Petroleum Bitumen (Asphalt)

Penetration Grades (30/40–200/300) · AC / VG Viscosity Grades · Oxidized R-Grades · Cutback (MC)

Effective Date: 23 Nov 2026
CAS: 8052-42-4 · **EC:** 232-490-9
Supplier Tel: +44 744 913 9023

PRODUCT FORM	NEAT BITUMEN GHS	HOT HANDLING HAZARD	HOT TRANSPORT	CUTBACK (MC)
Solid / Heated Liq.	Not Classified (Amb.)	Thermal Burns / H_2S	UN 3257 · Class 9	UN 1999 · Class 3

CAUTION · THERMAL / CUTBACK **Ambient Neat Bitumen: Not Classified · Hot Product (> 100 °C): Severe Thermal Burn & H_2S Risk**

Neat Paving/Oxidized: Molten handling evolves fumes and trace Hydrogen Sulfide (H_2S) in tank headspaces. | **Cutback Grades (MC):** Carry **GHS02 Flame (H226 Flammable liquid)** due to petroleum diluent.



NFPA 704
Health: 1 (Hot: Burn)
Flamm.: 1 (Cutb: 2–3)
Reactivity: 0

SECTION 1 Identification of the Substance & of the Supplier

1.1 & 1.2 SUBSTANCE IDENTIFIER & RELEVANT USES

Product Name: Petroleum Bitumen / Asphalt (Penetration, AC, VG, Oxidized & Cutback)

Synonyms: Asphalt Cement, Vacuum Bottom Residue, Blown Bitumen, Road Tar (Cutback)

Identified Uses: Highway paving, airport runways, hot-mix asphalt (HMA), roofing waterproofing, pipe coating, prime coats & emulsions.

Uses Advised Against: Unventilated enclosed heating, solvent thinning without engineering controls.

1.3 & 1.4 SUPPLIER DETAILS & EMERGENCY CONTACT

Supplier Role: Global Commodity Supplier / Distributor (Commercial Desk)

Supplier Name: Beroil Energy Group

Office Address: 4-6 Middlesex St., E1 7JH, London, United Kingdom

Email / Phone: info@beroilenergy.com · +44 744 913 9023

Emergency Line: +44 744 913 9023 (Commercial) · Dial local emergency services (999 / 112 / 911) or Port Fire/Poison Center for molten spills or H_2S alerts.

SECTION 2 Hazards Identification

2.1 GHS / CLP Classification: Solid/ambient neat bitumen (CAS 8052-42-4) is **not classified as hazardous** under GHS/CLP. Cutback bitumens containing kerosene/naphtha diluent classify as **Flam. Liq. 3 (H226)**, **Skin Irrit. 2 (H315)**, **Asp. Tox. 1 (H304)**, and **Aquatic Chronic 2 (H411)**.

2.3 Other Hazards: Handled hot at 140–190 °C — contact causes deep thermal burns. **Hydrogen Sulfide (H_2S)** gas may accumulate in tank headspaces and dull olfaction (odor fatigue).

2.2 Key Precautions (Hot & Cutback Handling):

P210 / P243 (Cutback): Keep away from heat, sparks, open flames; ground/bond transfer lines against static discharge.

P260 / P271: Do not breathe hot fumes or tank headspace gas (H_2S); use calibrated H_2S gas monitors and LEV ventilation.

P280: Wear heat-insulated gauntlets, face shield/goggles, and long-sleeve flame-retardant thermal PPE during hot pumping.

SECTION 3 Composition / Information on Ingredients

COMPONENT CHEMICAL NAME	CAS NO.	EC NO.	CONC. (% W/W)	HAZARD CLASSIFICATION (CLP/GHS)
Asphalt / Petroleum Bitumen (UVCB vacuum residue)	8052-42-4	232-490-9	**99–100% (Neat) / 55–85% (MC)**	Not classified as ambient solid; thermal & H_2S vapor risks when heated
Petroleum Kerosene / Solvent Diluent (Cutback MC Grades only)	8008-20-6	232-366-4	15 – 45% (Cutback only)	Flam. Liq. 3 (H226); Asp. Tox. 1 (H304); Skin Irrit. 2 (H315); STOT SE 3; Aquatic Chron. 2
Trace Hydrogen Sulfide (Dissolved headspace gas in hot tanks)	7783-06-4	231-977-3	< 0.01% (Headspace risk)	Flam. Gas 1 (H220); Acute Tox. 2 Inh. (H330); Aquatic Acute 1 (H400)

SECTION 4 First-Aid Measures

SKIN CONTACT (CRITICAL MOLTEN RULE)

Hot/Molten Bitumen: Flush immediately with cool running water for at least 15 minutes to cool the adhering layer. **DO NOT attempt to peel or tear solidified bitumen off the skin.** Seek urgent medical burn treatment; let physicians remove material safely with medicinal mineral oil.

INHALATION

Move affected person to fresh air immediately and keep warm at rest. If exposure to hot fumes or H_2S causes dizziness, headache, nausea, or breathing difficulty, administer oxygen if trained and obtain emergency medical care immediately.

