



bp bitumen

bringing technology to the surface

MATERIAL SAFETY DATA SHEET

BP Bitumen Class 170

1. IDENTIFICATION OF PRODUCT AND COMPANY

Identification of substance/preparation

BP Bitumen Class 170

Application

Bitumen product for road building, industrial and civil engineering materials and processes. For specific application advice see appropriate Technical Data Sheet or consult your BP representative.

Company Identification

BP Australia Proprietary Limited
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Telephone Number

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Not Hazardous according to criteria of Worksafe Australia.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Composition

A complex black solid consisting predominantly of high molecular weight organic compounds with carbon numbers greater than C25 and high carbon to hydrogen ratios.

Bitumen CAS No. 8052-42-4 Bitumen 100%

Hazardous Components

Hydrogen sulphide, an extremely toxic and highly flammable gas, and other flammable light hydrocarbon gases may collect in the vapour spaces where bitumen is stored.

3. HAZARDS IDENTIFICATION

This product can be delivered, stored and used at temperatures above 100 °C. Contact with the hot product may cause burns.

Vapours containing hydrogen sulphide may accumulate during storage or transport and may also be vented during filling of tanks. Hydrogen sulphide has a typical "bad egg" smell but at high concentrations the sense of smell is rapidly lost; therefore, do not rely on sense of smell for detecting hydrogen sulphide. Use specially designed measuring instruments for determining its concentration.

4. FIRST-AID MEASURES

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 immediately with water to dissipate the heat, if possible, ensuring eyelids are held open. In the event of any product remaining, do not try to remove it other than by continued irrigation with water. Take the casualty to hospital for examination and treatment without delay.

Skin

Where skin burns occur, the area should be immediately immersed in cold water until the bitumen is thoroughly cooled. Do not attempt to remove the bitumen from the skin as it provides an airtight sterile cover over the burn, which will eventually fall away with the scab as the wound heals. If, for any reason, the bitumen must be removed, this can be done using slightly warmed medicinal liquid paraffin. Kerosene or other solvents should never be used to remove bitumen from skin or clothing.

All burns should receive medical attention. It should be noted that bitumen contracts on cooling and where a limb is encased, care should be taken to avoid the development of a tourniquet effect.

If the skin becomes contaminated with product at ambient temperature, wash the skin thoroughly with soap and water. Seek medical advice if irritation persists.

Ingestion

If contamination of the mouth occurs, wash out thoroughly with water.

Except as a deliberate act, the ingestion of large amounts of product is unlikely.

If it should occur, do not induce vomiting; obtain medical advice.

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.

EXPOSURE TO HYDROGEN SULPHIDE

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 immediate medical attention.

It is advisable that all who are engaged in operations in which contact with hydrogen sulphide may reasonably be anticipated, should be trained in the techniques of emergency resuscitation and in the care of an unconscious patient.

Medical Advice

Treatment should in general be symptomatic and directed to relieving effects. Inhalation of hydrogen sulphide may cause central nervous system depression leading to coma and death. It is irritant to the respiratory tract causing chemical pneumonitis and pulmonary oedema. The onset of pulmonary oedema may be delayed 24 to 48 hours. Treat with oxygen and ventilate as appropriate. Administer broncho-dilators if indicated and consider administration of corticosteroids. Keep casualty under surveillance for 48 hours in case pulmonary oedema develops.

Aspiration of the product is unlikely to occur except as a result of ingestion, followed by vomiting or regurgitation in a partially or totally unconscious individual, where immediate effects are most likely to result from the aspiration of acidic stomach contents. If it should occur, transport casualty immediately to hospital.

5. FIRE-FIGHTING MEASURES

In case of fire, use water fog, dry chemical or fine water spray. FIRES IN CONFINED SPACES SHOULD BE DEALT WITH BY TRAINED PERSONNEL WEARING APPROVED BREATHING APPARATUS.

Water may be used to cool nearby heat exposed areas/objects/packages. Avoid spraying directly into storage containers because of the danger of boil-over.

Combustion Products

Toxic fumes may be evolved on burning or exposure to heat. See Stability and Reactivity, Section 10 of this Material Safety Data Sheet.

6. ACCIDENTAL RELEASE MEASURES

Depending upon its temperature, the product may be either liquid, semi-solid or solid. Wear protective equipment (See Exposure Controls/Personal Protection, Section 8 of this Material Safety Data Sheet for details).

Contain and recover liquid using sand or other suitable inert absorbent material.

Protect drains from potential spills and prevent entry of product. **Do not** wash product into drainage system since this may result in a blockage when the product cools.

