

PRLB-82 — Quicklime and Hydrated Lime

Calcium oxide (CaO) and calcium hydroxide (Ca(OH)₂) for soil stabilisation

1. Identification of the substance and the supplier

Product	PRO-ROAD® PRLB-82 — ground quicklime (calcium oxide) and hydrated lime (calcium hydroxide), high-calcium, dolomitic or magnesian.
Recommended use	Stabilisation and modification of soils and bases; drying of wet soils; anti-stripping additive in asphalt mixtures.
Restrictions on use	Do NOT add water to quicklime in an uncontrolled manner: the hydration reaction is strongly exothermic and may reach temperatures above 150 °C, ejecting caustic material.
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 corrosion category 1B (quicklime) or skin irritation category 2 (hydrated lime) · Serious eye damage category 1 · Specific target organ toxicity, single exposure, category 3 (respiratory tract irritation). The product may contain crystalline silica, with the associated classifications of carcinogenicity category 1A and repeated-exposure target organ toxicity category 1.
Hazard statements (H)	H314 — Causes severe skin burns and eye damage. · H318 — Causes serious eye damage. · H335 — May cause respiratory irritation. · H372 — Causes damage to organs through prolonged or repeated exposure.
Precautionary statements (P)	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. · P405 — Store locked up. · P501 — Dispose of contents and container in accordance with applicable local regulations.
Pictograms	GHS05 (corrosion) · GHS07 (exclamation mark) · GHS08 (health hazard, if it contains respirable crystalline silica)
NFPA 704 — Health / Flammability / Reactivity	Health 3 · Flammability 0 · Reactivity 1 · Special hazard: W (do not use water on quicklime)

This is the most aggressive product in the catalogue from the standpoint of chemical corrosion. Quicklime reacts with moisture on skin, eyes and the respiratory tract, releasing heat, and produces simultaneous chemical and thermal burns. Eye injury may be irreversible. Alkaline skin burns are insidious: initial pain is disproportionately mild and the injury progresses over hours, so the worker may not withdraw in time. The risk concentrates in skin folds, the waistline and inside footwear, where damp material remains in contact. Adding water to quicklime in an uncontrolled manner generates a violent exothermic reaction with ejection of caustic material. The product may contain crystalline silica, with the associated chronic risk.

3. Composition / information on ingredients

Component	CAS No.	Concentration
Calcium oxide (quicklime)	1305-78-8	> 90 % in quicklime
Calcium hydroxide (hydrated lime)	1305-62-0	> 90 % in hydrated lime
Magnesium oxide / hydroxide (dolomitic and magnesian limes)	1309-48-4 / 1309-42-8	0 – 40 %
Calcium carbonate (uncalcined)	1317-65-3	< 5 %
Crystalline silica (quartz)	14808-60-7	< 2 %

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. In a fire nearby, do NOT use water directly on quicklime: the hydration reaction releases heat and may worsen the situation. Use dry chemical powder, CO ₂ or sand on the surrounding material.
Specific hazards	Quicklime in contact with water releases sufficient heat to ignite adjacent combustible materials (paper, wood, textiles). In contact with aluminium, zinc or magnesium in a damp medium it releases flammable hydrogen. It generates no toxic gases of its own.
Protective equipment for fire-fighters	Self-contained breathing apparatus and full chemical protective suit; airborne lime dust during fire-fighting is strongly irritant and caustic.

6. Accidental release measures

Cordon off and signpost the area; prevent access by unprotected persons. Avoid dust generation: do not sweep dry or use compressed air. Do NOT apply water to a quicklime spill: hydration is exothermic and ejects caustic material. Collect dry with a shovel or industrial vacuum with a HEPA filter and transfer to closed, labelled containers. Only after removing the bulk of the

material, and with the area cleared, wash the residual surface with plenty of water, checking the pH of the run-off before allowing discharge. Prevent entry into sewers and water bodies.

7. Handling and storage

Handle in closed systems wherever possible. When hydrating quicklime, ALWAYS add the lime to the water, never the water to the lime, and do so gradually and with agitation. Avoid dust generation. The use of compressed air to clean clothing and surfaces is prohibited. Remove and launder contaminated work clothing at the end of the shift; do not take it home. Safety showers and eyewash stations tested daily and reachable within 10 seconds from any handling point. Eating, drinking and smoking prohibited in the area.

