 dated August 2026 and supersedes any earlier version. It will be reviewed when the product formulation, the applicable GHS classification or the reference regulations change, and in any case every three years. Training of exposed personnel on the content of this sheet is the employer's responsibility.

ACGIH: American Conference of Governmental Industrial Hygienists · CAS: Chemical Abstracts Service · CLP: Classification, Labelling and Packaging · IARC: International Agency for Research on Cancer · IMDG: International Maritime Dangerous Goods Code · LC50: median lethal concentration · LD50: median lethal dose · NIOSH: National Institute for Occupational Safety and Health · REL: recommended exposure limit · GHS: Globally Harmonized System · TLV: threshold limit value · TWA: time-weighted average · STEL: short-term exposure limit · PEL: permissible exposure limit.

DOCUMENT FOR INTERNAL REVIEW. Composition data, CAS numbers and concentrations must be confirmed against the actual formulation and the raw-material suppliers' safety data sheets before this sheet is distributed to customers or authorities. Items marked "to be confirmed" require validation by PRO-ROAD[®]'s HSE officer.

This sheet has been prepared in accordance with the Globally Harmonized System (GHS) of classification and labelling of chemicals and with the 16-section format of ANSI Z400.1 / ISO 11014. In Colombia, Decree 1496 of 2018 and Resolution 0773 of 2021 of the Ministry of Labour apply; in the United States, OSHA 29 CFR 1910.1200; in the European Union, Regulation (EC) 1272/2008 (CLP) and Annex II of Regulation (EC) 1907/2006 (REACH). The information is offered in good faith and does not constitute a warranty. The employer is responsible for workplace risk assessment and for training its personnel.