

Material Safety Data Sheet

ISSUE DATE: May 2009**Product Name : OXIDIZED BITUMEN (BLOWN BITUMEN)**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name : Oxidized Bitumen R 10/20,R 85/25,R 85/40,R 115/15
Company Name : Benzene International Pte Ltd
Address : 10 Bukit Batok Crescent
#04-04 The Spire, Singapore 658079
Tel: +65-63372735; Fax: +65-6337273

2. COMPOSITION / INFORMATION ON INGREDIENTS

Preparation description : A blend of components derived from crude petroleum oil.
Additional Information : Crude petroleum oil may contain trace levels of Hydrogen Sulphide (H₂S).

3. HAZARDS IDENTIFICATION

EC Classification : Not classified as dangerous under EC criteria.

Health Hazards : Not expected to be a health hazard at ambient temperature.

Hydrogen sulphide (H₂S), an extremely flammable and toxic Gas and other hazardous vapours may evolve and collect in the headspace of storage tanks, transport vessels and other enclosed containers. Hydrogen sulphide is highly toxic and may be fatal if inhaled. May dull the sense of smell, so do not rely on odour as an indication of hazard. Contact with hot material can cause thermal burns which may result in permanent skin damage. Hot product may cause severe eye burns and/or blindness. A component or components of this material may cause cancer.

Signs and Symptoms

H₂S has a broad range of effects dependent on the airborne Concentration and length of exposure: 0.02 ppm odour Threshold, smell of rotten eggs; 10 ppm eye and respiratory Tract irritation; 100 ppm coughing, headache, dizziness, nausea, Eye irritation, loss of sense of smell in minutes; 200 ppm Potential for pulmonary edema after >20-30 minutes; 500 ppm Loss of consciousness after short exposures, potential for Respiratory arrest; >1000ppm immediate loss of consciousness, May lead rapidly to death, prompt cardiopulmonary resuscitation may be required. Do not depend on sense of smell for warning. H₂S causes rapid olfactory fatigue (deadens sense of smell). There is no evidence that H₂S will accumulate in the body tissue after repeated exposure.

Safety Hazards	: Not classified as flammable but will burn .Typically stored and handled above 100 ^o c.Contact with water will result in violent expansion and splashing or boil-over may occur.
Environmental Hazards	: Not classified as dangerous for the environment.

4. FIRST AID MEASURES

General Information

DO NOT DELAY. Keep victim calm. Obtain medical treatment immediately.

Inhalation

If inhalation of mists, fumes or vapour causes irritation to the Nose or throat, remove to fresh air. If rapid recovery does not occur, obtain medical attention. Casualties suffering ill effects As a result of exposure to hydrogen sulphide should be removed to fresh air. Do not attempt to rescue the victim unless proper respiratory protection is worn. If the victim has Difficulty breathing or tightness of the chest, is dizzy, vomiting, or unresponsive, give 100% oxygen with rescue breathing or Cardiopulmonary Resuscitation (CPR) as required and transport to the nearest medical facility.

Skin Contact

If contact with hot product, cool the burn area by flushing with Large amounts of water. Do not attempt to remove anything from the burn area or apply burn creams or ointments. Cover the burn area loosely with a sterile dressing, if available. Transport to the nearest medical facility for additional Treatment. It should be noted this product contracts on cooling. Where a limb is encased, care should be taken to avoid the development of a tourniquet effect. In the event of this occurring the adhering product must be softened and/or split to prevent restriction of blood flow. All burns should receive medical attention.

Eye Contact

Hot product - If contact with hot product, cool the burn area by Flushing with large amounts of water. Do not attempt to remove anything from the burn area or apply burn creams or ointments. Cover the burn area loosely with a sterile dressing, if available. Transport to the nearest medical facility for additional Treatment. All burns should receive medical attention. Cold product - Flush eye with copious quantities of water. If Persistent irritation occurs, obtain medical attention.

Ingestion

Under normal conditions of use, this is not expected to be primary route of exposure.

Advice 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. If removal is attempted, Mineral oil (not mineral spirits) or a mineral oil based ointment May be applied to help soften the product to facilitate removal. Hydrogen sulphide (H₂S) - CNS asphyxiant. May cause Rhinitis, bronchitis and occasionally pulmonary edema after severe exposure. CONSIDER: Oxygen therapy. Consult a Poison Control Centre for guidance.

5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Specific Hazards

Hazardous combustion products may include: A complex Mixture of airborne solid and liquid particulates and gases (Smoke). Carbon monoxide. Unidentified organic and inorganic Compounds. Boil-over of tanks and violent eruptions may occur in the presence of water.

Suitable Extinguishing

Foam, water spray or fog. Dry chemical powder, carbon dioxide, Media sand or earth may be used for small fires only.

