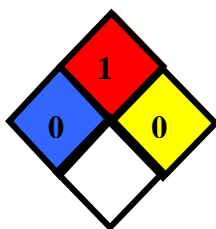


SAFETY DATA SHEET

BPCL KOCHI REFINERY



BITUMEN EMULSION

NFPA 704 (Sec 16)

| Section 1 – IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY / UNDERTAKING | | | |
|--|---|------------------------|----------------|
| Chemical Name | Bitumen | CAS Number: | 8052-42-4 |
| Product name | | UN No. | 1999 |
| Chemical Formula | Complex mixture of heavy hydrocarbons | Synonyms | Tar Asphalt |
| Hazchem No. | | Hazardous waste ID No. | |
| Product use | Road building, tarmac building, water proofing material | | |
| Manufacturer's name | Bharat Petroleum Corporation Limited | | |
| Address | 4&6, Currimbhoy Road, Ballard Estate Mumbai- 400 001, INDIA | | |
| Contact information | Telephone No. : 091-22-24176354 Fax No. : 091-22-24166512/24182511 Emergency Coordination Centre Contact : BPCL Kochi Refinery, Ambalamugal, Kochi, Kerala EMERGENCY CONTACT DETAILS : BPCL – KOCHI REFINERY, Ambalamugal Dist. Ernakulam, Kerala, India 091-484-2722061 24*7 Emergency contact No : +91 9495001031 | | |

Section 2 – Composition / Information on ingredients

| | |
|-----------------------|---|
| Composition: | A dark-brown to black solid or semisolid complex mixture of aliphatic and aromatic hydrocarbons and organic compounds. Obtained as a residue in petroleum refining. |
| Hazardous Components: | sulphur, nitrogen and oxygen |

Section 3 – Hazards Identification

| | |
|----------------------|--|
| Primary Entry Routes | Inhalation, skin and eyes |
| Acute Health Effects | Bitumen vapours can irritate eyes. Inhalation of vapours can cause dizziness. As the product is mostly handled in hot conditions (>100 °C) skin burns are the most likely health hazard. |

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| | | | | |
|---------------------|---|--------|------------|---------|
| | Product vapours may contain H ₂ S and hence casualties due to its exposure should be removed immediately to fresh air and medical attention sought | | | |
| Chronic Effects | No data available | | | |
| Carcinogenicity | Not listed as carcinogenic | | | |
| NFPA hazard signals | Flammability | Health | Reactivity | Special |
| | 1 | 0 | 0 | |
| Other (Specify) | | | | |

Section 4 – First Aid Measures

| | |
|-------------|--|
| Eyes: | If this chemical contacts the eyes, immediately wash the eyes With large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately. Contact lenses should not be worn when working with this chemical |
| Skin: | In case of accidental contact with skin, treat for burns. In case of circumferential burn with adhesion of the bitumen, the adhering bitumen should be split to prevent tourniquet effect. |
| Inhalation: | Inhalation of vapors from semi-solid materials causes moderate irritation of nasal and upper respiratory tract passages. Aspiration causes slow onset and low degree of chemical pneumonitis with clinical symptoms of lower respiratory tract irritation. Ingestion produces irritation of gastrointestinal tract |
| Ingestion: | |

Section 5 – Fire fighting measures

| | | | |
|---|--|---------------------------------|--------------------|
| Flash Point | > 204 °C | Auto ignition Temperature | 220 to 275 °C |
| Flash Point Method | Cleveland Open Cup | TDG Flammability Classification | |
| LEL | Data not available | UEL | Data not available |
| Combustible liquid | | Explosive material | |
| Corrosive material | | Flammable material | Flammable |
| Oxidiser | | Pyrophoric material | |
| Organic peroxide | | Explosion sensitivity to impact | |
| Explosion sensitivity to static electricity | | Hazardous polymerisation | |
| Extinguishing Media | Foam, Dry Chemical Powder, CO ₂ | | |
| Fire or Explosion Hazards | Heat produces corrosive vapours and H ₂ S | | |
| Hazardous combustion Products | Carbon dioxide, carbon monoxide, H ₂ S | | |
| Fire-Fighting Instructions and procedures | Fight fire from maximum distance. For massive fires, use unmanned hose holders or monitor nozzles. | | |