Should blockage occur, notify the appropriate authority immediately.

Scrape up bulk of solid material and remove the remainder with sand or other suitable absorbent material. It is advised that stocks of suitable absorbent material should be held in quantities sufficient to deal with any spillage, which may be reasonably anticipated.

If necessary, clean the resultant area using hot water and detergent; absorb the washings with suitable absorbent material or sand. **Do not wash into drains.**

In the case of large spills contact the appropriate authorities.

Spillages of hot product in confined spaces may be especially hazardous because

flammable gases including highly toxic hydrogen sulphide gas may be present. For such spillages, the use of approved breathing apparatus by personnel specially trained in its use may be required.

Vapour may collect in any confined space.

Protect environmentally sensitive areas and water supplies. In the case of spillage on water, the product may sink and recovery may be difficult. Regular surveillance on the location of the spillage should be maintained.

7. HANDLING AND STORAGE

Handling Precautions

Avoid skin contact. Wear appropriate gloves. Contact with hot product may cause burns.

Ensure good ventilation and avoid, as far as reasonably practicable, the inhalation and contact with vapours, mists or fumes which may be generated during use. If such vapour, mists or fumes are generated, their concentration in the workplace air should be controlled to the lowest reasonably practicable level.

Avoid contact with eyes. If splashing is likely to occur wear a full face visor or chemical goggles as appropriate.

Good working practices, high standards of personal hygiene and plant cleanliness must be maintained at all times. Whilst using, do not eat, drink or smoke.

Wash hands thoroughly after contact. Removal of product from the skin is best achieved by the use of a suitable hand cleaner. **Do not** use solvents, such as kerosene. Regular periodic self inspection of the skin is recommended, especially those areas subject to contamination.

In the event of any localised changes in appearance or texture of the skin being noticed, medical advice should be sought without delay.

Use disposable cloths and discard when soiled. Do not put soiled cloths into pockets. Take all necessary precautions against accidental spillage into soil or water.

Fire Prevention

Light hydrocarbon vapours can build up in the headspace of tanks. These can cause flammability/explosion hazards, even at temperatures below the normal flash point.

Tank headspaces should always be regarded as potentially flammable and care should be taken to avoid static electric discharge and all ignition sources during filling, ullaging and sampling from storage tanks. Hoses should be electrically continuous and ensure equipment used is properly earthed or bonded to the tank structure.

Will present a flammability hazard if heated above the flash point but bulk liquids at normal storage temperatures present a low fire hazard.

Product should not be overheated in storage because of the risk of fire.

For advice on storage temperatures, please contact your local BP representative.

Storage Conditions.

Store under cover away from moisture and sources of ignition. Do not overheat in storage. Under no circumstances should water be allowed to contact hot bitumen because of the danger of boil-over. Particular care should be taken to ensure that bulk storage tanks are watertight and that any steam heating coils are regularly checked for leaks.

For bulk bitumen, the storage temperature should not fluctuate above and below 100°C as this increases the risk of water condensation leading to boil-over. Care must **always** be exercised when heating bitumen through 100°C, whether or not the product has been exposed to moisture. Highly toxic hydrogen sulphide gas may be emitted from hot product and accumulate in enclosed spaces or tanks. Extreme care must therefore be taken during venting of tanks and enclosed spaces which have, at any time, contained hot product. Under no circumstances should entry be made into small enclosures without taking full precautions.

Confined spaces contaminated with hydrogen sulphide must always be considered as constituting potentially life-threatening environments. Entry into such spaces must never be undertaken except under extreme emergency when no alternative is possible and then by trained operators wearing air-supplied breathing apparatus of an approved type and following procedures strictly in accordance with statutory regulations. Always have sufficient personnel standing by outside the tank with appropriate breathing apparatus and equipment to effect a quick rescue.

It is advisable that all who are engaged in operations in which contact with hydrogen sulphide may reasonably be expected, should be trained in the techniques of emergency resuscitation and in the care of an unconscious patient.

Pyrophoric (self-heating) deposits, which may cause fire or explosion, may be formed in storage. Avoid exposure of tank vapour space to fresh air, and maintain stable storage temperatures. Regular inspection for such deposits will indicate when tank cleaning is necessary.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits

Ensure good ventilation.

Avoid, as far as reasonably practicable, inhalation of vapour, mists or fumes generated during use.

If vapour, mists or fumes are generated, their concentration in the workplace air should be controlled to the lowest reasonably practicable level.

