

## - SAFETY INFORMATION

### COMPOSITION/INFORMATION ON INGREDIENTS :

Penetration Grade Bitumen-complex combinations of highly molecular weight organic compounds, mainly hydrocarbons, which are obtained by blowing air through heated residue from the refining of petroleum crude oils. The composition of this product are not classified as hazardous components/constituents: under EC criteria.

### HAZARDS IDENTIFICATION :

Molten product adheres to the skin and causes burns. Hydrogen sulfide may accumulate in the head space of containers. Prolonged exposure to vapour concentrations above the recommended exposure standard may cause irritation of the skin, eyes and upper respiratory tract. Not classified as flammable but will burn. Release of flammable vapours is possible on hot storage. Contact of hot bitumens with water leads to violent expansion and high potential for "boil-over". Not classified as dangerous under EC criteria.

### FIRST AID MEASURES :

Symptoms and effects: Skin burns. Prolonged exposure to vapor concentrations above the recommended occupational exposure standard may cause irritation of the skin, eyes and upper respiratory tract. Unconsciousness as a result of exposure to hydrogen sulfide may occur extremely rapidly and without other symptoms.

Protection of first aiders: Wear self-contained breathing apparatus if presence of hydrogen sulphide is suspected.

WHEN YOU NEED TO BE SURE 

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**First Aid - Inhalation:** Remove to fresh air. If breathing has stopped apply artificial respiration. If breathing but unconscious place in the recovery position. If heartbeat absent give external cardiac compression. If symptoms persist, obtain medical attention.

**First Aid - Skin:** Molten material on the skin should be cooled rapidly with cold water, but not pulled off. In case of a circumferential burn with adhesion of the bitumen, the adhering material should be split to prevent a tourniquet effect as the bitumen cools.

Contaminated clothing must be removed as soon as possible. It must be laundered before reuse.

**First Aid - Eye:** Rinse immediately with plenty of water for at least 10min and seek medical advice.

**First Aid - Ingestion:** Do not induce vomiting. Give water to drink provided patient is conscious.

Protect the airway if vomiting begins. If rapid recovery does not occur, obtain medical attention.

**Advice to physicians:** Treat symptomatically. In the case of burns no attempt should be made to remove firmly adherent bitumen from the skin, it will provide a sterile dressing and detach itself after a few days. When it is necessary to remove adhering bitumen from the skin liberal amounts of warm medicinal paraffin can be used. Prolonged exposure to high concentrations of hydrogen sulfide may lead to a delayed chemical pneumonitis (lung oedema).

#### **FIRE FIGHTING MEASURES :**

**Specific hazards:** Combustion is likely to give rise to a complex mixture of gases and airborne particulates, including carbon monoxide, oxides of sulphur, and unidentified organic and inorganic compounds.

**Extinguishing media:** Foam, carbon dioxide, dry chemical extinguishers.

**Extinguishing media - small fires:** Sand or earth may be used.

**Unsuitable extinguishing media:** Water in a jet. Use of Halon extinguishers should be avoided for environmental reasons.

**Protective equipment:** Compressed air breathing apparatus must be worn when entering confined fire space.

**Other information:** Hot bitumen can cause violent eruptions in contact with water, and may splatter hot material. Exposed containers, structures and equipment adjacent to fire should be cooled with water.



#### **ACCIDENTAL RELEASE MEASURES :**

Personal precautions: Do not allow hot material to contact water or other liquids. Evacuate the area of all non-essential personnel. Remove all possible sources of ignition in the surrounding area. Do not breathe vapour and mists. Shut off leaks if possible without personal risk.

Personal protection: Wear protective clothing specified for normal operations.

Clean-up methods - small spillage: Absorb or contain the spillage with sand or earth. Shovel up and place in a labelled sealable container for subsequent safe disposal. Do not disperse using water.

Clean-up methods - large spillage: Transfer to a labelled, sealable container for product recovery or safe disposal. Otherwise treat as for small spillage.

**BITUMEN**

#### **HANDLING AND STORAGE :**

Handling: Avoid contact with heated or molten product. Avoid breathing fumes or vapours from heated product. Do not breath fumes which may accumulate in the vapour headspace of containers. When handling product in drums, safety footwear should be worn and proper handling equipment should be used. When using do not eat, drink or smoke.

