

# SAFETY DATA SHEET



## SECTION 1: PRODUCT and COMPANY IDENTIFICATION

### 1.1 Product Identifier

Product Name:	<b>CHIM SAO CRUDE OIL</b>
Synonyms:	Crude Oil, Petroleum Oil
Product Type:	Liquid
CAS Registry No:	8002-05-9
EU Index:	649-049-00-5
EC No:	232-298-5

### 1.2 Relevant Identified Uses

Recommended Use:	Feedstock
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### 1.3 Details of the Supplier of the Safety Data Sheet

Manufacturer Name:	Premier Oil Vietnam Offshore B. V.
Address:	5F – Deutches Haus Ho Chi Minh City, No. 33 Le Duan Street, Ben Nghe Ward, District 1 Ho Chi Minh City Vietnam
Email:	bduc@premier-oil.com
Telephone:	(+84)-28-3910-5788 ext. 2516

### 1.4 Emergency Telephone Number

Emergency Number:	(+84)-28-3910-5788 ext. 1
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## SECTION 2: HAZARD(S) IDENTIFICATION

Vietnam Note: The Vietnam requirements for SDS invert Section 2 and Section 3 when compared with UN GHS format. This SDS has been compiled to GHS format because the crude is often exported. This Section 2, would therefore be “Section 3: Hazard Identification” in a Vietnam form.

### 2.1 Classification of the Substance

#### GHS Classification:

Flammable Liquid – Category 2

Aspiration hazard – Category 1

Serious eye damage/irritation – Category 2

Specific target organ toxicity (single exposure) – Category 3: Affected organs: Central Nervous System. Exposure Route: Inhalation

Specific target organ toxicity (repeated exposure) – Category 2: Affected organs: Blood, Liver, Spleen, Thymus

Carcinogenicity – Category 1B

Hazardous to the aquatic environment, chronic/long term hazard – Category 2

## 2.2 GHS Label Elements



Signal Word: **DANGER**

### Hazard Statements

- H225: Highly flammable liquid and vapour  
H304: May be fatal if swallowed and enters airways  
H319: Causes serious eye irritation  
H336: May cause drowsiness or dizziness  
H350: May cause cancer  
H373: May cause damage to organs blood, liver, spleen and thymus through prolonged or repeated exposure  
H411: Toxic to aquatic life with long lasting effects

### Precautionary Statements

Note: for labelling, use statements highlighted in bold type.

#### Prevention

- P201: Obtain special instructions before use.**  
P202: Do not handle until all safety precautions have been read and understood.  
**P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.**  
P240: Ground/Bond container and receiving equipment.  
P241: Use explosion-proof electrical/ventilating/lighting and all handling equipment  
P242: Use only non-sparking tools.  
P243: Take precautionary measures against static discharge.  
P260: Do not breathe vapour  
P264: Wash hands thoroughly after handling.  
P273: Avoid release to the environment  
**P280: Wear protective gloves (>8 hours breakthrough time, e.g. Viton), protective clothing, eye and face protection (e.g. splash goggles).**

#### Response

- P301+P310+P331: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do not induce vomiting**  
P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with soap and water or shower.  
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P312: Call a POISON CENTE or doctor/physician if you feel unwell  
P314: Get medical advice/attention if you feel unwell.  
P332+P313: If skin irritation occurs: Get medical advice/attention.  
P362+P364: Take off contaminated clothing and wash it before reuse.  
P337+P313: If eye irritation persists: Get medical advice/attention.  
**P370+P378: In case of fire: Use dry chemical, carbon dioxide to extinguish small fires. Use water for large fires.**  
P391: Collect spillage.

### Storage

- P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403+P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

### Disposal

- P501: Dispose of contents and container in accordance with all Local, Regional, National and International Regulations**

Vietnam Note: Labelling provisions are covered by Article 12 of the GHS Circular No. 04/2012/TT-BCT and Article 12(48) of Decree No. 89/2006/ND-CP. Comparing with UN GHS, the basic label elements required in Vietnam include more information. Please consult the circulars for additional details.

