# SAFETY DATA SHEET

VLSFO (Very Low Sulfur Fuel Oil)

Sheet Number: 1 Revision Date: NA Version: 0

## 1. IDENTIFICIATION OF THE SUBSTANCE /PREPARATION AND OF THE COMPANY/UNDERTAKING

**A. Identification of substance/preparation**

- Marine Fuel Oil
- Alternative Names: VLSFO (Very Low Sulfur Fuel Oil)

**B. Application**

- General use: Fuel for heavy duty, slow speed marine engines etc. For specific application advice, please consult your PT Cosmic Petroleum Nusantara representative.

**C. Company Identification**

**PT Cosmic Petroleum Nusantara – Cabang Batam**
Pergudangan Persero Batam, Batu Merah Batu Ampar, Kota Batam Kepulauan Riau, Indonesia

**D. Emergency Telephone Number**

+62778-411-432

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

**A. Chemical Composition**

- Fuel, hydrocarbon, petroleum origin

**B. Hazardous Components**

- Cracked components containing polycyclic aromatic hydrocarbon compounds may be present.

## 3. HAZARDS IDENTIFICATION

- This material may contain significant quantities of polycyclic aromatic hydrocarbons (PCAs), some of which have been shown by experimental studies to induce skin cancer.
- Harmful if swallowed – aspiration hazard.

## 4. FIRST AID MEASURES

**A. 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.

**B. Skin**

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

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

**C. Ingestion**

- If contamination of the mouth occurs, wash out thoroughly with water. If larger amounts are swallowed, do not induce vomiting; transport casualty together with the product container, its label or the safety data sheet urgently to the hospital.
- Except as a deliberate act, the ingestion of large amounts of product is unlikely. Should it occur, do not induce vomiting; obtain medical advice.

**D. Inhalation**

- If inhalation of mists, fumes or vapor causes irritation to the nose or throat, or coughing, remove the fresh air. If symptoms persist obtain medical advice.

**E. Medical Advice**

- 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 become swollen, discolored and extremely painful with extensive subcutaneous necrosis.
- Surgical exploration should be undertaken with delay.
- Thorough and extensive debridement of the wound and underlying tissue is necessary to minimize tissue loss and prevent and limit permanent damage.
- Note that high pressure may force the product considerable distances along tissue planes.
- Product can be aspirated on swallowing or following regurgitation of stomach contents, and can cause severe and potentially fatal chemical pneumonitis, which will require urgent treatment.
- Because of the risk of inspiration, induction of vomiting and gastric lavage should be avoided.
- Gastric lavage should be undertaken only after endotracheal intubation. Monitor for cardiac disrhyrthmias.

## 5. FIRE-FIGHTING MEASURES

- For major fires call the Fire Service. Ensure an escape path is always available from any fire.
- There is a danger of flashback if sparks or hot surfaces ignite vapor.
- **Use foam, dry power or water fog. DO NOT USE water jets.**
- **FIRE IN CONFINED SPACES SHOULD BE DEALT WITH BY TRAINED PERSONNEL WEARING APPROVED BREATHING APPARATUS.**

**A. Combustion Products**

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

## 6. ACCIDENTAL RELEASE MEASURES

- Any spillage should be regarded as a potential fire risk.
- Isolate spillage from all ignition sources including road traffic. 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.

- Spilled material may make surfaces slippery.
- Contain and recover spilled material using sand or other suitable inert absorbent material.
- Recovery of large spillages should be effected by specialist personnel.
- Large and uncontained spillages should be smothered with foam to reduce the risk of ignition.
- Protect drains from potential spills to minimize contamination. Do not wash product into drainage system.
- Vapor is heavier than air and may travel to remote sources of ignition (eg. Along drainage systems, in basements etc.).
- If spillage has occurred in a confined space, ensure adequate ventilation and check that a safe, breathable atmosphere is present before entry.
- 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.
- In the case of spillage at sea approved dispersants may be used where authorized by the appropriate government / regulatory authorities.

7. HANDLING AND STORAGE

**A. Storage Conditions**

- Store and dispense only in well ventilated areas away from heat and sources of ignition.
- 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 vapor concentrations of less than 1% of the lower flammability limit and an oxygen concentration of at least 20% volume.
- Always have sufficient people standing by outside the tank with appropriate breathing apparatus and equipment to effect a quick rescue.

**B. Handling Precautions**

- Avoid, as far as reasonably practicable, inhalation of vapor, mists or fumes generated during use.
- 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.
- Do not siphon product by mouth.
- Whilst using does not eat, drink or smoke.
- Wash hands thoroughly after contact.
- Use disposable clothes and discard with soiled. Do not put soiled cloths into pockets.
- Take all necessary precautions against accidental spillage into soil or water.

**C. Fire Prevention**

- Light hydrocarbon vapors 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 vapor 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, alleging and sampling from storage tanks. 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 earther or bonded to the tank structure.
- Product soaked 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 vapor. Net cut, weld, solder or braze empty containers.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**A. Exposure Limits**
- There is no appropriate occupational exposure limit for this material.
- If vapor, mists or fumes are generated, their concentration in the workplace air should be controlled to the lowest reasonably practical level.

**B. Protective Clothing**
- Wear face visor or goggles in circumstances where eye contact can accidentally occur.
- 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.

**C. Respiratory Protection**
- If operations are such that exposure to vapor, 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 manufacturers' instructions and any statutory requirements governing its selection and use.

9. PHYSICAL AND CHEMICAL PROPERTIES

**Typical Values**
**Grades: Marine Fuel Oil**

| | Test Method | Units | MFO 180cSt |
|---|---|---|---|
| **Physical State** | | | Liquid |
| **Appearance** | | | Dark Brown |
| **Odour** | | | Oily |
| | | | |
| **Density @ 15 °C** | ISO 12185 | % vol | Max 0.75 |
| **Flash Point** | ISO 2719 | °C | Min 60 |
| **Kinematic Viscosity @ 50°C** | ISO 3104 | $mm^2/dt$ | Max 180 |

10. STABILITY AND REACTIVITY

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

**A. Conditions to Avoid**
- Avoid storage at or near flash point.

**B. Materials to Avoid**
- Avoid contact with strong oxidizing agents.

**C. 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.

11. TOXICOLOGICAL INFORMATION

**A. Eyes**

- Unlikely to cause more than transient stinging or redness if accidental eye contact occurs.

**B. Skin**

- Unlikely to cause harm to the skin on brief occasional contact but prolonged or repeated exposure may lead to dermatitis.
- This material contains significant quantities of polycyclic aromatic hydrocarbons (PCAs), some of which has been shown by experimental studies to induce skin cancer.

**C. Ingestion**

- Unlikely to cause harm if accidentally swallowed in small doses, though larger quantities may cause nausea and diarrhea.
- Will injure the lungs if aspiration occurs, eg. during vomiting.

**D. Inhalation**

- May cause irritation to eyes, nose and throat due to exposure to vapor, mists or fumes.

12. ECOLOGICAL INFORMATION

**A. Mobility**

- Spillages may penetrate the soil causing ground water contamination.

**B. Persistence and degradability**

- This product is inherently biodegradable.

**C. Bio-accumulative potential**

- There is no evidence to suggest bioaccumulation will occur.

**D. Aquatic toxicity**

- May be harmful to aquatic organisms.
- 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.
- 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. OTHER INFORMATION

**Compiled by:**
**PT. Cosmic Petroleum Nusantara – Cabang Batam**
Pergudangan Persero Batam, Batu Merah Batu Ampar, Kota Batam Kepulauan Riau, Indonesia

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