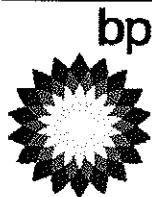


Date of Issue: 07/10/2000



SAFETY DATA SHEET

BP Heavy Furnace Fuel (Fuel Oil)

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Identification of substance/preparation

BP Heavy Furnace Fuel (Fuel Oil)

Application

Fuel for industrial, marine and commercial boilers and furnaces; fuel for low and medium speed diesel engines.

For specific application advice see appropriate Technical Data Sheet or consult your BP representative

Company Identification

BP Southern Africa (Pty) Ltd
61 St. George's Mall
Cape Town 8001

Emergency Telephone Number

0860 222 166 (BP Southern Africa)

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Composition

Fuel oil, residual. EINECS No: 270-675-6, CAS No: 68476-33-5

Hazardous Components

Hydrogen sulphide (H₂S), an extremely toxic and highly flammable gas, and other flammable light hydrocarbon gases may collect in vapour spaces where product is stored.

Polycyclic aromatic hydrocarbons will be present, some of which have been shown by experimental studies to induce skin cancer.

3. HAZARDS IDENTIFICATION

Contact with hot product may cause burns.

May cause cancer, classified as a category 2 carcinogen.

This material may contain significant quantities of polycyclic aromatic hydrocarbons (PCAs), some of which have been shown by experimental studies to induce skin cancer.

Repeated exposure may cause skin dryness or cracking.

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.

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

4. FIRST-AID MEASURES

Eyes

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

If hot material enters the eye, flood immediately with cold water to dissipate the heat, if possible, ensuring eyelids are held open. Take the casualty to hospital for examination and treatment without delay.

Skin

Wash skin thoroughly with soap and water as soon as reasonably practicable. Remove heavily contaminated clothing and wash underlying skin.

If hot product causes burns, the affected area should be flooded immediately with, or immersed in cold water for 10 minutes, or longer if pain persists. Burns should be covered with clean cotton or gauze, and the casualty taken to hospital as soon as possible for examination and treatment.

Never use gasoline, kerosine or other solvents to remove fuel oil from skin or clothing.

Medical advice must be obtained urgently if product under high pressure has been injected through the skin.

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 medical attention immediately.

It is advisable that all who are engaged in operations in which contact with H₂S may reasonably be anticipated, should be trained in the techniques of emergency resuscitation and in the care of an unconscious patient.

Medical Advice

If ingested, do not induce vomiting.

Inhalation of hydrogen sulphide may cause central respiratory 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 for 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.

Note: High Pressure Applications

Injections through the skin resulting from contact with the product at high pressure constitute a major medical emergency. Injuries may not appear serious at first but within a few hours tissue becomes swollen, discoloured and extremely painful with extensive subcutaneous necrosis.

Surgical exploration should be undertaken without delay. Thorough and extensive debridement of the wound and underlying tissue is necessary to minimise tissue loss and prevent or limit permanent damage. Note that high pressure may force the product considerable distances along tissue planes.

5. FIRE-FIGHTING MEASURES

For major fires call the Fire Service. Ensure an escape path is always available from any fire.

Use foam, dry powder or carbon dioxide. DO NOT USE water jets. Avoid spraying directly into storage containers because of the danger of boil-over.

Fires in confined spaces should be dealt with by trained personnel wearing approved breathing apparatus.

Combustion Products

Toxic fumes may be evolved on burning or exposure to heat.

See Stability and Reactivity, Section 10 of this Safety Data Sheet.

6. ACCIDENTAL RELEASE MEASURES

Ensure good ventilation.

Evacuate all non essential personnel from the immediate area.

Wear protective clothing. See Exposure Controls/Personal Protection, section 8, of this Safety Data Sheet. Depending upon its temperature the product may be liquid, semi-solid or solid.

Protect drains from spills and prevent entry of product, since this may result in blockage on cooling. Should blockage occur, notify the appropriate authority immediately.

Scrape up bulk of solid material and remove liquid with sand or other suitable inert absorbent material. If necessary, clean the contaminated area using hot water and detergent: absorb the washings - do not wash into drains.

Spilled material may make surfaces slippery.

Recovery of large spillages should be effected by specialist personnel.

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.

Large and uncontained spillages should be smothered with foam to reduce the risk of ignition.

The foam blanket should be maintained until the area is declared safe.