### 2.3 Other Hazards

- EUH066: Repeated exposure may cause skin dryness or cracking.
- Restricted to professional users due to classification as carcinogenic Category 1B.
- May contain or release hydrogen sulphide which is a very toxic and extremely flammable gas
- Contains benzene – prolonged or repeated exposure to benzene can cause anaemia and other blood diseases, including leukaemia
- This material may contain poly-nuclear aromatic hydrocarbons (PNAs), which have been known to produce a phototoxic reaction\ when contaminated skin is exposed to sunlight. The effect is similar in appearance to exaggerated sunburn, and is temporary in duration if exposure is discontinued. Continued exposure to sunlight can result in more serious skin problems including loss of pigmentation (discolouration), skin eruptions (pimples), and possibly skin cancers.

This classification of Chim Sao Crude Oil, a Substance of Unknown or Variable composition, Complex reaction products or Biological materials (UVCB) is based on the recommendations of CONCAWE report no. 9/15 “Hazard classification and labelling of petroleum substances in the European Economic Area – 2015”. These recommendations were made based on the review of studies conducted on a number of representative samples of crude oil.

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Vietnam Notes: The Vietnam requirements for SDS invert Section 2 and Section 3 when compared with UN GHS format. This SDS has been compiled to GHS format because the crude is often exported. This Section 3, would be “Section 2: Ingredients” in a Vietnam form.

Raw petroleum extracted in its natural state from the ground and containing predominantly aliphatic, alicyclic, and aromatic hydrocarbons. It may also contain variable amounts of impurities such as nitrogen, oxygen and sulphur compounds and metals such as iron, copper, mercury, nickel and vanadium.

Component	CAS No.	EU Index	EC No.	Content
Crude Oil	8002-05-9	649-049-00-5	232-298-5	100%

Note: Chim Sao Crude Oil has been tested and contains <1% by mass of Benzene, Ethylbenze, Toluene, n-Hexane and Hydrogen Sulphide.

## SECTION 4: FIRST AID MEASURES

### 4.1 Description of first aid measures

<b>Eyes</b>	If irritation or redness develops, move victim away from exposure and into fresh air. Immediately flush eyes with plenty of clean, low pressure water for at least 15 minutes while holding eyelids open and away from the eyeball to ensure thorough rinsing. Check for and remove any contact lenses if easy to do. Seek medical advice/attention.
<b>Skin</b>	Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water, or a recognized skin cleanser. Get medical attention if irritation or redness develops.
<b>Inhalation</b>	Casualties suffering ill effects as a result of exposure should be immediately removed to fresh air and medical assistance obtained without delay. If exposure to vapour, mists or fumes causes drowsiness, headache, blurred vision or irritation of the eyes, nose or throat, remove immediately to fresh air. Keep patient warm and at rest. If any symptoms persist obtain medical advice. 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.
<b>Ingestion</b>	DO NOT INDUCE VOMITING because this material can enter the lungs and cause damage. If drowsy or unconscious and vomiting, place in recovery position and get medical attention immediately. If possible do not leave victim unattended and observe closely for adequacy of breathing. Get medical attention immediately.
<b>Protection of First Aiders</b>	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation
<b>Contaminated Clothing</b>	Drench contaminated clothing with water before removing. This is necessary to avoid the risk of sparks from static electricity that could ignite contaminated clothing. Contaminated clothing is a fire hazard. Contaminated leather, particularly footwear, must be discarded. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse.

### 4.2 Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

### 4.3 Indication of any immediate medical attention and special treatment needed

#### **Notes to Doctor/Physician:**

Treatment should in general be symptomatic and directed to relieving any effects.

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 aspiration, induction of vomiting and gastric lavage should be avoided. Gastric lavage should be undertaken only after endotracheal intubation. Monitor for cardiac dysrhythmias.

Inhalation of hydrogen sulphide may cause central respiratory depression leading to coma and death. It is an 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.

