MATERIAL SAFETY DATA SHEET ***PAVING GRADE BITUMEN: 60-70 pen***

IMPORTANT ADVICE TO READERS OF THIS DOCUMENT

THIS DOCUMENT CONTAINS IMPORTANT INFORMATION TO ENSURE THE SAFE STORAGE, HANDLING AND USE OF THIS PRODUCT. THE INFORMATION SHOULD BE BROUGHT TO THE ATTENTION OF THE PERSON IN YOUR ORGANISATION RESPONSIBLE FOR ADVISING ON SAFETY MATTERS.

MATERIAL SAFETY DATA SHEET *PAVING GRADE BITUMEN: 60-70 pen*

IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND COMPANY

Product name: Bitumen 60-70 pen

Product type: Paving Grade Bitumen

SUPPLIER

MUSCAT INTERNATIONAL BITUMEN LLC
P.O.BOX- 731, Postal code : 116, Sultanate of Oman.
Telephone number: + 968 22009630
Fax number: + 968 22009631

24 HOURS EMERGENCY TELEPHONE NUMBER:
+ 968 99468456 / 97722003

COMPOSITION / INFORMATION ON INGREDIENTS

Paving Grade Bitumen is a substance

CAS Number: 8052-42-4

EINECS Number: 232-490-9.

HAZARDS IDENTIFICATION

Human Health hazards

Paving grade bitumens at ambient temperature present no human health hazards.

Bitumens are normally handled at elevated temperature which may cause thermal burns.

In the heated state bitumens give off fumes. Although these are not thought to produce a significant health hazard, prudence would dictate that exposure to these fumes should be kept to a minimum by observing good work practice and ensuring good ventilation around work areas.

HYDROGEN SULPHIDE can accumulate in the head space of storage tanks containing bitumen and can reach potentially hazardous concentrations.

Physical and Chemical hazards

Paving grade bitumen's are typically stored and handled at temperatures significantly above 150°C and contact with water will result in a violent expansion and a danger of splashing or "boil-over". Although not classified as flammable, bitumens are hydrocarbon materials and can burn.

Specific hazards

Paving grade bitumens are not classified as dangerous under **EC** criteria. but they do contain very low concentrations of Polycyclic Aromatic Compounds (PAC's). In undiluted bitumens these PAC's are not considered to be bio-available. However, if paving grade bitumens are mixed with diluents it is believed that such materials may become bio-available if the product has a low viscosity at ambient temperatures. Despite the known presence of PAC's there is no evidence that exposure to undiluted bitumens, or their fume is harmful

MATERIAL SAFETY DATA SHEET *PAVING GRADE BITUMEN: 60-70 pen*

First-Aid Measures

Inhalation

If inhalation of mists, fumes or vapour causes irritation to the nose or throat, or coughing, remove to fresh air. If symptoms persist obtain medical advice.

Casualties suffering ill effects as a result of exposure to hydrogen sulphide should be immediately removed to fresh air and medical assistance obtained without delay. Unconscious casualties must be placed in the recovery position. Monitor breathing and pulse rate and if breathing has failed, or is deemed inadequate, respiration must be assisted, preferably by the mouth to mouth method. Administer external cardiac massage if necessary. Seek medical attention immediately.

Eyes

Cold product - Wash eye thoroughly with copious quantities of water, ensuring eyelids are held open. Obtain medical advice if any pain or redness develops or persists.

Hot product - Flood with water for at least 5 minutes to dissipate heat. In the event of any product remaining, do not try to remove it other than by continued irrigation with water. Obtain medical attention immediately.

Skin

Where skin burns occur flood with water for at least 10 minutes to dissipate heat. Do not attempt to remove the bitumen from the skin as it provides an airtight, sterile covering over the burn which will eventually fall away with the scab as the burn heals. All burns should receive medical attention, it should be noted that bitumen stiffens on cooling and, where a limb is encircled, tissue swelling may cause a tourniquet effect. In the event of this occurring the adhering bitumen must be softened and/or split to prevent restriction of blood flow

Treatment should in general be symptomatic and directed to relieving any effects. If for any reason the bitumen must be removed, this can be done using a slightly warmed medicinal liquid paraffin.