Spillages of hot product in confined spaces may be especially hazardous because highly toxic hydrogen sulphide gas may be present. For spillages in such confined spaces the use of approved breathing apparatus by personnel specially trained in its use may be required.

Vapour may collect in any confined space.

In the case of spillage on water, prevent the spread of product by the use of suitable barrier equipment.

Recover product from the surface. Protect environmentally sensitive areas and water supplies.

The product may sink making recovery difficult.

In the case of spillage at sea approved dispersants may be used where authorised by the appropriate government/regulatory authorities.

Regular surveillance on the location of the spillage should be maintained.

In the event of spillages contact the appropriate authorities.

7. HANDLING AND STORAGE

Storage Conditions

Store and dispense only in well ventilated areas away from heat and sources of ignition.

Store and use only in equipment/containers designed for use with this product.

Containers must be properly labelled and kept closed when not in use.

Do not remove warning labels from containers.

Empty packages may contain some remaining product. Retain hazard warning labels on empty packages as a guide to the safe handling, storage and disposal of empty packaging.

Do not enter storage tanks without breathing apparatus unless the tank has been well ventilated and the tank atmosphere has been shown to contain hydrocarbon vapour concentrations of less than 1% of the lower flammability limit and an oxygen concentration of at least 20% volume.

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 only by trained operators wearing air-supplied breathing apparatus of an approved type and following procedures strictly in accordance with the Statutory Regulations governing such entry. Please see the comments in Section 8 (Exposure Controls/Personal Protection) of this data sheet.

Always have sufficient people 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 be reasonably anticipated, should be trained in the techniques of emergency resuscitation and in the care of an unconscious patient.

Handling Precautions

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 skin and observe good personal hygiene.

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

Avoid inhalation of dust from combustion/exhaust spaces.

Whilst using do not eat, drink or smoke.

Wash hands thoroughly after contact.

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 (note: flash point must not be regarded as a reliable indicator of the potential flammability of vapour in tank headspaces). Tank headspaces should always be regarded as potentially flammable and care should be taken to avoid static electrical discharge and all ignition sources during filling, ullaging and sampling from storage tanks.

Will present a flammability hazard if heated above flash point but bulk liquids at normal storage temperatures will present virtually no fire hazard. If fuel contacts hot surfaces, or leaks from high pressure fuel pipes, the vapour and/or mists generated will create a flammability or explosion hazard.

When the product is pumped (e.g. during filling, discharge or ullaging) and when sampling, there is a risk of static discharge. Ensure equipment used is properly earthed or bonded to the tank structure.

Product contaminated rags, paper or material used to absorb spillages, represent a fire hazard, and should not be allowed to accumulate. Dispose of safely immediately after use.

Empty containers represent a fire hazard as they may contain some remaining flammable product and vapour. Never cut, weld, solder or braze empty containers.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits

There is no appropriate occupational exposure limit for this material.

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.

Relevant exposure limits are:

Hydrogen sulphide

ACGIH (USA): TLV 10 ppm, 14 mg/m³ (8 hr TWA); 15ppm, 21 mg/m³ (15 min STEL)

UK publication EH40 (Occupational Exposure Limits):

Occupational Exposure Standard: Long-term exposure limit (8hr TWA) 10 ppm, 14 mg/m³

Short-term exposure limit (15 min) 15ppm, 21 mg/m³

Protective Clothing

Wear face visor or goggles in circumstances where eye contact can accidentally occur.

When handling heated material suitable protective clothing of an appropriate standard should be worn to prevent thermal burns.

If skin contact is likely, wear impervious protective clothing and/or gloves.

Protective clothing should be regularly inspected and maintained; overalls should be dry-cleaned, laundered and preferably starched after use.

Respiratory Protection

If operations are such that the excessive generation of vapour, mist or fume may be anticipated, to which operators may unavoidably be exposed, then suitable approved respiratory equipment should be worn. Note: Approved air-supplied breathing apparatus must be worn where there may be potential for inhalation of hydrogen sulphide gas.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Typical Values

Grades:

BP Heavy
Furnace Fuel
(Fuel Oil)

	Test Method	Units	
Physical state			liquid
Colour			black
Odour			oily
Density @ 20°C	ASTM D 4052	kg/m ³	990
Flash point (PMC)	ASTM D 93	°C	73
Solubility in water		g/l	low

Kinematic viscosity ASTM D 445 mm²/s
@ 50°C

solubility
150

10. STABILITY AND REACTIVITY

Conditions to Avoid

Stable at ambient temperatures.
Hazardous polymerisation reactions will not occur.