## SECTION 5: FIRE FIGHTING MEASURES

### 5.1 Extinguishing Media

Suitable Extinguishing Media: Small Fires: Any extinguisher suitable for Class B fires; dry chemical, CO<sub>2</sub>, Water fog, firefighting foam, or gaseous extinguishing agent

Large Fires: Water spray, water fog or firefighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

Unsuitable Extinguishing Media: Avoid using water jets/straight water streams and avoid excessive water spray application

### 5.2 Special hazards arising from the substance or mixture

Unusual Fire Hazards: Highly flammable liquid and vapour.

This material is highly flammable and can be ignited by heat, sparks, flames or other sources of ignition (e.g., static electricity, pilot lights, or mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators and pagers which have not been certified as intrinsically safe).

May create vapour/air explosion hazard, especially indoors, in confined spaces, or sewers.

In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

Most vapours are heavier than air. They will spread along the ground and collect in low or confined areas and may travel considerable distances to a source of ignition where they can ignite, explode or flash back along the vapour trail.

This substance will float and can be reignited on water surfaces

Hazardous Combustion Products: Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Hydrogen sulphide and oxides of nitrogen and sulphur may also be formed. Hazardous combustion/decomposition products, including hydrogen sulphide, may be released by this material when exposed to heat or fire. Use caution and wear protective clothing, including respiratory protection.

### 5.3 Advice for Fire Fighters

Special Precautions for fire fighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. This material is toxic to aquatic organisms. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Keep adjacent containers cool by spraying with water. If possible remove containers from the danger zone. If the fire cannot be extinguished the only course of action is to evacuate immediately.

Protective equipment for fire-fighters:

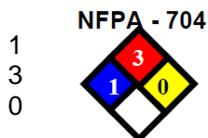
Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for firefighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents

NFPA Rating:

Health:

Flammability

Reactivity



## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:

Activate facility spill contingency or emergency response plan. Immediately contact emergency personnel. No action shall be taken involving any personal risk or without suitable training. Eliminate all ignition sources. Evacuate surrounding areas – stay upwind and uphill. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Floors may be slippery; use care to avoid falling. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Put on appropriate personal protective equipment.

This material can contain hydrogen sulphide (H<sub>2</sub>S), a very toxic and extremely flammable gas. Entry into a confined space or poorly ventilated area contaminated with vapour, mist or fume is extremely hazardous without the correct respiratory protective equipment and a safe system of work. Wear self-contained positive pressure breathing apparatus (SCBA).

For emergency responders:

Entry into a confined space or poorly ventilated area contaminated with vapour, mist or fume is extremely hazardous without the correct respiratory protective equipment and a safe system of work. Wear self-contained breathing apparatus. Wear a suitable chemical protective suit and chemical resistant boots. See also the information in "For non-emergency personnel"

### 6.2 Environmental Precautions

Environmental Precautions:

Stop spill/release if it can be done safely. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Inform the relevant authorities if the product has caused environmental pollution. Notify authorities if any exposure to the general public or the environment (sewers, water bodies, soil or air) occurs or is likely to occur. Local authorities should be advised if significant spillages cannot be contained. Maritime spillages should be dealt with using a Shipboard Oil Pollution Emergency Plan (SOPEP), as required by MARPOL Annex 1 Regulation 26.

### 6.3 Methods and materials for containment and cleaning up

**Small Spill:** Eliminate all ignition sources. Stop leak if without risk. Move containers from spill area. Absorb with an inert material, e.g. sand or other oil adsorbing materials and carefully place in an appropriate waste container for reclamation or disposal. Use spark proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. The method and equipment used must be in conformance with appropriate regulations and industry practice on explosive atmospheres.

**Large Spill:** Eliminate all ignition sources. Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Dike spill area and do not allow product to reach sewage system and surface or ground water. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Use spark-proof tools and explosion-proof equipment. Contaminated absorbent material may pose the same hazard as the spilt product. The method and equipment used must be in conformance with appropriate regulations and industry practice on explosive atmospheres. Dispose of via a licensed waste disposal contractor.

If spilled on water, remove with appropriate methods (i.e. skimming, booms or adsorbents). Dispersants are not proven to be effective on this crude oil.