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Section 6 – Accidental Release Measures

| | |
|-----------------|--|
| Small Spills | Shut off leaks without risk. Absorb on sand or earth. |
| Containment | Prevent spillage from entering drains or water sources |
| Clean-up | After spills wash area with soap and water preventing runoff from entering drains. |
| Other (Specify) | |

Section 7 – Handling and Storage

| | |
|----------------------|--|
| Handling Precautions | Do not use/store near heat/open flame. Avoid breathing harmful vapors. As the product is mostly handled in hot conditions (>100 °C) skin burns are the most likely health hazard. Avoid contact with skin and eyes. Wash thoroughly after handling |
| Storage Requirements | Do not use/store near heat/open flame/water/acids |

Section 8 – Exposure Controls / Personal Protection

| | |
|--|--|
| Engineering Controls | Provide proper ventilation for environment to be below TWA |
| Gloves (Specify) | PVC gloves, |
| Respiratory Protection (Specify) | Use respiratory protection if ventilation is improper |
| Eye (Specify) | Use face shield, |
| Foot wear (Specify) | safety boots |
| Protective clothing/ Equipment (Specify) | |
| Other(Specify) | Contaminated clothing to be immediately removed |

Section 9 – Physical and Chemical properties

| | |
|---|-----------------------------|
| Physical State | Semi solid in hot condition |
| Appearance | Dark brown to black solid |
| Odour | tarry like odour |
| Vapour Pressure | Not pertinent |
| Specific Gravity (Specify at what temp) | 0.97 to 1.2 gm / cc |
| Water Solubility (Specify at what temp) | Insoluble |
| Evaporation rate | |
| Boiling Point | Not pertinent |
| Freezing Point | Not pertinent |
| Vapour Density | Heavier than air (Air = 1) |
| pH | |

SAFETY DATA SHEET

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Section 10 – Stability and Reactivity

| | |
|--|---|
| Chemical Stability (If no, under what conditions) | Chemically stable. |
| Chemical Incompatibilities (If yes, which ones) | Incompatible with oxidizing agents & chlorine |
| Conditions to Avoid | Does not react with common materials but may react with oxidising agents. |
| Hazardous Decomposition Products | Carbon dioxide, carbon monoxide, H ₂ S |

Section 11 – Toxicological Information

| | |
|-----------------------------------|-------------------|
| TLV – TWA as per ACIGH/NIOSH | No Data Available |
| STEL | |
| LD 50 (Specify species and route) | |
| LC 50 (Specify species and route) | |
| Acute Inhalation Effects | No data available |

Section 12 – Ecological Information

Prevent spillage from entering drains or water sources. After spills wash area with soap and water preventing runoff from entering drains. Can burn with lot of heat producing CO₂ and CO.

Section 13 – Disposal Considerations

| | |
|----------|--|
| Disposal | Seal all the waste in vapour tight plastic bags for eventual disposal or incineration. |
|----------|--|

Section 14 – Transport Information

| | |
|--|------------------|
| Shipping Name | Bitumen Emulsion |
| Special shipping information/ instructions | |

Section 15 – Regulatory Information

Non - Toxic/Flammable Substance

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Section 16 – Other Information

No attempt should be made to remove firmly adhering bitumen from the skin. Once the bitumen has cooled, it will do no further harm and infact provides a sterile covering over a burnt area. As healing takes place, the bitumen plaque will detach itself, usually after a few days. When it is necessary to remove adhering bitumen from the skin, because of the site of contact or the nature of the material, liberal amounts of warm medicinal paraffin can be used. Alternatively, a blend of medicinal paraffin and kerosene may be employed with care, as kerosene may cause skin irritation. If solvent treatment is used, it should be followed by washing with soap and water, then the appropriate refatting agent or skin cleaning cream. Only medically approved solvents may be used to remove bitumen from burns as other solvents could cause further skin damage.

Prepared by BPCL Kochi Refinery

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Notes:

1. CAS No. – Chemical Abstract Service Number
2. UN No. – United Nations Number
3. TDG flammability – Transport of Dangerous Goods Flammability classification by United Nations.