EYE CONTACT

Flush gently with cool clean water for at least 15 minutes while holding eyelids open. If hot bitumen splashes into the eye, cool continuously with water, apply sterile dressing, and rush to urgent ophthalmic care — do not pull out solidified material.

INGESTION

Not a likely route for solid/viscous bitumen. Do NOT induce vomiting (especially for Cutback grades containing petroleum solvents due to aspiration pneumonia risk). Rinse mouth and seek immediate medical advice.

4.2 & 4.3 Medical Guidance: Note that H_2S quickly fatigues sense of smell; treat all tank headspace collapses as potential acute H_2S intoxication requiring immediate SCBA rescue and medical oxygen.

SECTION 5 Fire-Fighting Measures

5.1 Suitable Extinguishing Media: Dry chemical powder, carbon dioxide (CO_2), AFFF/alcohol-resistant foam, dry sand, or fine water fog (for cooling adjacent drums/tanks only).

Unsuitable Media (CRITICAL): NEVER apply direct solid water streams onto hot/molten bitumen (> 100 °C) — trapped steam causes violent foaming and boil-over explosions!

5.2 Hazardous Combustion Products: Carbon monoxide (CO), carbon dioxide, sulfur dioxide (SO_2), nitrogen oxides, polycyclic aromatic hydrocarbons (PAHs), and toxic smoke.

5.3 Firefighter PPE: Wear positive-pressure SCBA and full bunker gear. Cool closed steel drums and tankers externally with water mist to prevent pressure rupture.

SECTION 6 Accidental Release Measures

6.1 Personal Precautions: Keep unauthorized personnel upwind and clear of hot spills. Eliminate ignition sources (especially for heated loads and MC cutbacks). Wear thermal PPE, goggles, and H_2S monitor.

6.2 Environmental Precautions: Dike spills immediately with sand or earth; prevent flow into storm sewers, rivers, and coastal waters (float/sinking bitumen coats aquatic habitats).

6.3 Containment & Clean-up: Allow spilled neat bitumen to cool and solidify into rubbery mass, then scrape/shovel into salvage drums. For cutback liquid spills, absorb with inert vermiculite/sand using non-sparking tools.

SECTION 7 Handling and Storage

7.1 SAFE HANDLING & TEMPERATURE CONTROL

Avoid exceeding recommended pumping temperatures (typically 135–175 °C for paving grades; never heat near flash point). Ensure all heated storage tanks, valves, and lines are 100% free of water/condensate before charging hot bitumen (> 100 °C) to prevent sudden tank boil-over. Enforce strict H_2S gas testing before opening hatches or entering vessels.

7.2 STORAGE CONDITIONS & SEGREGATION

Store steel drums (150/180 kg) and meltable bitubags upright in dry, ventilated yards away from ignition sources and strong oxidizing agents (chlorates, nitrates, peroxides). Store Cutback grades (MC-30/70/250) as Class 3 flammable liquids in grounded, spark-proof bunded areas. Keep away from acids and liquid water contact when heated.

SECTION 8 Exposure Controls / Personal Protection

8.1 OCCUPATIONAL EXPOSURE LIMITS (OELS)

Asphalt (Petroleum) Fumes: ACGIH TLV-TWA: 0.5 mg/m³ (inhalable fraction, benzene-soluble aerosol) · NIOSH REL: 5 mg/m³ (15-min ceiling).

Headspace H_2S Gas: ACGIH TLV: 1 ppm (TWA) / 5 ppm (STEL) · Cutback kerosene vapor ACGIH: 200 mg/m³ TWA (skin).

8.2 ENGINEERING CONTROLS & HYGIENE

Equip asphalt kettles, mixing plants, and tanker loading racks with local exhaust capture/scrubbers. Maintain personal H_2S monitors on tank top operators. Wash thoroughly after handling; never use volatile gasoline/solvents to clean skin.

EYE / FACE PROTECTION	HAND PROTECTION	RESPIRATORY PROTECTION	BODY & FOOT PROTECTION
Chemical splash goggles + full polycarbonate face shield during hot pumping or sampling.	Long-cuffed, heat-insulating leather or heavy neoprene thermal gauntlets; nitrile gloves for cold/cutback.	Organic vapor/P2 particulate respirator if fumes exceed 0.5 mg/m³; positive-pressure SCBA for H_2S headspace risk.	Flame-retardant coveralls (EN ISO 11612) worn over leather safety boots; cuffs outside boots to shed hot splashes.

SECTION 9 Physical and Chemical Properties

PROPERTY	VALUE / DESCRIPTION	PROPERTY	VALUE / DESCRIPTION
Appearance & State	Black or dark-brown solid / semi-solid; liquid when heated	**Softening / Melting Range**	**40 – 65 °C (Paving) · 75 – 120 °C (Oxidized)**
Odor	Characteristic petroleum / tar-like odor	**Initial Boiling Point**	> 320 °C to > 500 °C (Neat) · ~150 °C (Cutbacks)
Flash Point (Neat / COC)	**> 230 °C (446 °F) (Paving / AC / VG / Oxidized)**	**Flash Point (Cutback MC)**	**38 – 90 °C (Tag Open Cup; solvent-dependent)**
Auto-Ignition Temp.	> 400 °C (Neat Bitumen) · ~210–250 °C (Cutback)	**Specific Gravity (@ 25 °C)**	1.01 – 1.06 g/cm³ (Neat) · 0.94–0.98 (Cutback)
Water Solubility	Practically insoluble (< 0.1 mg/L)	**Organic Solubility**	Soluble in trichloroethylene (≥ 99%), toluene, CS_2
Vapor Pressure	Negligible at 20 °C (Neat)	**Explosive Properties**	Non-explosive (headspace H_2S / cutback vapors flammable)

SECTION 10 Stability and Reactivity

10.1–10.3 Stability: Thermally and chemically stable at ambient storage; no hazardous polymerization occurs.