### 6.4 Reference to other sections

See Section 1 for emergency contact numbers  
See Section 5 for firefighting measures  
See Section 8 for personal protective equipment (PPE)  
See Section 12 for environmental precautions  
See Section 13 for additional waste treatment options

## **SECTION 7: HANDLING AND STORAGE**

### 7.1 Precautions for safe handling

**Protective Measures:** Handle as a flammable liquid. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges (i.e. bond and ground containers during product transfer).

Put on appropriate personal protective equipment. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not swallow. Aspiration hazard - can enter lungs and cause damage. Never siphon by mouth.

Use only with adequate ventilation. Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols Wear appropriate respirator when ventilation is inadequate.

Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Do not reuse

Bulk storage tanks should be bunded / diked

Avoid contact of spilt material and runoff with soil and surface waterways.

#### Hygiene Practices

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. **Do not** use as a cleaning solvent on the skin. Do not use gasoline or solvents (naphtha, kerosene, etc.) for washing this product from exposed skin areas. Recognised waterless cleaners may be effective on this substance.

Remove contaminated clothing and protective equipment before entering eating areas and launder before reuse. Use care when laundering to prevent the formation of flammable vapours which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure.

See also Section 8 for additional information on hygiene measures.

#### 7.2 Conditions for safe storage, including any incompatibilities:

Store in accordance with local regulations. Store in a segregated and approved area. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Store locked up. Keep away from heat and direct sunlight. Eliminate all ignition sources. Separate from oxidising materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Store and use only in equipment /containers designed for use with this product. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

This material can contain hydrogen sulphide (H<sub>2</sub>S), a very toxic and extremely flammable gas. 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.

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.

Do not enter storage tanks. If entry to vessels is necessary, follow permit to work procedures. Entry into a confined space or poorly ventilated area contaminated with vapour, mist or fume is extremely hazardous without the correct respiratory protective equipment and a safe system of work. 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. Electrical equipment should not be used unless it is intrinsically safe (i.e. will not produce sparks). Explosive air/vapour mixtures may form at ambient temperature.

If product comes into contact with hot surfaces, or leaks occur from pressurised fuel pipes, the vapour or mists generated will create a flammability or explosion hazard.

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.

## SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

### 8.1 Control Parameters

#### Occupational Exposure Limits

Benzene: EH40/2005 WELs (United Kingdom (UK)). Absorbed through skin.  
TWA: 1 ppm 8 hours. Issued/Revised: 5/2003

Hydrogen Sulphide: EH40/2005 WELs (United Kingdom (UK)).  
STEL: 14 mg/m<sup>3</sup> 15 minutes. Issued/Revised: 12/2001  
STEL: 10 ppm 15 minutes. Issued/Revised: 12/2001  
TWA: 7 mg/m<sup>3</sup> 8 hours. Issued/Revised: 12/2001  
TWA: 5 ppm 8 hours. Issued/Revised: 12/2001

Whilst specific Occupational Exposure Limits (OELs) for certain components may be shown in this section, other components may be present in any mist, vapour or dust produced. Therefore, the specific OELs may not be applicable to the product as a whole and are provided for guidance only

#### Recommended Monitoring Procedures:

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

## 8.2 Exposure Controls

Appropriate Engineering Controls: Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits. All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled.

Use explosion-proof ventilation as required to control vapour concentrations.

Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained. Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards. The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

Individual Protection Measures:

Eye/Face:

Chemical splash goggles (chemical monogoggles). Approved to EU Standard EN166.

Skin Protection:

Chemical resistant gloves/gauntlets, boots, and apron. Protective clothing approved to EU Standard EN14605.

Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection: PVC. Longer term protection: Nitrile rubber. Incidental contact/Splash protection: Neoprene rubber. For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same, but recognise that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time may be acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced.

Respiratory Protection:

If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus. All respiratory protection equipment and use must be in accordance with local regulations. Crude oil is a complex mixture with low and high boiling point components. When using an air-filtering respirator, careful attention to the filter breakthrough time is advised. If air-filtering respirators are suitable for conditions of use: Select a filter suitable for organic gases and vapours [boiling point <65 °C (149 °F)] meeting EN14387. In areas where hydrogen sulphide vapours may accumulate, a positive-pressure air-supplied respirator is advised.