Worksafe Australia recommend an exposure standard for an 8 hour time weighted average (TWA) of 10 ppm for hydrogen sulphide and 5 mg/m³ for bitumen fumes.

The short term exposure limit for hydrogen sulphide is 15 ppm.

Protective Clothing

When handling product, suitable protective clothing of an appropriate standard should be worn. Depending on the type of operation this may include:

- Visor to protect face and head covering with neck flap
- Gauntlets (heat resistant and impervious to solvent)
- Overalls, impervious to bitumen covering full body and limbs with legs of overalls worn over boots to prevent burns to the legs and feet;
- Protective boots.

Protective clothing should be regularly dry cleaned and laundered. Change heavily contaminated clothing as soon as reasonably practicable and launder before re-use. Wash any contaminated underlying skin with soap and water.

Respiratory Protection

If operations are such that the excessive generation and inhalation of vapour mist or fume may be anticipated, then suitable approved respiratory equipment should be worn.

The use of respiratory equipment must be strictly in accordance with the manufacturer's instructions and any statutory requirements governing its selection and use.

9. PHYSICAL AND CHEMICAL PROPERTIES**Typical Values****Grade:**

BP Bitumen Class 170

	Test Method	Units	Typical Value
Physical State			Liquid/Solid
Colour			Black
Odour			Strong
Density @15°C	ASTM D 1298	kg/L	1.03
Initial Boiling Point / Range (IBP)	ASTM D 86	°C	250
Flash Point (PMC)	ASTM D 93	°C	>250
Viscosity @ 60°C	ASTM D 445	Pa.s	170
Viscosity @ 135°C	ASTM D 445	Pa.s	0.35
Specific Heat		Kcal/kg/°C	0.52

10. STABILITY AND REACTIVITY**Conditions to Avoid**

Products of this type are stable and unlikely to react in a hazardous manner under normal conditions of use. Hazardous polymerisation reactions will not occur. This material is combustible.

Materials to Avoid

Avoid contact with strong oxidizing agents.

Hazardous Decomposition Products

Thermal decomposition can produce a variety of compounds, the precise nature of which will depend on the decomposition conditions.

Incomplete combustion/thermal decomposition will generate smoke, carbon dioxide and hazardous gases, which will include carbon monoxide, hydrogen sulphide and oxides of sulphur.

Overheating in storage may cause partial vaporisation and decomposition with the production of toxic hydrogen sulphide gas.

11. TOXICOLOGICAL INFORMATION

Eyes

Will cause burns if hot material contacts eyes.

Skin

Will cause burns if hot material contacts skin.

Ingestion

Unlikely to be accidentally swallowed in view of the high handling temperatures.

Inhalation

At normal ambient temperatures this product will be unlikely to present an inhalation hazard because of its low volatility. This material contains polycyclic aromatic hydrocarbons (PAH's) at low levels. The exposure standard of 5mg/m³ is more than adequate to protect workers exposed to bitumen fumes. The handling procedures and personal protective measures described should be followed to minimise employee exposure.

12. ECOLOGICAL INFORMATION

Mobility

Spillages are unlikely to penetrate the soil.

Persistence and degradability

This product is not biodegradable.

Bioaccumulative potential

This material may accumulate in sediments.

Aquatic toxicity

Unlikely to cause long term effects in the aquatic environment.

13. DISPOSAL CONSIDERATIONS

Dispose of via an authorised person/ licensed waste disposal contractor in accordance with local regulations. Incineration may be carried out under controlled conditions provided that local regulations for emissions are met. Where possible, arrange for product to be recycled.

14. TRANSPORT INFORMATION

ADG: ELEVATED TEMPERATURE LIQUID N.O.S (at or above 100°C and below its flashpoint), UN 3257, Class 9, Miscellaneous, Packing Group III, 2W

UN: ELEVATED TEMPERATURE LIQUID N.O.S (at or above 100°C and below its flashpoint), UN 3257, Class 9, Miscellaneous, Packing Group III, 2W

IATA/ICAO: UN 3257, Forbidden for transport.

IMO: ELEVATED TEMPERATURE LIQUID N.O.S (at or above 100°C and below its flashpoint), UN 3257, Class 9, Miscellaneous, Packing Group III, 2W

Classified as a Combustible Liquid C2, AS 1940-1993.

15. REGULATORY INFORMATION

Not classified as a Hazardous Substance using the Worksafe Australia criteria.
Not classified using the criteria in the Standard Uniform Schedule for Drugs and Poisons.

16. OTHER INFORMATION

Compiled by:

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Name of Product: BP Bitumen Class 170