Store in closed silos or sealed packaging, in a dry, covered, ventilated place, on pallets. Contact with ambient moisture causes hydration with heat release and loss of reactivity. Keep away from acids, water, aluminium, zinc, magnesium and their alloys, and from combustible materials. Before any entry into a silo, apply the confined-space procedure. Typical shelf life of 6 months in sealed packaging.

8. Exposure controls / personal protection

Occupational exposure limits	Calcium oxide: ACGIH TLV-TWA 2 mg/m ³ ; OSHA PEL 5 mg/m ³ ; NIOSH REL 2 mg/m ³ . Calcium hydroxide: ACGIH TLV-TWA 5 mg/m ³ (inhalable fraction); OSHA PEL 15 mg/m ³ (total dust) and 5 mg/m ³ (respirable fraction). Magnesium oxide: ACGIH TLV-TWA 10 mg/m ³ (inhalable fraction). Respirable crystalline silica: ACGIH TLV-TWA 0.025 mg/m ³ ; OSHA PEL 0.05 mg/m ³ . 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 unvented safety goggles AND face shield during unloading and mixing. Long-cuffed alkali-resistant impermeable gloves, with the sleeve over the cuff. Closed work clothing covering the whole body, with fitted cuffs and collar; gaiters or trousers worn outside the boot to prevent material ingress. Impermeable safety-toe boots. Respiratory protection against particulates rated at least FFP2, and FFP3 or powered in bulk unloading operations. Barrier cream on exposed skin areas.

9. Physical and chemical properties

Property	Value
Physical state and appearance	Powder or granules
Colour and odour	White to greyish white; odourless
pH (saturated aqueous suspension)	12.4 – 12.8
Melting point	2,572 °C (CaO) · decomposes at 580 °C (Ca(OH) ₂)
Specific gravity	3.3 (CaO) · 2.2 (Ca(OH) ₂)
Solubility in water	CaO reacts with water forming Ca(OH) ₂ ; Ca(OH) ₂ is slightly soluble (1.7 g/l at 20 °C)
Flammability	Non-combustible

10. Stability and reactivity

Hydrated lime is stable under normal conditions. Quicklime is chemically reactive and absorbs moisture and carbon dioxide from the air. Conditions to avoid: contact with water and with ambient moisture (exothermic hydration reaction), and storage next to combustible materials. Incompatible materials: water (for quicklime), acids (violent exothermic reaction), aluminium, zinc, magnesium, tin, lead and their alloys in a damp medium (release of flammable hydrogen), halogenated organic compounds, maleic anhydride. Hazardous decomposition products: none; above 580 °C calcium hydroxide decomposes into calcium oxide and water vapour.

11. Toxicological information

Acute toxicity: oral LD50 in the rat > 2,000 mg/kg for calcium hydroxide; calcium oxide has comparable values. Systemic toxicity is low: the determining effect is local and caustic. Skin corrosion: quicklime is corrosive and produces simultaneous chemical and thermal burns; hydrated lime is irritant and corrosive on prolonged or damp contact. Eye injury: serious and potentially irreversible, with risk of corneal opacity and loss of vision. Inhalation: irritation of nose, throat and respiratory tract; intense exposure may produce ulceration and perforation of the nasal septum. Chronic exposure: dermatitis from repeated contact; chronic bronchitis; silicosis from the crystalline silica content. Sensitisation, mutagenicity and reproductive toxicity: no effects identified for calcium oxide and hydroxide. Carcinogenicity: calcium oxide and hydroxide are not classified; the classification applies to any respirable crystalline silica the product may contain.

12. Ecological information

The environmental hazard is chemical, through pH elevation, and not through intrinsic toxicity or bioaccumulation. Discharge into a water body raises the pH above the range tolerable by aquatic fauna and may cause mortality of fish and invertebrates; the calcium and magnesium released are themselves natural nutrients. The effect is local and transient if the receiving body has buffering capacity. In soils, lime is deliberately used to correct acidity, so its effect may be beneficial or harmful depending on the initial pH and the land use. It is neither bioaccumulative nor persistent in the organic sense. Do not discharge 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)	In most land transport regimes, calcium oxide and calcium hydroxide are not classified as dangerous goods. Some regimes classify quicklime as UN 1910 — CALCIUM OXIDE, class 8; verify with the competent authority of the transit country.
Marine pollutant	Not classified as a marine pollutant under Annex III of MARPOL 73/78.
HS code	2522.10 (quicklime) · 2522.20 (slaked lime)

Quicklime must be transported in moisture-tight packaging. The IMSBC Code applies to bulk sea transport. Verify the specific classification with the carrier before each shipment, as it varies between jurisdictions.

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.