Environmental Exposure Controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on Basic Physical and Chemical Properties

Physical State:	Liquid
Colour:	Dark Brown
Odour:	Characteristic petroleum/asphalt-type odour
Odour Threshold:	Not Available
pH:	Not Available
Melting Point/Freezing Point:	
Initial Boiling Point and Boiling Range:	36°C (>96.8°F)
Pour Point:	33°C (91.4°F)
Flash Point:	<0°C (<32°F) ASTM D56
Evaporation Rate:	Not Available
Flammability (solid, gas):	Not Available
Upper/Lower Flammability or Explosive Limits:	Not Available
Vapour Pressure:	35.8 kPa psi (Reid) @ 37.8°C (100°F). °API 42.1
Vapour Density:	>1 (air = 1)
Relative Density:	Not Available
Density:	815 kg/m <sup>3</sup> @ 15°C (59°F)
Solubility:	Negligible solubility in water
Partition Coefficient: n-octanol/water:	Not Available
Auto-ignition Temperature:	Not Available
Decomposition Temperature:	Not Available
Viscosity:	Kinematic: 4.536mm <sup>2</sup> /s (4.536 cSt) @50°C (122°F)
Explosive Properties:	Not Available
Oxidising Properties:	Not Available

### 9.2 Other information:

- Data representative of typical values and not intended to be a specification.
- Date of last Assay 01/10/2014

## SECTION 10: STABILITY AND REACTIVITY

### 10.1 Reactivity:

- No specific test data available.

### 10.2 Chemical Stability:

- Stable under normal ambient and anticipated conditions of use

### 10.3 Possibility of Hazardous Reactions:

- Hazardous Reactions will not occur under normal conditions of storage and use
- Hazardous Polymerisation will not occur under normal conditions of storage and use

### 10.4 Conditions to Avoid:

- Avoid all possible sources of ignition (spark or flame) and high temperatures. Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition
- Prevent vapour accumulation.

### 10.5 Incompatible Materials:

- Reactive or incompatible with strong Oxidising Materials

### 10.6 Hazardous Decomposition Products:

- Thermal decomposition or combustion may liberate carbon monoxide, carbon dioxide, aldehydes or other toxic gases or vapour

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1 Information on Toxicological Effects

**Aspiration Hazard:** May be fatal if swallowed and enters airways. Classification on basis substance is hydrocarbon and has a kinematic viscosity of 20.5 mm<sup>2</sup>/s or less, measured at 40°C.

**Information on the likely routes of exposure:** Routes of entry anticipated: Dermal, Inhalation.

#### **Potential Acute Effects:**

**Inhalation:** Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness.

**Ingestion:** Aspiration hazard if swallowed -- harmful or fatal if liquid is aspirated into lungs

**Skin contact:** No known significant effects or critical hazards.

**Eye Contact:** Causes serious eye irritation

#### **Symptoms related to the physical, chemical and toxicological characteristics:**

**Inhalation:** Adverse symptoms may include the following: nausea or vomiting; headache: drowsiness/fatigue; dizziness/vertigo; unconsciousness

**Ingestion:** Adverse symptoms may include the following: nausea or vomiting

**Skin contact:** Adverse symptoms may include the following: irritation; dryness; cracking

**Eye Contact:** Adverse symptoms may include the following: pain or irritation; watering; redness

#### **Delayed and immediate effects and also chronic effects from short and long term exposure:**

**Inhalation:** Vapour, mists or fumes may contain polycyclic aromatic hydrocarbons some of which are known to produce skin cancer. May be harmful by inhalation if exposure to vapour, mists or fumes resulting from thermal decomposition products occurs. Vapour, mist or fume may irritate the nose, mouth and respiratory tract.

**Ingestion:** If swallowed, may irritate the mouth, throat and digestive system. If swallowed, may cause abdominal pain, stomach cramps, nausea, vomiting, diarrhoea, dizziness and drowsiness.