Unsuitable Extinguishing

Do not use water in a jet.

Media Protecting Equipment

Proper protective equipment including breathing apparatus must be Fire Fighter worn when approaching a fire in a confined space

6. ACCIDENTAL RELEASE MEASURES

Avoid contact with spilled or released material .For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet .See Chapter 13 for information on disposal.

Protective measures

Avoid contact with skin, eyes and clothing. Hot product should Be handled so that there is no risk of burns. Use compressed Air or fresh air respiratory equipment in confined spaces. Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers.

Clean Up Methods

Small spillage

Allow product to cool and solidify. Shovel into a suitable clearly marked container for disposal or reclamation in accordance With local regulations.

Large spillage

Prevent from spreading by making a barrier with sand, earth or other containment material. Treat residues as for small spillage.

Additional Advice

Local authorities should be advised if significant spillages cannot be contained

7. HANDLING AND STORAGE

General Precautions

Avoid contact with hot liquid to prevent thermal burns.

Handling

For quality, health and safety reasons do not exceed the recommended storage and handling temperature. Clean, dry and heat resistant hoses (free of twists, etc.) should be used. Do not use steam to empty pipelines and hoses. Use Compressed air to blow product from the system or apply a Vacuum to suck the product from the system. Do not use Solvents to clear obstructions of pipelines.

Storage

Keep dry. Keep container in a well-ventilated place. Prevent all contact with water and with moist atmosphere. In case of long term storage, deposits may develop on walls and roofs of storage tanks. These deposits, (carbonaceous materials and Iron sulphides), may be pyrophoric and self-ignite when Brought into contact with air (opening of tank). HydrogenSulphide may accumulate in tanks during long term storage at high temperatures. For this reason, tank vapour spaces should be regarded as hazardous.

Storage Temperature

Temperature should be kept at least 30°C below flash point and should never exceed the industry recommended maximum safe working temperature of 200°C.

Recommended

For containers or container linings, use stainless steel materials

Unsuitable Materials

For containers or container linings, avoid PVC, polyethylene or high density polyethylene.

Precautions during Discharge from Tanks

May be heated by hot oil, steam, electricity or flame Bitumen tanks tubes. When pumping product from a storage or road tank, Care should be taken to avoid the risk of fire or explosion as a Result of exposing hot heater tubes. The tubes should be covered by a minimum of 150mm of hot product, unless the Heat has been switched off for a period of sufficient cooling. Bulk temperature should be kept as low as possible, to enable efficient discharge. A check should be made to ensure that the receiving tank has sufficient ullage space to accommodate the load.

8 .EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits					
Material	Source	Type	Ppm	Mg/m3	Notation
Asphalt	SG OEL	TWA [Fume]		5mg/m3	
,fumes					
Hydrogen Sulphide	SG OEL	TWA	10 ppm	14mg/m3	
Hydrogen Sulphide	SG OEL	STEL	15 ppm	21 mg/m3	

Additional Information : Product has a low volatility and at ambient temperature fume formation will be low. Avoid vapours from heated materials to prevent exposure to potentially toxic/irritating fumes.

Material	Source	Hazard Designation
Asphalt, fumes	ACGIH	Not classifiable as a human carcinogen

Personal Protective Equipment

Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Respiratory Protection

No respiratory protection is ordinarily required under normal Conditions of use. Use self contained breathing apparatus in places where hydrogen sulphide vapours may accumulate.

Hand Protection

When handling heated product wear heat resistant gloves. Suitability and durability of a glove is dependent on usage, e.g. Frequency and duration of contact. Always seek advice from Glove suppliers.

Eye Protection

For normal operations with hot material wear safety hat with visor.

Protective Clothing

For normal operations with hot material wear heat resistant Coveralls, (with cuffs over gloves and legs over boots), and Heavy-duty boots, e.g. leather for heat resistance. The use of a neck apron is recommended.

Environmental Exposure Controls

Minimise release to the environment. An environmental assessment must be made to ensure compliance with local Environmental legislation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Brown to black. Liquid at high temperatures.
Odour	:	Characteristic.
Softening point	:	110 - 120 °C / 230 - 248 °F
Flash point	:	> 230 °C / 446 °F (Cleveland Open Cup)
Auto-ignition temperature	:	> 300 °C / 572 °F
Density	:	ca. 0.990 - 1.300 g/cm ³ at 25 °C / 77 °F
Water solubility	:	Negligible.
Solubility in other solvents	:	Soluble.
Penetration	:	10 - 20 dmm
Hygroscopicity	:	Negligible

10. STABILITY AND REACTIVITY**Stability**

Stable under normal conditions of use.

Conditions to Avoid

Heating above the maximum recommended storage and Handling temperature, will cause degradation and evolution of Flammable vapours.