Handling temperature: 200 °C Maximum Storage: Tanks must be specifically designed for use with this product. Tanks should be provided with a heating facility. Ensure heating coils are always well covered with product (minimum 15 cm). Tanks should be lagged to prevent heat loss. Prevent ingress of water. Carbonaceous deposits, which can be pyrophoric, occur on the roofs and walls of heated bitumen tanks. Use lowest practicable storage temperatures and avoid throughdraughts of air to minimize risk of generating a flammable condition in the tank space.

Recommended materials: Normally use mild steel for containers.

Unsuitable materials: Plastic containers.



**EXPOSURE CONTROLS/PERSONAL PROTECTION :**

Engineering control measures: Ensure thorough ventilation of the area.

Use flame proof mechanical blowers if possible.

Occupational exposure standards:	Component name	Limit type	Value	Unit	Ref
	Bitumen Fume	TWA	5	mg/m <sup>3</sup>	ACGIH
	H <sub>2</sub> S	TWA	14	mg/m <sup>3</sup>	ACGIH
	H <sub>2</sub> S	STEL	21	mg/m <sup>3</sup>	ACGIH

Respiratory protection: Not normally required. In a confined space self-contained breathing apparatus may be required.

Hand protection: Heat resistant gloves, close fitting at wrist.

Eye protection: Monogoggles or full-face shield.

Body protection: Safety shoes or boots. Cotton overalls close fitting at neck and wrist.

If splashes of hot product are likely to occur, use helmet with neck cloth and full-face shield.

**PHYSICAL PROPERTIES :**

Physical state: Solid

Colour: Black

Odour: Characteristic

**STABILITY/REACTIVITY :**

Stability: Stable

Conditions to avoid: Temperatures above 200 °C.

Hazardous decomposition products: None expected under normal use conditions.

**TOXICOLOGICAL INFORMATION :**

Basis for assessment: Toxicological data have not been determined specifically for this product. Information given is based on a knowledge of the toxicology of similar products.

Acute toxicity - oral: LD<sub>50</sub> > 2000 mg/kg

Acute toxicity - dermal: LD<sub>50</sub> > 2000 mg/kg

Acute toxicity - inhalation: Not considered to be an inhalation hazard under normal conditions of use.



Eye irritation: Vapours from hot product expected to be slightly irritant.

Skin irritation: Condensed vapours expected to be slightly irritant.

Skin sensitisation: Not expected to be a skin sensitizer.

(Sub) chronic toxicity: No effects found.

Carcinogenicity: There is no evidence that undiluted bitumens are carcinogenic, but there is evidence from animal skin painting studies that some bitumens when diluted with solvents may be weakly carcinogenic.

Mutagenicity: Not considered to be a mutagenic hazard.

Reproductive toxicity: Does not impair fertility. Not a developmental toxicant.

Human effects: There is no evidence that exposure to bitumen or its fumes causes cancer in man.

If vapours are inhaled slight irritation of the respiratory tract may occur.

#### **ECOLOGICAL INFORMATION :**

Mobility: Solid under most environmental conditions.

Persistence/degradability: Not inherently biodegradable.

Bioaccumulation: Unlikely, due to low water solubility.

Ecotoxicity: Poorly soluble mixture. Practically non-toxic, LC/EC50 > 100 mg/l, to aquatic organisms(estimated) (LC/EC50 expressed as the nominal amount of product required to prepare aqueous test extract).

Sewage treatment: Practically non-toxic, EC50 > 100 mg/l, to organisms in sewage treatment plants. (EC50 expressed as the nominal amount of product required to prepare aqueous test extract).

#### **DISPOSAL CONSIDERATIONS :**

Waste disposal: Allow to cool and solidify.

Waste arising from spillage or tank cleaning operation should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

Waste product should not be allowed to contaminate the soil.

**TRANSPORT INFORMATION :**

Proper Shipping Name: Elevated Temperature Liquid, N.O.S., at above 100 °C and below its flashpoint.

UN Number: 3257

IMDG : 9

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IMO Marine Pollutant: No

**REGULATORY INFORMATION :**

Not Hazardous under PPA regulations, i.e. NOT CLASSIFIED

For further information regarding specification or application, please contact the  
National Iranian Oil Company Technical department.

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