

Asphalt Cements and PG Asphalt Binders

Penetration grades · AC and VG viscosity grades · PG binders · polymer-modified asphalts

1. Identification of the substance and the supplier

Product	Asphalt cement / petroleum bitumen (all grades), including performance-graded binders and polymer-modified asphalts.
Recommended use	Paving, hot mix asphalt, waterproofing and coating applications.
Restrictions on use	Do not allow contact with liquids having a boiling point below 300 °C, in particular water, while the product is above 100 °C: violent ejection of hot material would result.
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	Carcinogenicity category 1B · Reproductive toxicity category 1B · Eye irritation category 2B · Specific target organ toxicity, single exposure, category 3 (respiratory tract irritation). Physical hazard not classified by GHS but decisive: thermal burn from hot handling.
Hazard statements (H)	H320 — Causes eye irritation. · H335 — May cause respiratory irritation. · H350 — May cause cancer. · H360 — May damage fertility or the unborn child. · Additional hazard not coded by GHS — Severe thermal burn hazard: the product is handled at 130–170 °C.
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. · P403+P235 — Store in a well-ventilated place. Keep cool. · P501 — Dispose of contents and container in accordance with applicable local regulations.
Pictograms	GHS08 (health hazard) · GHS07 (exclamation mark)
NFPA 704 — Health / Flammability / Reactivity	Health 1 · Flammability 1 · Reactivity 0 · Special hazard: hot handling

The dominant hazard on site is thermal burn: the product is handled between 130 and 170 °C and adheres to the skin, prolonging contact with the heat. Asphalt may contain hydrogen sulfide (H₂S), a highly toxic and extremely flammable gas that accumulates in the vapour space of tanks and may be released during filling. H₂S has a characteristic rotten-egg odour, but at high concentrations the sense of smell is rapidly lost and must not be used as a detection method: use dedicated instruments. The carcinogenic and reproductive toxicity classification relates to prolonged exposure to hot asphalt fumes and to the polycyclic aromatic hydrocarbons they contain.

3. Composition / information on ingredients

Component	CAS No.	Concentration
Petroleum bitumen (asphalt)	8052-42-4	> 95 %
Hydrogen sulfide (present in the vapour space)	7783-06-4	Traces — varies with crude origin
Elastomeric copolymers (modified grades only)	Mixture	0 – 7 %

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 the person into fresh air. Asphalt at ambient temperature does not generate vapours considered immediately hazardous, but its use requires heating, at which point it begins to give off vapours. If symptoms of intoxication appear, transport for immediate medical assistance. In case of loss of consciousness, place the patient supine on a firm surface, monitor breathing and pulse and start cardiopulmonary resuscitation if absent.
Skin contact	HOT PRODUCT BURN: cool immediately with plenty of cold water for at least 15 minutes, until the asphalt has completely solidified; do NOT remove the adhered material. Contact with cold product: wash the exposed skin with plenty of soap and water and remove contaminated clothing as soon as possible. Do not use combustible liquids or solvents to remove the asphalt, as they may aggravate the burn and cause dermatitis.
Eye contact	Rinse with plenty of clean water for at least 15 minutes, holding the eyelids open. Remove contact lenses if easy to do so. If pain or redness persists, seek immediate medical attention.
Ingestion	Do not induce vomiting. Do not give anything by mouth to an unconscious person. Seek immediate medical attention and show this safety data sheet.

Notes for medical personnel

Treatment will generally be symptomatic and directed at relieving the effects. In case of a hot asphalt burn, immediately cool the affected part by immersing it in water at room temperature until the product solidifies completely. Do NOT attempt to peel off asphalt adhering to the skin: it forms a sterile airtight protection over the burn and will come away with the scab as the injury heals. If removal is essential, use warm medicinal mineral oil; never solvents or combustible liquids. Inhalation of hydrogen sulfide may produce central respiratory depression with coma or death, and irritates the respiratory tract causing chemical pneumonitis and pulmonary oedema, which may present with a delay of 24 to 48 hours; keep the patient under observation for that period, administer oxygen and ventilate as required.

5. Fire-fighting measures

Extinguishing media	Dry chemical powder, carbon dioxide, alcohol-resistant foam, dry sand. Do NOT use a direct water jet.
Specific hazards	Do not apply water jets directly to the seat of the fire because of the risk of BOILOVER or FROTHOVER: water present in a hot product vaporises suddenly, increases the volume and overflows the tank. The vapour mixture generated by heating may form explosive atmospheres that travel until they find an ignition source and concentrate in confined spaces (sewers, basements, tanks). Combustion gases include carbon oxides (CO, CO ₂) and sulfur oxides (SO ₂). The substance may accumulate electrostatic charge from flow in transfer piping. Containers may explode when overheated.
Protective equipment for fire-fighters	For incipient fires, the protective equipment assigned for daily work (safety-toe boots, long-sleeved shirt, work trousers or coveralls, helmet, safety glasses). If not controlled, evacuate and move people at least 50 m upwind. For confined-space or large fires, fire-fighting suit and self-contained breathing apparatus (SCBA).