Skin contact: 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.

Eye contact: Vapour, mist or fume may cause eye irritation. Exposure to vapour, mist or fume may cause stinging, redness and watering of the eyes.

Potential chronic health effects:

General : May cause damage to organs through prolonged or repeated exposure.

Carcinogenicity : May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity: No known significant effects or critical hazards.

Teratogenicity: No known significant effects or critical hazards.

Developmental effects: No known significant effects or critical hazards.

Fertility effects: No known significant effects or critical hazards.

For more information on the toxicological and ecological hazards of crude oil, based on laboratory studies, see CONCAWE report no. 9/15 "Hazard classification and labelling of petroleum substances in the European Economic Area – 2015.

## SECTION 12: ECOLOGICAL INFORMATION

Basis for Assessment: Ecotoxicological data has not been determined specifically for this product. Information given is based on knowledge of the components and the ecotoxicology of similar products. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

### 12.1 Toxicity

Acute Toxicity:

Toxic to aquatic life with long lasting effects:

Acute aquatic toxicity studies in fish, invertebrates and algae on samples of Crude Oil show acute toxicity values greater than 1 mg/l and mostly in the range of 2 – >100 mg/l.

There are no chronic toxicity studies available for Crude Oil, and QSAR toxicity predictions are not used to determine environmental classification.

### 12.2 Persistence and degradability:

Substance is a hydrocarbon UVCB. Standard tests for this endpoint are intended for single substances and are not appropriate for this complex substance.

Major constituents are inherently biodegradable, but it contains components that may persist in the environment. The volatile constituents will oxidize rapidly by photochemical reactions in air.

### 12.3 Bioaccumulative Potential:

Contains constituents with the potential to bioaccumulate.

### 12.4 Mobility in Soil

Soil/water partition coefficient (KOC): Not Available

Mobility:

Spillages may penetrate the soil causing ground water contamination. This material may accumulate in sediments. Contains volatile constituents. Partly evaporates from water or soil surfaces, but a significant proportion will remain after one day. Floats on water and forms a slick.

12.5 Result of PBT and vPvB assessment:

The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB.

12.6 Other Adverse Effects:

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

Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to Vietnam reporting requirements. This product and/or its constituents may also be subject to other regulations at other countries. Consult those regulations applicable to your facility/operation.

**SECTION 13: DISPOSAL CONSIDERATIONS**

13.1 Waste Treatment Methods:

Product:

Methods of Disposal:

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous Waste:

Yes

Packaging:

Methods of Disposal:

Where possible, arrange for product to be recycled. Dispose of via an authorised person/licensed waste disposal contractor in accordance with local regulations.

Special Precautions:

This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues.

Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not puncture, cut, weld or grind used containers unless they have been cleaned thoroughly internally.

Do not pollute the soil, water or environment with the waste container. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Comply with any local recovery or waste disposal regulations.

## SECTION 14: TRANSPORT INFORMATION

	Land Transport	Inland Waterways	Sea Transport	Air Transport
	ADR/RID	ADN	IMDG	IATA
14.1 <u>UN number</u>	UN1267	UN1267	UN1267	UN1267
14.2 <u>UN proper shipping name</u>	PETROLEUM CRUDE OIL	PETROLEUM CRUDE OIL	PETROLEUM CRUDE OIL Marine pollutant	PETROLEUM CRUDE OIL
14.3 <u>Transport hazard class(es)</u>	3 	3 	3 	3 
14.4 <u>Packing group</u>	I	I	I	I
14.5 <u>Environmental hazards</u>	Yes	Yes	Yes	No
Additional information	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.  <b>Hazard identification number:</b> 33  <b>Tunnel code:</b> D/E	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.  <b>Remarks:</b> Table: C. Danger: 3+CMR+F	The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.  <b>Emergency schedules (EmS)</b> F-E, S-E	The environmentally hazardous substance mark may appear if required by other transportation regulations.

### 14.6 Special Precautions for user:

**Transport within user's premises:** Always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

### 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:

MARPOL Annex 1 rules apply for bulk shipments by sea.

