BITUMEN
Safety Data Sheet

According to Occupational Health and Safety (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Malaysia Regulation 2013

Revision Date: 24.06.2020 Version: 1.2

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product Identifier

Product name	:	Bitumen
Synonyms	:	Bitumen, Asphalt Cement (AC), Penetration Grade Asphalt
CAS no.	:	8052 – 42 – 4

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Use of the substance/preparation	:	Bitumen product for building road, industrial and civil engineering materials and processes.

1.2.2. Relevant identified uses of the substance or mixture and uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Manufacturer / Distributor: KEMAMAN BITUMEN COMPANY SDN BHD.

Head office: Suite 12-1, Level 12, Tower 6
UOA Business Park
No 1, Jalan Pengaturcara U1/51A, Seksyen U1
40150 Shah Alam, Selangor Darul Ehsan
Malaysia
Tel. +603 5561 8500, Fax. +603 5561 8539

Refinery: Plot PT 7195, Telok kalong Industrial Area,
24000, Kemaman, Terengganu Darul Iman,
Malaysia
Tel. +609 8601800, Fax. +609 8601805

1.4. Emergency telephone number

Office hour (08:30a.m to 5:30p.m)	:	+603 56350998 or +609 8601800
24 hours	:	+609 8601842 or +609 8601834

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation [CLP/GHS]

Not a dangerous substance according to GHS.

2.2. Label elements

Labelling according to Regulation [CLP/GHS]

No Hazard symbol/signal required

GHS hazard statements:

Physical hazards : Not classified as a physical hazard under GHS criteria.

Health hazards : Not classified as a health hazard under GHS criteria.

Environmental hazards : Not classified as an environmental hazard under GHS criteria.

2.3. Other hazards

Not expected to be a health hazard at ambient temperature. Hot material may release hydrogen sulfide (H2S), an extremely flammable and toxic gas and volatile organic compound (VOCs) over the overhead space. Exposure to fume may causes irritation of the eyes, nose, and throat. High concentration of H2S may cause convulsion, coma and death. Contact with hot material can cause thermal burn which may result in permanent skin damage and blindness. Please see package labelling or manufacturer's literature for more detail on usage, handling, storage and disposal under different applications.

SECTION 3: Composition/information on ingredients

Name	Product identifier	%
Bitumen	(CAS No.) 8052 – 42 – 4	100%

Additional Information : Hydrogen sulfide may be present both in the liquid and the vapour. Composition is complex and varies with the source of the crude oil. Residues and their blends with distillates can be used as heavy fuel oils and need to be heated for use.

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice : Immediately address any airway, breathing, or circulation concerns. Contact EMS if the person is having trouble breathing, moving, or staying awake. Perform a quick assessment for other injuries that may be present including falls or from falling objects.

Inhalation : If symptoms of overexposure to asphalt fume develop, move to fresh air in

a position comfortable for breathing. If symptoms or irritation occur, call a poison control center or doctor.

Skin Contact : Hot material: DO NOT DELAY. Immediately immerse or place the affected skin under a water stream for at least 20 minutes. Urgent medical attention is required for burns to the face, eyes, hands, feet, genitalia, and for circumferential or large burn areas. GET MEDICAL ATTENTION IMMEDIATELY. Do not attempt to remove solidified asphalt if not a physician. Leave burn uncovered. Ice (or "cold packs") may be used in the event that water is unavailable. Only remove clothing if not adhering to the skin. Be aware that although it is very important to cool the burn thoroughly and completely, the overuse of ice may increase the risk of hypothermia.
Cold material: To remove cold asphalt not associated with a burn, wash with soap and water or waterless cleaner. If symptoms or irritation or rash occur, call a poison control center or doctor.

Eye Contact : Hot material: After contact with hot asphalt, lay the person flat on their back, remove contact lenses if easy to do, and flush with water from a continuous stream for at least 20 minutes by allowing the water to flow over the bridge of the nose to the eyes. GET MEDICAL ATTENTION IMMEDIATELY.
Cold material: If irritation develops, flush eyes with water. If irritation or redness persists call a poison control center or a doctor.