MATERIAL SAFETY DATA SHEET *PAVING GRADE BITUMEN: 60-70 pen*

FIRE-FIGHTING MEASURES

Extinguishing media:

Dry chemical powder, foam, inert gas, carbon dioxide, water spray (fog), sand or earth.

Water jets must never be used.

The use of Halon® extinguishers should be avoided for environmental reasons

Specific hazards:

Boil-over of tanks and violent eruptions in the presence of water (splatter of hot material).

Respiratory problems or nausea by excessive exposure to hot bitumen fumes.

Burning bitumen gives rise to a complex mixture of gases and airborne particles including carbon monoxide and sulphur oxides.

Protection fire fighter:

Proper equipment (gloves, shoes, goggles or self contained breathing apparatus).

other information

Keep adjacent containers cool by spraying with water

Hot bitumen can cause violent eruptions in contact with water, and may splatter hot material.

ACCIDENTAL RELEASE MEASURES

Personal precautions

In confined spaces, do not allow water or other liquid to contact hot bitumen.

Hot bitumen should be handled so that there is no risk of burns.

Shut off leaks if possible without personal risk

Environmental precautions

Prevent spillage to drains.

Clean-up methods

Small spill:

Allow to cool and solidify. Remove mechanically into containers for disposal or reclamation in accordance with local regulations.

Large spill:

Prevent from spreading by making trench or barrier with sand, earth or other material. Otherwise treat as for small spillage.

MATERIAL SAFETY DATA SHEET *PAVING GRADE BITUMEN: 60-70 pen*

HANDLING AND STORAGE

Maximum safe handling and storage temperature at least 30°C below the flash point.

Avoid overheating to minimise fuming.

Handling:

Paving bitumen is typically handled and stored as a liquid, which means elevated temperatures (>150°C). Paving bitumen is also transported as a solid and reheated for application.

Avoid contact (skin burns) and breathing fumes (irritation of respiratory tract). Do not use solvents in case of obstructions.

Clean, dry and heat resistant hoses (free of twists, etc.) should be used.

Do not use steam to empty pipelines and hoses.

Storage:

Prevent ingress of water.

Carbonaceous deposits may develop on walls and roofs of bitumen storage tanks which may be pyrophoric or self heating and may self-ignite.

Hydrogen sulphide may accumulate in tanks during long term storage at high temperatures.

Proper ventilation is required (vents should not terminate near windows or air inlet).

recautions during discharge from bitumen tanks:

Where bitumen is being pumped from a storage tank or road tank care should be taken to avoid the risk of fire or explosion as a result of exposing hot heater tubes.

Bitumen tanks may be heated by hot oil, steam, electricity or flame tubes. Under circumstances where bitumen is being pumped from a tank containing heater tubes precautions should be taken to prevent the level dropping below 150 mm above the tubes unless the heat has been switched off for a period of sufficient cooling. The bulk temperature of the bitumen during handling should be kept as low as possible, consistent with efficient discharge and at no time should it exceed the maximum temperature recommended by the supplier.

A check should be made to ensure that the receiving tank has sufficient ullage space to accommodate the load.

MATERIAL SAFETY DATA SHEET *PAVING GRADE BITUMEN: 60-70 pen*

EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering measures:

Bitumen has a low volatility, fume formation is therefore low.

Exposure to fumes should be minimised.

Control parameters:

In the absence of any national or local regulations the following controls are recommended:

Name	Type	Value	Other inf.	Reference
Bitumen Fume	8h TWA	0.5 mg/m³	BE-IP[1]	ACGIH
Bitumen fume	10m STEL	5 mg/m³	TPM[2]	NIOSH
H_2S	8h TWA	14 mg/m³		ACGIH
H_2S	10m STEL	21 mg/m³		ACGIH

Personal protection:

Wear protective clothing for normal operations with hot material, like heat resistant coveralls (with legs over boots and cuffs over gloves), heat resistant gloves, and heavy duty boots.

