

Material Safety Data Sheet (MSDS)
Product Name: Bitumen

1. PRODUCT IDENTIFICATION

Product name: BITUMEN

Grade: PENETRATION GRADE 60/70 and 80/100

Product use: Road making and waterproofing

2. HAZARDS IDENTIFICATION

Emergency response data: Black Semi-solid. Exposure to fire can generate toxic fumes. DOT ERG No. : 128

GHS Classification:

Health

Skin irritation	Hazard category 3. Causes mild skin irritation.	Warning
Eye irritation	Hazard category 2B. May cause mild eye irritation.	Warning

Environmental

Aquatic toxicity: Insoluble product, no significant effects on the aquatic environment.

Physical

Flammability: Non-flammable, combustible material.

Hazard Statements

Fumes from heated product may cause eye and lung irritation. Hot product can cause thermal burns. On rare occasions, Hydrogen Sulphide may be present which can accumulate to hazardous levels in enclosed spaces.

Precautionary Statements

Response

IN CASE OF FIRE: Use carbon dioxide, foam or dry chemical for extinction. IF INHALED: Call a POISON CENTRE or doctor if you feel unwell.

Disposal

Do not discharge into lakes, streams, ponds and ground water supply.

See Section 11 for further health effects/toxicological data.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS-No.	Weight%
Asphalt	8052-42-4	100.00

See Section 8 for Exposure Limits (if applicable).

4. FIRST AID MEASURES

Inhalation:	Under certain conditions smoke may be generated. Remove victim from further exposure. However, if respiratory irritation occurs due to excessive vapour or mist exposure, seek immediate medical assistance. If breathing has stopped, assist ventilation with mechanical device or use mouth-to-mouth resuscitation.
Skin contact:	Hot product can cause thermal burns. Immediately cool the affected area with water. This will form a sterile cover over the burn. Removal of cooled product should not be attempted unless directed by a burns specialist.
Eye contact:	If hot product is splashed into eyes flush with water and get immediate medical attention.
Ingestion:	Not expected to be a problem. However, if discomfort occurs seek medical attention.

5. FIRE-FIGHTING MEASURES

Extinguishing media: Carbon dioxide, foam and dry chemical.

Special firefighting

Procedure: Water may cause a rapid expansion of foaming material. Water spray should only be used to keep fire exposed containers cool and to flush spills away from exposure. Prevent runoff from fire control or dilution from entering streams, municipal sewers, or drinking water supply.

Special protective

Equipment for firefighters: Minimise inhaling fumes of decomposition products, and in enclosed areas, fire fighters must use Self-Contained Breathing Apparatus.

Unusual fire and explosive

hazards: Exposure to fire can generate toxic fumes.

Products of decomposition: Fumes, smoke, carbon monoxide, sulphur oxides, aldehydes and other decomposition products, in the case of incomplete combustion.

Flash Point: > 230 °C (ASTM D-92)

NFPA Hazard Id: Health: 3; Flammability: 0; Reactivity: 0

6. ACCIDENTAL RELEASE MEASURES

Procedure if material is

released or spilled: Report spills/releases as required to appropriate authorities.

Methods for cleaning up: LAND SPILL: Shovel up and dispose of at an appropriate waste disposal facility in accordance with current applicable laws and regulations, and product characteristics at time of disposal.

WATER SPILL: Bitumens are immiscible with water but may be adsorped in the sediment. Surface material may be skimmed off for later disposal.

Personal precautions: See Section 8.

Environmental precautions: Prevent spill from entering municipal sewers and water sources as it may cause blockages. Advise the relevant authorities if contaminations have occurred.

7. HANDLING AND STORAGE

Safe handling advice: On rare occasions, Hydrogen Sulphide may be present which can accumulate to hazardous levels in enclosed spaces. Avoid all personal contact and breathing of gas.

Storage information: Adequately vented storage tanks should be maintained below 100°C to prevent evolution of Hydrogen sulphide or degradation of the product.

Storage and handling

procedures: Avoid local overheating when raising to pumping temperature.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits (OELs)

Components	CAS-No.	Source	TWA	Value	Notations
Asphalt	8052-42-4	ACGIH TLV	LTEL	0.5 mg/m ³	Fumes

LTEL: Long Term Exposure Limits - Time Weight Average (TWA) over 8 hours.

STEL: Short Term Exposure Limits - Time Weight Average (TWA) over 15 Minutes

Note: Limits Shown for guidance only. Follow applicable regulations.

Personal Protective Equipment (PPE)

Engineering controls: Use in well-ventilated area.

Respiratory protection: Approved respiratory equipment must be used when airborne concentrations are unknown or exceed the recommended exposure limit. Self-Contained Breathing Apparatus may be required for use in confined or enclosed spaces.

Eye protection: If splash with liquid is possible, chemical type goggles should be worn.

Skin and body protection: If prolonged or repeated skin contact is likely wear oil impervious gloves and clothing. If handling hot material use heat-resistant gloves, apron and/or other clothing. Good personal hygiene practices should always be followed.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Semi-solid.
Colour:	Black
Odour:	Characteristic
Solubility:	Immiscible
Flash Point:	> 230 °C (ASTM D-92)
Vapour pressure:	< 0.1 hPa
Density:	> 1.01 g/cm ³ @ 20 °C (ASTM D-4052)

10. STABILITY AND REACTIVITY

Stability:	Stable.
Conditions to avoid:	Hot product in contact with water can cause foaming or sudden evolution of steam which could cause pressure build-up and possibly rupture a tank or vessel. Overheating may result in thermal cracking that produces toxic and flammable vapours.
Materials to avoid:	Halogens, strong acids, alkalis and oxidizers.
Hazardous decomposition products:	Fumes, smoke, carbon monoxide, sulphur oxides, aldehydes and other decomposition products, in the case of incomplete combustion.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity:	(Rats): Practically non-toxic (LD50: Greater than 2000 mg/kg). Based on testing of similar products and/or components. Warning Hazard category 5. May be harmful if swallowed.
Acute dermal toxicity:	(Rabbits): Practically non-toxic (LD50: greater than 2000 mg/kg). Based on testing of similar products and/or the components. Warning Hazard category 5. May be harmful in contact with skin.
Acute inhalation toxicity:	Not Established.
Skin irritation:	(Rabbits): Mild irritant. (Primary Irritation Index: greater than 0.5 but less than 3). Based on testing of similar products and/or the components. Warning Hazard category 3. Causes mild skin irritation.
Eye irritation:	(Rabbits): Mild irritant. (Draize score: greater than 6 but 15 or less). Based on testing of similar products and/or the components. May cause mild eye irritation. Hazard category 2B. Warning Respiratory and skin
sensitization:	This product was not a skin sensitizer when tested in a Modified Buehler Guinea Pig Sensitization Assay.
Germ cell mutagenicity:	This product tested negative in a series of mutagenic tests.
Carcinogenicity:	Chronic mouse skin painting studies of straight run bitumen showed no evidence of carcinogenic effects. However, some bituminous compounds may contain low levels of polycyclic aromatic hydrocarbons (PAHs). Dilution with solvents and prolonged repeated contact under conditions of poor personal hygiene, are a suspected cause of skin cancer in humans.
Reproductive toxicity	
(Teratogenicity):	Negative in a series of genetic assays and teratological studies.
Specific target organ toxicity	
(STOT) - Single exposure:	No significant effects expected.
Specific target organ toxicity	
(STOT) - Repeated exposure:	No significant adverse effects were found in studies using repeated dermal applications of bitumen to the skin of laboratory animals for 28 days at 2g/kg . Local dermal irritation and some weight loss was observed.

Aspiration hazard: Inhalation studies of high concentrations of bitumen fumes in rodents produced bronchitis, pneumonitis and lung changes (fibrosis and cell damage).

12. ECOLOGICAL INFORMATION

Ecotoxicity effects

Toxicity to fish: Not established.

Toxicity to aquatic organisms: This substance is practically non-toxic to aquatic organisms (LL50: >1000 mg/l).

Elimination information (persistence and degradability)

Biodegradability: Bitumen are persistent and not subject to biodegradation.

Mobility: adsorption to sediment and soil will be the predominant behaviour.

Bioaccumulation: Minimal owing to low water solubility.

Further information on ecology

Remarks: In the absence of specific environmental data for this product, this assessment is based on information for representative substances.

13. DISPOSAL CONSIDERATIONS

Waste disposal: This product is suitable for recycling or safe disposal at approved facilities.

Contaminated packaging: Empty containers retain residue (liquid and/or vapour) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to refill or clean container since residue is difficult to remove. Empty drums should be completely drained, properly bunged and promptly returned to a drum

reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

Other regulations:

The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity, or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Flash Point:

> 230 °C (ASTM D-92)

14. TRANSPORT INFORMATION

Note:

Product may be transported by air or road if its temperature is below 100°C and its flashpoint.

ADR

Proper shipping name: Elevated Temperature Liquid, n.o.s. [contains ASPHALTS (PETROLEUM)]
UN number: 3257
Class: 9
Packing group: III
Labelling number: 9

CFR

Proper shipping name: Elevated Temperature Liquid, n.o.s. [contains ASPHALTS (PETROLEUM)]
UN number: 3257
Class: 9
Packing group: III
Labelling number:

IATA_C

Proper shipping name: Elevated Temperature Liquid, n.o.s. [contains ASPHALTS (PETROLEUM)]
UN number: 3257
Class: 9
Packing group: III
Labelling number:

IMDG

Proper shipping name: Elevated Temperature Liquid, n.o.s. [contains ASPHALTS (PETROLEUM)]
UN number: 3257
Class: 9
Packing group: III
Labelling number: 9
IMDG code page number: 9027-1

15. REGULATORY INFORMATION

US OSHA Hazard

Communication Standard: This product may be used in certain applications where temperature may lead to generation of bitumen fumes.

Governmental Inventory

Status: All components comply with TSCA, EINECS/ELINCS, AICS, METI, DSL, KECI, ENCS, PICCS and IECSC.

EU Labelling: Product is not dangerous as defined by the European Union Dangerous Substances/Preparations Directives. EU labelling not required.

SARA

U.S. Superfund

Amendments and

Reauthorization Act SARA

Title III: This product contains no "EXTREMELY HAZARDOUS SUBSTANCES".

SARA (311/312) Reportable: None

Hazard Categories

The following product ingredients are cited on the lists below

Chemical name	CAS-No.	Concentration [%]	List Citations
Asphalt	8052-42-4	100.00	1, 18, 19, 20, 21, 23, 25, 26

Regulatory List Searched

1 = ACGIH ALL	6 = IARC 1	11 = TSCA 4	17 = CA P65	22 = MI 293
2 = ACGIH A1	7 = IARC 2A	12 = TSCA 5a2	18 = CA RTK	23 = MN RTK
3 = ACGIH A2	8 = IARC 2B	13 = TSCA 5e	19 = FL RTK	24 = NJ RTK
4 = NTP CARC	9 = OSHA CARC	14 = TSCA 6	20 = IL RTK	25 = PA RTK
5 = NTP SUS	10 = OSHA Z	15 = TSCA 12b	21 = LA RTK	26 = RI RTK

Code Key: CARC = Carcinogen; SUS = Suspected Carcinogen

16. OTHER INFORMATION

Note: Engen products do not contain PCBs.

INJECTION INJURY WARNING: If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a doctor as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

Note: No significant changes have been made to this Safety Data Sheet since the previous date.

Disclaimer

Information given herein is offered in good faith as accurate, but without guarantee. Conditions of use and suitability of the product for particular uses are beyond our control; all risks of use of the product are therefore assumed by the user and we expressly disclaim all warranties of every kind and nature, including warranties of merchantability and fitness for a particular purpose in respect to the use or suitability of the product. Nothing is intended as a recommendation for uses which infringe valid patents or as extending license under valid patents. Appropriate warnings and safe handling procedures should be provided to handlers and users.