## SECTION 15: REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

#### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

##### EU Regulation (EC) No. 1907/2006 (REACH):

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Regulation (EU) No. 453/2010 – Europe

Annex XIV, List of substances subject to authorization:

Substances of very high concern: None of the components are listed.

Annex XVII – Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles:

Restricted to professional users. Attention - Avoid exposure - obtain special instructions before use.

##### International lists

National inventory:

Australia Inventory (AICS):	This material is listed or exempted.
China (IECSC):	This material is listed or exempted.
Japan (ENCS):	This material is listed or exempted.
Malaysia (EHSNR):	Is on EHS list. Re-Check as EHSNR scheme develops
United States (TSCA 8b):	This material is listed or exempted.
Singapore:	Not ascertained.

##### Vietnam:

- Decree 108/2008/ND-CP Detailed regulation and guideline of implementation of several articles in Chemical Law;
- Circular no. 04/2012/TT-BCT stipulating the regulations on classification and chemical labelling
- Law on Chemicals No. 06/2007/QH12
- Circular No. 28/2010/TT-BCT Specifying a number of articles of the Law on Chemicals and the Government's Decree No. 108/2008/ND-CP OF OCTOBER 7, 2008, detailing and guiding a number of articles of the Law on Chemicals

15.2 Chemical Safety Assessment: Not Applicable

## **SECTION 17: OTHER INFORMATION**

Additional Information:	This document contains important information to ensure the safe storage, handling and use of this product. The information in this document should be brought to the attention of the person in your organisation responsible for advising on safety matters.
SDS Version Number:	1
SDS Effective Date:	31.03.2016
SDS Revisions:	First Issue in GHS format. Previously issued as Chim Sao Crude Oil, Material Safety Data Sheet, Rev 4, 4/5/2012
SDS Distribution:	The information in this document should be made available to all who may handle the product.
Uses and Restrictions:	This product must not be used in applications other than those recommended in Section 1, without first seeking the advice of the supplier or other competent advice. This product is intended for closed systems.
Key Literature References:	The quoted data are from, but not limited to, one or more sources of information (e.g. Chim Sao Crude Oil Assay Report (01/10/2014), CONCAWE, EU IUCLID date base, EC 1272 regulation, etc.)
Abbreviations:	
ADN:	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

ADR:	European Agreement concerning the International Carriage of Dangerous Goods by Road
AICS:	Australian Inventory of Chemical Substances
API:	American Petroleum Institute
ASTM:	American Society for Testing and Materials
CONCAWE:	Conservation of Clean Air and Water in Europe (a division of the European Petroleum Refiners Association)
cSt:	centistokes
EHSNR:	Environmentally Hazardous Substances Notification and Registration
ENCS:	Existing and New Chemical Substances
GHS:	Global Harmonised System
IATA:	International Air Transport Association
IBC:	Intermediate bulk container
IECSC:	Inventory of Existing Chemical Substances in China
IMDG:	International Maritime Dangerous Goods Code
IUCLID:	International Uniform Chemical Information Database
MARPOL:	Maritime Pollution Convention/International Convention for the Prevention of Pollution from Ships
PBT:	Persistent, Bioaccumulative, and Toxic
QSAR:	Quantitative structure–activity relationship
REACH:	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID:	Regulations Concerning the International Carriage of Dangerous Goods by Rail
STEL:	Short-term exposure limit
TSCA:	Toxic Substances Control Act
TWA:	Time Weighted Average
UVCB:	Substance of Unknown or Variable composition, Complex reaction products or Biological materials
vPvB:	very Persistent very Bioaccumulative
WEL:	Workplace exposure limit

#### DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the effective date specified. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking competent advice. Since conditions of use are beyond our control, the Vendor makes no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material from failure to adhere to recommendations stated in this safety data sheet (SDS) or from any hazards inherent in the nature of the material. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

#### OTHER DUTIES AND OBLIGATIONS:

It is the User's and transporter's obligation to evaluate, transport and use this product safely and to comply with all applicable laws and regulations.

Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet.

Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken.

Alteration of this document is strictly prohibited.