Coveralls should be cleaned as necessary to avoid permeation of the product to under clothing.

Good personal hygiene in respect of hands and under clothing should always be maintained in the course of work.

If splashing is likely then additional requirements are:

Full head and face protection (protective screen and / or safety goggles) and neck cloth.

Respiration protection is not required under normal conditions of use and with adequate ventilation. Use approved respiratory protective equipment in spaces where hydrogen sulphide vapours may accumulate, or where it is possible that the Exposure Limit might be exceeded.

PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Physical State:	Solid at ambient temperature, liquid at normal handling temperatures
Colour:	Dark brown to black
dour:	Characteristic odour
PH	Not applicable

[1] Benzene Extractable - Inhalable Particulate
[2] Total Particulate Matter

MATERIAL SAFETY DATA SHEET *PAVING GRADE BITUMEN: 60-70 pen*

Specific Temperature of change of physical state:

Softening point:	*48 - 52*°C
Distillation characteristics:	Initial boiling point: >250°C
Flash point:	Cleveland Open Cup: >230°C
Vapour pressure:	Negligible at ambient temperature
Density:	990 to 1300 kg/m³ at 25°C 850 to 1100 kg/m³ at 200°C
Solubility:	
Water:	Insoluble, non miscible
Organic solvents:	Soluble in many organic solvents
Fats:	Partly soluble
Explosive properties:	When overheated, bitumen may evolve flammable vapours that can lead to explosive atmosphere Contact of hot bitumen with water can lead to explosive tank rupture due to steam formation.
Auto-Ignition temperature:	>300°C
Other data:	
Penetration at 25°C:	*60-70*
Electrical conductivity:	Insulating
Hygroscopicity:	Not hygroscopic

MATERIAL SAFETY DATA SHEET *PAVING GRADE BITUMEN: 60-70 pen*

STABILITY AND REACTIVITY

Conditions to avoid:

Excessive heating above the maximum recommended handling and storage temperatures will cause cracking and evolution of flammable vapours.

Material to avoid:

Do not allow molten product to contact water or other liquid.

Avoid contact with strong oxidising agents.

Self heating, leading to auto-ignition at the surfaces of porous or fibrous materials impregnated with bitumen or condensates from bitumen fumes, can occur at temperatures below 100°C. Oil and bitumen contamination of thermal insulation near hot surfaces should therefore be avoided and lagging should be replaced where necessary by a non-absorbent type of insulation.

Hazardous decomposition products:

In a confined space toxic gas (hydrogen sulphide) may accumulate above the bitumen.

TOXICOLOGICAL INFORMATION

Acute toxicity

Existing data and extrapolation from data on other petroleum products indicates that the acute toxicity of bitumens is likely to be low.

Inhalation

The fumes from hot bitumen may lead to slight irritation of the upper respiratory tract.

Sensitisation and irritation

Bitumen is not known to be a skin sensitiser, although condensed bitumen fume is likely to be slightly irritant to the skin. Vapours from hot bitumen may be slightly irritant to the eyes and the upper respiratory tract.

Chronic toxicity

Paving Grade bitumens present no chronic hazards at ambient temperature, but they do contain very low concentrations of Polycyclic Aromatic Compounds (PAC's). In undiluted bitumens these PAC's are not considered to be bio-available. However, if Paving Grade bitumens are mixed with diluents it is believed that such materials may become bio-available if the product has a low viscosity at ambient temperatures. Despite the known presence of PAC's there is no evidence that exposure to undiluted bitumens, or their fume is harmful. However it is recommended that all unnecessary exposure be reduced as far as practicable. Under normal conditions of use skin contact with bitumens is expected to be limited by the high temperatures needed to work the material.