6. Accidental release measures

If you are not specifically trained, evacuate the site and move away anyone not part of the emergency team. Do not touch or walk over spilled material. Avoid crossing areas with appreciable vapour or fume. Response personnel: wear special clothing if necessary, eliminate all ignition sources and use intrinsically safe and earthed tools. Stop the leak if you have the proper means. Absorb, contain and confine with sand or other non-combustible absorbent and transfer to storage containers. For large spills,

build dikes ahead of the advancing liquid. Depending on its temperature the product may be liquid, semi-solid or solid; if spilled in water it cools rapidly, solidifies and sinks. Protect drains and the sewer system, since the product may block them as it cools.

7. Handling and storage

The use of flexible metal hoses for transfer is recommended, since they minimise the risk of structural rupture and of system blockage caused by detachment of the lining of industrial hoses. Working temperature must not exceed 195 °C, both because of the risk of toxic vapour emission and because of the proximity to the flash point. In coil heating processes, verify that the product level covers the coils: if it falls below them, the vapours generated may ignite and produce a considerable pressurised energy release. Carry out frequent skin self-inspection, especially in areas subject to direct or vapour contamination, and consult a physician on any change of appearance or texture.

Store in clean tanks with a distributed heating system and agitation or recirculation. Before any entry into a tank, apply the confined-space procedure with H₂S and oxygen measurement. Do not carry out hot work on tanks or piping that have contained the product without a gas-free certificate. Keep away from strong oxidising agents.

8. Exposure controls / personal protection

Occupational exposure limits	Asphalt (fumes): NIOSH REL — ceiling 5 mg/m ³ (15 min), fume fraction. ACGIH TLV-TWA — 0.5 mg/m ³ (8 h), as benzene-soluble aerosol, inhalable fraction. Hydrogen sulfide: ACGIH TLV-TWA 1 ppm, TLV-STEL 5 ppm; NIOSH IDLH 100 ppm. Verify the limits in force in the country of use, which may be more restrictive.
Engineering controls	General ventilation and local exhaust at fume emission points. All handling and disposal activity must be assessed to ensure that personnel exposure remains below regulated limits. Personal protective equipment should only be considered after other forms of control have been adequately evaluated. Eyewash stations and safety showers in work areas.
Personal protective equipment	Eyes and face: helmet with full face shield or closed safety goggles. Skin: certified heat-resistant long leather gloves; sun and splash protection for the head and neck; work clothing fully covering limbs, torso and back, one-piece (coveralls) or two-piece, of a material giving adequate insulation against direct contact. Safety-toe, hydrocarbon-resistant, preferably high-top footwear. Respiratory: at no time handle the product without respiratory protection unless it is completely cold and confined in an airtight container; organic-vapour filters, matched to the result of area hygiene monitoring.

9. Physical and chemical properties

Property	Value
Physical state	Solid or semi-solid at ambient temperature; liquid above 100 °C
Colour and odour	Black; characteristic odour of asphalt and crude oil
Flash point	> 232 °C (> 450 °F), ASTM D92 Cleveland
Boiling point	300 – 1,000 °C
Auto-ignition temperature	550 °C
Density	1,020 – 1,040 kg/m ³ (1.02 – 1.04 g/cm ³) at ambient temperature
Dynamic viscosity	0.1 – 500 Pa·s (100 – 500,000 cP) at 60 °C
Solubility	Insoluble in water; soluble in trichloroethylene (99 g/100 g at 20 °C)
Flammability limits (LEL/UEL)	Not available

10. Stability and reactivity

The product is stable under the normal storage and handling conditions indicated. Conditions to avoid: heating above 230 °C, contact with water or other low-boiling liquids while the product is hot, and accumulation of electrostatic charge. Incompatible materials: strong oxidising agents. Hazardous decomposition products: carbon monoxide and dioxide, sulfur oxides, hydrogen sulfide and polycyclic aromatic hydrocarbons.

11. Toxicological information

Acute inhalation toxicity: LC50 (rat, dusts and mists, 4 h) > 94.4 mg/m³, based on oxidised bitumen. Skin contact: mild irritation on prolonged contact; contact with hot product causes severe thermal burn. Eye contact: irritation; hot vapour may cause injury. Fume inhalation: upper respiratory tract irritation. Carcinogenicity: IARC has evaluated bitumens and occupational exposures to them; oxidised bitumen emissions in roofing applications are classified in Group 2A (probably carcinogenic to humans) and paving bitumen emissions in Group 2B (possibly carcinogenic). The GHS classification adopted in this sheet is conservative and reflects the position of the base binder manufacturer. Sensitisation: no sensitising properties identified. Repeated and prolonged exposure to hot fumes is the principal route of concern.

12. Ecological information

The producer and marketer has not carried out specific soil mobility testing. Partition coefficient: not available. Mobility: spills are unlikely to penetrate soil. With a density above 1 g/cm³, product released into water sinks and solidifies on the bottom, where intervention is normally not feasible. Data for analogous products: LC50 (*Oncorhynchus mykiss*, QSAR, 96 h) > 100 mg/l. The product is essentially inert once solidified; the principal environmental hazard is physical — coating of organisms and substrate — rather than toxicological.

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) and sea (IMDG)	Not regulated as a dangerous good when transported below 100 °C.
Elevated-temperature transport	UN 3257 — ELEVATED TEMPERATURE LIQUID, N.O.S. (at or above 100 °C and below its flash point). Class 9. Packing group III.
Marine pollutant	Not classified as a marine pollutant under Annex III of MARPOL 73/78.
HS code	2713.20

Classification as UN 3257 depends on the actual loading temperature. Confirm with the carrier and with the authority of the transit country before each shipment.

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.