Ingestion : Small amounts of ingested asphalt usually require no treatment. If large amounts are swelled, call a poison control center or doctor.

4.2. Most important symptoms and effects, both acute and delayed

Potential acute health effects

Inhalation : Hot asphalt may release hydrogen sulfide gas. At low level, hydrogen sulfide causes irritation of the eyes, nose, and throat. Modorate level can causes headaches, dizziness, nausea and vomiting. Higher level can causes shock, convulsions, coma and death.
The U.S National Institute for Occupational Safety and Health (HIOSH) considers air concentrations of hydrogen sulfide gas greater than 100 ppm to be Immediately Dangerous to Life and Health (IDLH)

Ingestion : No known significant effects or critical hazards.

Skin contact : Heated material can cause thermal burns. May be harmful in contact with skin. Defatting to the skin. May cause skin dryness and irritation.

Eye contact : Heated material can cause thermal burns which may results in blindness.

Over-exposure signs/symptoms

Skin contact : No specific data.

Inhalation	:	No specific data.
Skin contact	:	Adverse symptoms may include the following: irritation, dryness, cracking
Ingestion	:	No specific data.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to physician	:	Do not attempt to remove the product from the skin as it provides an airtight sterile covering, which will eventually fall away with the scab as the burn heals.
Specific treatments	:	No specific treatment

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	:	For small fires, Class B fire extinguishing media such as CO2, dry chemical, foam (AFFF/ATC) or water fog can be used. For large fires, water spray, fog or foam (AFFF/ATC) can be used. Firefighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.
Unsuitable extinguishing media	:	Do not use a water jet. Do not use straight streams. Water contact can cause violent eruption of hot Bitumen.

5.2. Special hazards arising from the substance or mixture

Fire hazard	:	This product is not a combustible liquid but will ignite and burn at Temperatures exceeding the flash point. On combustion, Smoke, carbon monoxide, and other products of incomplete combustion will release.

5.3. Advice for firefighters

Firefighting instructions	:	Avoid using straight water streams. Water spray and foam (AFFF/ATC) must be applied carefully to avoid frothing and from as far a distance as possible. Avoid excessive water spray application. Keep run-off water out of sewers and water sources.
Protective equipment for firefighters	:	In case of fire: Wear self-contained breathing apparatus. Refer to section 8.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment	:	Use personal protective equipment. Refer to section 8.

6.1.2. For emergency responders

Protective equipment	:	In case of fire: Wear self-contained breathing apparatus. Refer to section 8.
Emergency procedures	:	Stop the source of the release if you can do without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in exposure controls/personal protection. Use appropriate techniques such as applying

non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

6.2. Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air)

6.3. Methods and material for containment and cleaning up

Small spill	:	Move containers from spill area. Eliminate source of ignition in vicinity of spilled material. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. If heated material is spilled, allow it to cool before proceeding with disposal methods.
Large spill	:	Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Eliminate source of ignition in vicinity of spilled material. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

6.4. Reference to other sections

Refer to sections 1, 8 and 13.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures	:	Put on appropriate personal protective equipment (see Section 8). Hazardous concentrations of hydrogen sulphide (H2S) gas may accumulate in the vapour space of storage vessels. Standard procedures for opening or entering tanks, vessels or other containers must strictly be followed to avoid inhalation of this acutely toxic gas.
Advice on general occupational hygiene	:	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store between the following temperatures: 130 to 180°C (284 to 356°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Do not add or allow water to mix with hot bitumen. Steam generated eruptions may occur. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Provide adequate ventilation.

7.3 Specific end use(s)

Not applicable.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Component	CAS – No.	Value type (from the exposure)	Control parameters/Permissible concentration	Basis
Bitumen	8052 – 42 – 4	TWA (Fumes)	5 mg/m^3	MY PEL
		TWA (Fume, inhalable fraction)	0.5 mg/m^3 (as benzene soluble aerosol)	ACGIH
Hydrogen sulfide	7783 – 06 – 4	TWA (Fume) STEL	1 ppm 5 ppm	ACGIH

8.2. Exposure controls

Appropriate engineering controls : Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exits, mechanical extraction ventilation is recommended. Maintain vapour levels below the recommended exposure standard.