The safety hazard, therefore, normally limits any chronic skin hazard.

ECOLOGICAL INFORMATION

Environmental effects

Paving Grade bitumens are not thought to present any significant environmental hazard. If hot bitumen is spilled onto soil or water it quickly cools and becomes solid and only a physical fouling hazard then exists. Bitumen is not inherently biodegradable.

Mobility

Ground: According to its physical properties, bitumen is not mobile and will remain on the soil surface.

Water: Insoluble. *The water solubility is so low that it can be considered as to be negligible.*

Bitumen will normally sink to the sediment, although in some circumstances it may float.

Persistence and degradability

Degradation is very slow. Under normal circumstances the product will remain in place.

Bio-accumulation

Unlikely, due to extremely low water solubility.

Eco-toxicity

The product is not environmentally toxic. It is not dangerous to plant and aquatic environment.

DISPOSAL CONSIDERATIONS

Waste from residues:

Methods for safe disposal:
Not classified as a hazardous waste.
Recycling is recommended.
Dispose in conformance with national and local regulations.

Contaminated packaging:

Methods for safe disposal:
Through authorised contractor or collector.

MATERIAL SAFETY DATA SHEET *PAVING GRADE BITUMEN: 60-70 pen*

TRANSPORT INFORMATION

old:

Not classified as hazardous for transport (ADR, RID, UN, IATA/ICAO.

ot:

Conform to local requirements, if none exists recommend:

UN number: 3257

UN Class/Packing group: 9, III

UN Proper shipping name: Elevated temperature liquid n.o.s. (above 100°C and below its flash point)

ADR/RID Class/Item: 9, -

ADR/RID Symbol: Miscellaneous

ADR/RID Proper shipping Name: Elevated temperature liquid n.o.s. (above 100°C and below its flash point)

IATA/ICAO: Forbidden for transport on passenger and cargo aircraft in molten state.

IMO: Elevated temperature liquid n.o.s., Class 9, Packing Group III

MERGENCY ACTION CODE: 2W

ote:

Under ADR emptied uncleaned tankers are classified as follows:

Emptied container class 9, item 71 ADR latest cargo 3257 Liquid elevated temperature n.o.s., item 20 [c]

REGULATORY INFORMATION

Not classified as hazardous for supply. No statutory label required.

OTHER INFORMATION

Bitumen 60/70 pen is produced from crude oil and is intended for use in asphalt mixtures. It is recognised that MIB bitumen might be used for mixtures in which Reclaimed Asphalt Pavement (RAP) is incorporated. Users should be aware that there are instances when RAP may contain coal tar or other hazardous substances. If such material is heated as part of the manufacturing process, with or without MIB bitumen, fumes containing coal tar (or other hazardous substances) may be emitted which may be dangerous if inhaled. Users should be aware of the potential hazards arising from the incorporation of RAP into asphalt mixtures and ensure that appropriate exposure limits are complied with and that exposure to fumes from asphalt mixtures containing RAP is minimised.

Legislation and other sources which have been used in the compilation of this Safety Data Sheet include:

MATERIAL SAFETY DATA SHEET *PAVING GRADE BITUMEN: 60-70 pen*

CONCAWE Product Dossier 92/104 "Bitumen and bitumen derivatives" which contains all relevant toxicological and ecological data. December 1992.
Available from CONCAWE, Madou Plaza 1 - 24th Floor, B - 1210 Brussels, Belgium

Institute of Petroleum - Bitumen Safety Code, Part 11 of Model Code of Safe practice, July 1990.

CEN / TC 19 / SC 1 N80 Petroleum Products - Bitumen and Bituminous Binders - Terminology

This product is supplied on the understanding that it will be used in the manner and for the purpose(s) specified in the Product Data Sheet, the user having taken all precaution stipulated.
Failure to follow such directions may adversely affect any rights that the user might have against the Company.
Before application other than as directed, advice must be obtained from the company.