Materials to Avoid

Avoid contact with strong oxidizing agents.

Hazardous Decomposition Products

Thermal decomposition products will vary with conditions.
Overheating in storage may cause partial vapourisation and decomposition with the production of toxic hydrogen sulphide gas (H₂S).

Incomplete combustion will generate smoke, carbon dioxide and hazardous gases, including carbon monoxide.

Fuel oil ash/dust can be hazardous if inhaled. Before working in combustion/exhaust spaces or handling fuel oil ash/dust the area should be thoroughly damped down with water. If this is not possible, wear full breathing apparatus or positive pressure filter sets. Protective clothing must always be worn. When inspecting combustion/exhaust spaces, wear full face dust respirator and protective clothing.

11. TOXICOLOGICAL INFORMATION

Eyes

Unlikely to cause more than transient stinging or redness if accidental eye contact occurs.
Will cause burns if hot material contacts eyes.

Skin

Will cause burns if hot material contacts skin
As with all such products containing potentially harmful levels of PCAs, prolonged or repeated skin contact may eventually result in dermatitis or more serious irreversible skin disorders including cancer.

Ingestion

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

Inhalation

May be irritating to eyes, nose and throat at high vapour concentrations.
May be toxic by inhalation when hydrogen sulphide is present in the vapour.
Hydrogen sulphide gas may in addition produce irritation of the eyes and respiratory tract.
Vapour, mists or fumes may contain polycyclic aromatic hydrocarbons some of which are known to produce skin cancer. The inhalation of vapour, mists or fumes over long periods may therefore be hazardous.

Dusts generated during the removal of ash deposits from engine/boiler combustion surfaces or exhaust spaces, will be harmful if inhaled and may cause nausea and eye, nose and throat irritation. Repeated contact may result in serious irreversible disorders.

12. ECOLOGICAL INFORMATION

Mobility

Spillages may penetrate the soil causing ground water contamination.

Persistence and degradability

This product is inherently biodegradable.

Bioaccumulative potential

This material may accumulate in sediments.

Aquatic toxicity

Harmful to aquatic organisms, may cause long term effects in the aquatic environment

Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

13. DISPOSAL CONSIDERATIONS

Dispose of by incineration or other suitable means under conditions approved by the local authority or via a licensed waste disposal contractor.

At sea, used or unwanted product should be stored for eventual discharge into port approved waste oil disposal facilities.

Empty packages may contain some remaining product. Hazard warning labels are a guide to the safe handling of empty packaging and should not be removed.

14. TRANSPORT INFORMATION

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

15. REGULATORY INFORMATION

EU Category of Danger

Carcinogenic category 2

Dangerous for the environment

EU Labelling

Symbol:

Skull and crossbones

Indication of danger:

None

Risk (R) Phrases:

R45 May cause cancer

R66 Repeated exposure may cause skin dryness or cracking

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Safety (S) Phrases:

S53 Avoid exposure - obtain special instructions before use.

S45 In case of accident or if you feel unwell, seek medical advice immediately (show label where possible)

S61 Avoid release into the environment. Refer to special instructions/Safety data sheets.

The label must carry the following additional information: Substance name: Fuel oil, residual

National legislation: Occupational Health and Safety Act (Act 85 of 1993)

16. OTHER INFORMATION

Compiled by:

Product Stewardship Group

BP Oil Technology Centre

Chertsey Road

Sunbury-on-Thames

Middlesex, TW16 7LN

This data sheet and the health, safety and environmental information it contains is considered to be accurate as of the date specified below. We have reviewed any information contained herein which we received from sources outside the BP Amoco Group of Companies. However, no warranty or representation, express or

implied is made as to the accuracy or completeness of the data and information contained in this data sheet.

Health and safety precautions and environmental advice noted in this data sheet may not be accurate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. No statement made in this data sheet shall be construed as a permission, recommendation or authorization given or implied to practise any patented invention without a valid licence. The BP Amoco Group shall not be responsible for any damage or injury resulting from abnormal use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material.

Sheet Revisions

Date: Sections revised:
10/07/2000 2, 3, 4, 8, 9, 11, 12, 14, 15

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