Personal protective equipment : Protective goggles. Gloves. Protective clothing. Combined gas/dust mask with filter type A.

Hand protection : Wear heat resistance gloves or insulated gloves when handling hot material. Wear chemical resistant gloves (ie. Nitrile) when handling cold materials

Eye protection : Chemical goggles or face shield with safety glasses.

Skin and body protection : Wear suitable protective clothing.

Respiratory protection : Select respiratory protection equipment suitable for the specific conditions of use and meet the relevant legislation. Where air-filtering respirators are unsuitable (e.g airborne concentrations are high, confined space, high level of hydrogen sulfide) use appropriate positive pressure breathing apparatus. In case of dust or fume formation, use air-filtering respirator combined gas and mask. Select a filter suitable for the combination of organic gases, vapour and particle.

Environmental exposure controls : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Relevant water authorities should be notified of any large spillage to water course or drain.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical State : Semi-solid at room temperature. Liquid at temperatures >70°C

Appearance : Black-brown

Color : Dark brown to black

Odor	:	Tar
Odor	:	Threshold No available data.
Melting Point	:	> 45 °C (ASTM D36)
Initial Boiling Point / Boiling Range	:	No available data.
Flash Point	:	> 232 °C (ASTM D92)
Evaporation Rate	:	No available data.
Flammability (solid, gas)	:	Not applicable.
Flammability Limit in Air (%)		
Upper Flammability Limit	:	No available data.
Lower Flammability Limit	:	No available data.
Vapor Pressure	:	No available data.
Vapor Density	:	No available data.
Density	:	1.01-1.05 @ 15.0°C (ASTM D70)
Water Solubility	:	Insoluble.
Solubility in other solvents	:	Trichloroethylene, Toluene, Xylene
Partition Coefficient	:	No available data.
Decomposition temperature	:	No available data.
pH	:	Not applicable.
Auto ignition Temperature	:	No available data.
Kinematic Viscosity	:	>250 cSt @ 135°C (ASTM D2170)
Dynamic Viscosity	:	>150 Pa.s @ 60°C (ASTM D2171)
Explosive Properties	:	No available data.
Softening Point	:	>45 °C
VOC Content (%)	:	No available data.

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
The product is non-reactive under normal conditions.

10.2. Chemical stability
Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions
None under normal processing.

10.4 Hazardous polymerization
Will not occur.

10.5 Conditions to avoid
Sources of heat or ignition.

10.6 Incompatible materials
Strong oxidizing agents.

10.7 Hazardous decomposition products
None known under normal conditions of use.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Basis for Assessment : Information given is based on product data, a knowledge of the components and the toxicology of similar products.

Acute toxicity : No known toxicity data is available for this product. Based on available Data, the classification criteria are not met. Inhalation may cause Headache, nausea and respiratory tract irritation. Once cured, the inert Solid material is considered non-hazardous. Hot material may release highly toxic hydrogen sulfide gas that quickly fatigues the sense of smell.

Bitumen (CAS No. 8052 – 42 – 4)	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 inhalation rat (mg/l)	> 99.4 mg/m^3/4h
Hydrogen Sulfide (CAS No. 7783 – 06 – 4)	
LD50 oral rat	-
LD50 dermal rabbit	-
LC50 inhalation rat (mg/l)	444 ppm./4h

Skin corrosion/irritation : Contact with hot material can result in skin burns. Exposure to asphalt fumes may cause dermatitis and photosensitization. Once cured, the inert semi solid material is considered non hazardous.

Serious eye damage/irritation : Contact with hot material can result in eye burns. Exposure to asphalt fumes may cause irritation, redness or pain. Once cured, the inert semi solid material is unlikely to penetrate the eye and considered non hazardous.

Respiratory or skin sensitization : This product is not known to be a skin or respiratory sensitizer.

Aspiration Hazard : This product is not expected to present an aspiration hazard.