Materials to Avoid

Do not allow molten material to contact water or liquids as this can cause violent eruptions, splatter hot material, or ignite flammable material. Reacts with strong oxidizing agents. Avoid contamination of thermal insulation near hot surfaces by oil and bitumen and replace lagging where necessary, with a nonabsorbent type of insulation. Self-heating, leading to auto ignition at the surfaces of porous or fibrous materials impregnated with bitumen or condensates from bituminous fumes can occur at temperatures below 100°C.

Hazardous Decomposition Products

Hydrogen sulphide

11. TOXICOLOGICAL INFORMATION**Basis for Assessment**

Toxicological data have not been determined specifically for this product. Information given is based on data on the components and the toxicology of similar products.

Acute Oral Toxicity

Expected to be of low toxicity: LD50 > 5000 mg/kg , Rat

Acute Dermal Toxicity

Expected to be of low toxicity: LD50 > 5000 mg/kg , Rabbit

Acute Inhalation Toxicity

Not considered to be an inhalation hazard under normal conditions of use. Avoid vapours from heated materials to prevent exposure to potentially toxic/irritating fumes.

Skin Irritation

Expected to be slightly irritating. Contact with hot material can cause thermal burns which may result in permanent skin

Eye Irritation

Expected to be slightly irritating. Hot product may cause severe eye burns and/or blindness.

Respiratory Irritation

Inhalation of vapours or mists may cause irritation to the respiratory system.

Sensitization

Not expected to be a skin sensitizer.

Repeated Dose Toxicity

Not expected to be a hazard.

Mutagen city

Not considered a mutagenic hazard.

Carcinogenicity

Bitumen's are not classified as dangerous under EC criteria. Bitumen's contain low concentrations of Polycyclic Aromatic Compounds (PACs). In undiluted bitumen these PACs are not considered to be bio-available. However, if bitumen's are mixed with diluents to obtain a low viscosity at ambient temperatures, it is believed that such materials may become bio-available. Despite the known presence of PACs there is no evidence that Exposure to undiluted bitumen or their fumes is harmful .

Reproductive and Developmental Toxicity

Data not available

12. ECOLOGICAL INFORMATION

Eco-toxicological data have not been determined specifically for this product. Information given is Based on knowledge of the components and the eco-toxicology of similar products.

Acute Toxicity

Poorly soluble mixture. May cause physical fouling of aquatic Organisms. Expected to be practically non toxic: LL/EL/IL50 >100 mg/l (to aquatic organisms) (LL/EL50 expressed as the Nominal amount of product required to prepare aqueous test Extract).

Mobility

Adsorbs to soil and has low mobility. In water will either float or Sink, showing little tendency to disperse, the product will adsorb to the sediment.

Persistence/degradability

Expected to be not inherently biodegradable.

Bioaccumulation

Has the potential to bio-accumulate. In practice, the very low Water solubility and high molecular weights of these Substances are such that their bioavailability to aquatic Organisms is limited and therefore bioaccumulation is unlikely.

Other Adverse Effects

Not expected to have ozone depletion potential, photochemical Ozone creation potential or global warming potential.

13. DISPOSAL CONSIDERATIONS**Material Disposal**

Recover or recycle if possible. It is the responsibility of the Waste generator to determine the toxicity and physical Properties of the material generated to determine the proper Waste classification and disposal methods in compliance with Applicable regulations. Do not dispose into the environment, in Drains or in water courses.

Container Disposal

Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the Collector or contractor should be established beforehand.

Local Legislation

Disposal should be in accordance with applicable regional, national, and local laws and regulations.

14. TRANSPORT INFORMATION**IMDG**

Identification number UN 1999
Proper shipping name TARS, Liquid (Solid at Room Temperature)
Class / Division 9
Packing group III
Marine pollutant: No

Additional Information

IATA - Forbidden for transport on passenger and cargo aircraft in molten state. Not dangerous for conveyance under UN, IMO, ADR/RID, IATA codes if transported at ambient temperature.

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this Material.

EC Classification : Not classified as dangerous under EC criteria.
EC Symbols : No Hazard Symbol required
EC Risk Phrases : Not classified.
EC Safety Phrases : Not classified.
EINECS : All components listed or polymer exempt.
TSCA : All components Listed.
Other Information : Environmental Protection and Management Act. Workplace Safety and Health Act 2006.

16. OTHER INFORMATION

R-phrases)

Not classified.

MSDS Version Number : 1.0

MSDS Effective Date : May 2009

Uses and Restrictions

This product must not be used in applications other than those Recommended in Section 1, without first seeking the advice of the supplier.

MSDS Distribution

The information in this document should be made available to all who may handle the product.

Disclaimer

This information is based on our current knowledge and is intended to describe the product for the purposes of health, Safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.