10.4 Conditions to Avoid: Heating above flash point, open flames, and **introducing water/moisture into hot bitumen (> 100 °C)** (violent steam boil-over hazard).

10.5 Incompatible Materials: Strong oxidizers (chlorates, nitrates, liquid oxygen, peroxides), strong acids, and fluorine/halogens.

10.6 Decomposition Products: CO, CO_2, sulfur oxides (SO_2), nitrogen oxides, PAH aerosols, and toxic H_2S gas under thermal cracking.

SECTION 11 Toxicological Information

11.1 Acute Toxicity (Base Neat Bitumen):

· **Oral LD_{50} (Rat):** > 5,000 mg/kg | **Dermal LD_{50} (Rabbit):** > 2,000 mg/kg

· **Inhalation:** Fumes from overheating irritate respiratory tract; acute fatal risk comes from confined-space **H_2S** release.

Carcinogenicity (IARC): IARC classifies occupational exposures to oxidized bitumens during roofing as **Group 2A** and straight-run bitumens/emissions during road paving as **Group 2B** (possibly carcinogenic). Maintain fumes below 0.5 mg/m³.

SECTION 12 Ecological Information

12.1 Aquatic Toxicity (Neat Bitumen WAF/QSAR): Fish 96h **LL_{50} > 1,000 mg/L**; *Daphnia magna* 48h **LL_{50} > 1,000 mg/L**; Algae 72h **EL_{50} > 1,000 mg/L**. Base neat bitumen is not GHS-classified as an aquatic hazard.

12.2–12.5 Fate & Cutbacks: Insoluble, non-volatile, immobile solid (sinks or forms inert films; not biodegradable). **Caution:** Cutback bitumens contain kerosene solvents which are toxic to aquatic organisms (H411). Not PBT/vPvB.

SECTION 13 Disposal Considerations

13.1 Waste Treatment: Solidified waste bitumen should be reclaimed/recycled into aggregate paving mixtures where permitted, or incinerated at an approved high-temperature waste plant. Do not discharge to sewers or soils.

Contaminated Drums / Bitubags: Drain steel drums completely while warm; recondition or recycle via licensed drum reconditioners under local hazardous-residue regulations.

SECTION 14 Transport Information (IMDG / ADR / RID / IATA-ICAO)

BITUMEN GRADE / SHIPPING CONDITION	UN NO.	PROPER SHIPPING NAME	CLASS / PG	REGULATORY CLASSIFICATION & TRANSIT NOTES
Ambient Solid Drums & Bitubags (< 100 °C)	—	Not Regulated as Dangerous Goods	Non-DG	Standard container or breakbulk cargo (Penetration, AC, VG, Oxidized)
Molten / Heated Tanker / ISO Tank (≥ 100 °C)	UN 3257	ELEVATED TEMPERATURE LIQUID, N.O.S. (Bitumen)	Class 9 · PG III	Applies when carried at or above 100 °C and below flash point · Hot placard req.
Cutback Bitumen (MC-30, MC-70, MC-250)	UN 1999	TARS, LIQUID (including road asphalt & cutbacks)	Class 3 · PG III	Flammable Liquid hazard label required · Flash Point ≤ 60 °C (or carrier Class 3)

SECTION 15 Regulatory Information

15.1 Chemical Inventories: Listed on EU EINECS/REACH (EC 232-490-9), US TSCA (CAS 8052-42-4), UK REACH, Canada DSL, China IECSC, and Australia AIIC.

Standards & Compliance: Prepared in accordance with REACH (EC) 1907/2006, CLP (EC) 1272/2008, OSHA HazCom 2012, and ASTM/EN bitumen handling codes.

SECTION 16 Other Information

Cutback H-Statements: H226 Flammable liquid & vapor · **H304** May be fatal if swallowed/enters airways · **H315** Skin irritation · **H411** Toxic to aquatic life with long-lasting effects.

Revision History: Rev. 2.0 (23 Nov 2026) — Full 16-section GHS/REACH supplier SDS edition.

Supplier Notice & Disclaimer (Beroil Energy Group): Beroil Energy Group supplies petroleum bitumen strictly in its role as global commodity supplier and commercial distributor (not primary refinery manufacturer). This SDS summarizes health, thermal burn, H_2S, and transport controls for CAS 8052-42-4 and cutback variants. It is not a Certificate of Analysis or technical specification (see BEG-TDS-BITUMEN and shipment SGS/Intertek COA).