Germ cell mutagenicity : Insufficient data available to classify as a mutagen.

Carcinogenicity : Not classified as dangerous. It contains low concentrations of Polycyclic Aromatic Compounds (PACs). These PACs are not considered to be bioavaible. Despite the known presence of PACs there is no evidence that exposure to the product or their fume is harmful

Reproductive and Developmental Toxicity : Insufficient data available to classify as a reproductive toxin.

Specific target organ toxicity - single exposure : Inhalation of bitumen fumes may cause headache, nausea and respiratory tract irritation. This material may release trace quantities of hydrogen sulfide within storage facilities. Once cured, the inert semi solid material is considered non hazardous.

Specific target organ toxicity - repeated exposure : Not classified as causing organ effects from repeated exposure.

SECTION 12: Ecological information

Basis for Assessment : Fuels are typically made from blending several refinery

12.1. Toxicity

There is currently insufficient data to classify the ecotoxicity of this product. The bulk of the bitumen dispersed in asphalt is fairly inert when set, and should not present an environmental hazard under normal conditions.

12.2. Persistence and degradability

Can be expected to biodegrade slowly.

12.3. Bioaccumulative potential

This product is not expected to bio accumulate through food chains in the environment.

12.4. Mobility in soil

Not likely to move rapidly with surface or groundwater flows because of its low water solubility.

12.5. Other adverse effects

Prevent contamination of drains or waterways.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal : For small amounts dispose of to an approved landfill site. Contact the manufacturer for additional information if larger amounts are involved. Prevent contamination of drains and waterways as aquatic life may be threatened and environmental damage may result.

Legislation : Dispose of in accordance with relevant local legislation.

SECTION 14: Transport information

In accordance with DOT / UNRTDG / IMDG / IATA

14.1. UN number

UN-No. : 3257

14.2. UN proper shipping name

Proper shipping name : Elevated temperature liquid, N.O.S.

Transport document description : UN 3257 ELEVATED TEMPERATURE LIQUID, N.O.S., 9, III.

14.3. Transport hazard class(es)

Class (UN) : 9

Hazard labels (UN) : 9

14.4. Packing group

Packing group (UN) : III

14.5. Environmental hazards

Marine pollutant :

Other information : No supplementary information available.

14.6. Special precautions for user

14.6.1. Transport by sea

Transport regulations (IMDG) : Subject to the provisions
EmS-No. : F-A, S-P

14.6.2. Air transport

ERG Code : 9L

14.6.3. Inland waterway transport

Transport regulations (ADN) : Subject to the provisions

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. National regulations

Classification, Labelling and Safety Data Sheet of Hazardous Chemicals Malaysia Regulation - 2013
Safety, health and environmental regulations/legislation specific for the substance or mixture

The components of this product are reported in the following inventories:

TSCA : On the inventory, or in compliance with the inventory.
AICS : On the inventory, or in compliance with the inventory.
NZIoC : On the inventory, or in compliance with the inventory.
KECI : On the inventory, or in compliance with the inventory.
PICCS : On the inventory, or in compliance with the inventory.
IECSC : On the inventory, or in compliance with the inventory.
TCSI : On the inventory, or in compliance with the inventory.

Inventories
AICS (Australia), IECSC (China), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (USA), TCSI (Taiwan)

SECTION 16: Other information

Additional Information	:	This document contains important information to ensure the safe storage, handling and use of this product. The information in this document should be brought to the attention of the person in your organization responsible for advising on safety matters.
SDS Effective Date	:	24.06.2020
Uses and Restrictions	:	is product must not be used in applications other than those recommended in Section 1, without first seeking the advice of the supplier.
SDS Distribution	:	The information in this document should be made available to all who may handle the product.

The information presented in this Safety Data Sheet is based on current knowledge and is believed to be complete and accurate. It describes the product for the purposes of health, safety and environment requirements only and shall, therefore, be used only as a guide. The data refers to a specific product and may not be valid for combined uses with other products. It is the user´s obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. KBC shall not be responsible for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices.