

1. COMPANY AND PRODUCT IDENTIFICATION

Product Name : **WAXY FUEL OIL**
Application Uses : Fuel oil for boiler, burners
Company Name : Verasuwan Company Limited
Company Address : 53/2, 53/8 Moo 5, Setthakij 1 Road, Nadee, Muang
Samutsakorn 74000, Thailand
E-mail : verasuwan@gmail.com
Emergency Telephone : (+66)-34-468-801

2. HAZARDS IDENTIFICATION

GHS classification : Flammable Liquids, Category 3
Specific target organ systemic toxicity (Single Exposure), Category 3
Narcotic effects.
ASPIRATION Hazard, Category 1
CARCINOGENICITY, Category 2
AQUATIC TOXICITY (ACUTE). Category 2
AQUATIC TOXICITY (CHRONIC), Category 2

GHS label elements Symbols

Signal words : **Danger**

GHS Hazard statements

Physical hazards : H226 Flammable liquid and vapor
Health hazards : H304 May be fatal if swallowed and enters airways
H315 Causes skin irritation
H316 Causes mild skin irritation
H319 May cause eye damage/irritation.
H336 May cause drowsiness or dizziness
H350 May cause cancer.
Environmental hazards : H401 Toxic to aquatic life
H411 Toxic to aquatic life with long lasting effects.

GHS Precautionary statements

Prevention : P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking. P233 - Keep container tightly closed.
P240 – Ground/bond container and receiving equipment.
P241 – Use explosion-proof electrical/ventilating/lighting equipment pursuant to applicable electrical code.
P242 – Use only non-sparking tools.
P243 – Take precautionary measures against static discharge.



	P261 – Avoid breathing dust/fume/gas/mist/vapors/spray.
	P264 – Wash skin thoroughly after handling.
	P271 – Use only outdoors or in a well-ventilated area.
	P273 – Avoid release to the environment.
	P280 – Wear protective gloves/protective clothing/eye protection/face protection.
Response	: P303+361+353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse with water/shower. P308+311 - If exposed or concerned: Get medical advice/attention. P301+310 - If swallowed: Immediately call a poison center/doctor/... P331 - Do NOT induce vomiting. P370+P378 – In case of fire use firefighting foam or other appropriate media for Class B fires to extinguish. P403+235 - Store in a well-ventilated place. Keep cool. P405 - Store locked up. P501 – Dispose of contents/container in accordance with local/regional/national/international regulation.
Storage	: P403+P235 Store in a well-ventilated place. Keep cool. P233 Keep container tightly closed. P405 Store locked up.
Disposal	: P501 Dispose of contents and container to appropriate waste site or reclaimer in accordance with local and national regulations.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical Identity : Fuel Oil, residue from vacuum distillation of petroleum crude oil
CAS No. : **64741-56-6**

Compositions:

Name	CAS No.	by Weight
Light Vacuum petroleum residue	64741-56-6	80 - 100
Naphthalene	91-20-3	10 - 30

4. FIRST AID MEASURES

General Information : Not expected to be health hazard when used under normal conditions. Keep victim calm. Obtain medical treatment immediately

Inhalation : Remove to fresh air. If rapid recovery does not occur, transport to the nearest medical facility for additional treatment

Eye Contact : Flush eyes with water while holding eyelids open. Rest eyes for 30 minutes. If redness, burning, blurred vision, or swelling persist, transport to the nearest medical facility for additional treatment.

Ingestion : If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. If any of the following

delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3° C), shortness of breath, chest congestion or continued coughing or wheezing.

- Note to physicians** : Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing. Breathing of high vapor concentrations may cause central nervous system (CNS) depression resulting in dizziness, lightheadedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness and death. Skin irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blisters. Defatting dermatitis signs and symptoms may include a burning sensation and/or a dried/cracked appearance. Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision. If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever.
- Immediate medical attention and special treatment : Causes central nervous system depression. Dermatitis may result from prolonged or repeated exposure. Potential for chemical pneumonitis. Call a doctor or poison control center for guidance.

5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Extinguish media : Foam, water sprat or fog. Dry chemical powder, carbon dioxide, sand Or earth may be used for small fires only. Do not discharge extinguishing water into the aquatic environment.

Unsuitable Extinguishing : Do not use water in a jet

Media

Specific Hazards : Carbon monoxide may be evolved if incomplete combustion occurs. Will float and can be reignited on surface water. The vapor is heavier than air, spreads along the ground and distant ignition is possible.

Protective Equipment : Wear full protective clothing and self-contained breathing apparatus.

Additional information : Keep adjacent containers cool by spraying with water.

6. ACCIDENTAL RELEASE MEASURES

Observe all relevant local and international regulations.

- Personal precautions, protective equipment and emergency procedures** : Avoid contact with spilled or released material. Immediately remove all contaminated clothing. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. For guidance on disposal of spilled material see Chapter 13 of this Material Safety Data Sheet.
- Environmental precautions** : Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Use appropriate containment (of product and fire fighting water) to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Attempt to disperse the vapor or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Monitor area with combustible gas indicator.
- Methods and material for containment and clean Up** : For small liquid spills (< 1 drum), transfer by mechanical means to a labeled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.
For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.
- Additional advice** : See Chapter 13 for information on disposal. Notify authorities if any exposure to the general public or the environment occurs or is likely to occur.

7. HANDLING AND STORAGE

- General Precautions** : Avoid breathing vapors or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. On guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
- Precautions for Safe Handling** : Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Avoid contact with skin, eyes, and

- clothing. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (≤ 1 m/sec until fill pipe submerged to twice its diameter, then ≤ 7 m/sec). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations.
- Conditions for safe storage** : Must be stored in a diked (bunded) area. Bulk storage tanks should be diked (bunded). Keep away from flammables, oxidizing agents, and corrosives.
Storage Temperature: Ambient.
- Product transfer** : Keep containers closed when not in use. Do not use compressed air for filling, discharging or handling.
- Recommended materials** : For containers, or container linings use mild steel, stainless steel. For container paints, use epoxy paint, zinc silicate paint.
- Unsuitable materials** : Avoid prolonged contact with natural, butyl or nitrile rubbers.
- Container advice** : Containers, even those that have been emptied, can contain explosive vapors. Do not cut, drill, grind, weld or perform similar operations on or near containers.
- Other advice** : Ensure that all local regulations regarding handling and storage facilities are followed.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

- Appropriate Engineering Controls** : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Use sealed systems as far as possible. Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines /limits. Local exhaust ventilation is recommended. Firewater monitors and deluge systems are recommended. Eye washes and showers for emergency use.
- Individual protection Measures** : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
- 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 suitable, select an appropriate combination of mask and filter. Select a filter suitable for organic gases and vapors [boiling point >65 °C (149 °F)] meeting EN14387. Where

	air-filtering respirators are unsuitable (e.g., airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus.
Hand protection	: Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739, AS/NZS:2161) made from the following materials may provide suitable chemical protection: Longer term protection: Nitrile rubber gloves Incidental contact/Splash protection: PVC or neoprene rubber gloves Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
Body protection	: Use protective clothing which is chemical resistant to this material. Safety shoes and boots should also be chemical resistant.
Monitoring Methods	Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state and appearance	: Clear or straw-colored liquid, black
Odor	: Mild petroleum distillate odor.
Odor threshold	: < 1 ppm
pH	: Not applicable
Melting Point	: 50 – 55 °C
Boiling Range	: Typical 200 – 550 °C
Pour point	: Typical 50 °C
Flash point	: Typical above 125 °C (ASTM D-93, PMCC)
Explosion / Flammability	
Limits in air	: 0.6 – 7.5 %Vol
Auto-ignition temperature	: 300 °C / 572 °F (ASTM E-659)
Vapor pressure	: 0.009 psia at 20 °C / 68 °F
Specific gravity	: 0.880 – 0.950 at 15 °C / 60 °F
Density	: Typical 910 kg/m ³ at 15 °C / 60 °F (ASTM D-1298)
Water Solubility	: Insoluble
n-octanol/water as partition coefficient (log P _{ow})	: 3.3 – 6.0
Decomposition Temperature	: Stable under normal conditions of use
Kinematic viscosity	: > 350 mm ² /s at 40 °C
Vapor density (air=1)	: 3.80

Evaporation rate (nBuAc=1)	:	< 0.1 (ASTM D 3539)
Volatile organic carbon	:	95% (EC/1999/13)

10. STABILITY AND REACTIVITY

Reactivity	:	Data not available
Stability	:	Stable under normal conditions of use.
Possibility of hazardous reactions	:	Data not available
Conditions to avoid	:	Avoid heat, sparks, open flames and other ignition sources. Prevent vapor accumulation.
Material to avoid hazardous	:	Strong oxidizing agents
Decomposition products	:	Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.
Sensitivity to static discharge	:	Yes, in certain circumstances product can ignite due to static electricity.

11. TOXICOLOGICAL INFORMATION

Basis for Assessment	:	Information given is based on product testing, and/or similar products, and/or components.
Routes of exposure	:	Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.
Acute Toxicity	:	Low toxicity: LD50 > 2000 mg/kg , Rat
Acute Dermal Toxicity	:	Low toxicity
Acute Inhalation Toxicity	:	Expected to be low toxicity if inhaled. High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea.
Skin corrosion/irritation	:	Not irritating to skin. Prolonged/repeated contact may cause defatting of the skin which can lead to dermatitis.
Serious eye damage/irritation	:	Not irritating to eye.
Respiratory Irritation	:	Inhalation of vapors or mists may cause irritation to the respiratory system.
Skin or respiratory Sensitization	:	Not a skin sensitiser. Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.
Germ cell mutagenicity	:	Not mutagenic.
Carcinogenicity	:	Limited evidence of carcinogenic effect. (Naphthalene)
Reproductive and Developmental toxicity	:	Not expected to impair fertility Causes foetotoxicity in animals at doses, maternally toxic. May cause drowsiness or dizziness

Specific target organ toxicity-
single exposure : Kidney – caused kidney effects in male rats which are not
Specific target organ toxicity-
repeated exposure : considered relevant to humans.

12. ECOLOGICAL INFORMATION

Basis for assessment : Incomplete ecotoxicological data are available for this product.
The information given below is based partly on a knowledge of
the components and the ecotoxicology of similar products.

Acute Toxicity

Fish : Toxic: $1 < LC/EC/IC50 \leq 10$ mg/l

Aquatic Invertebrates : Toxic: $1 < LC/EC/IC50 \leq 10$ mg/l

Algae : Toxic: $1 < LC/EC/IC50 \leq 10$ mg/l

Microorganisms : Expected to be toxic: $1 < LC/EC/IC50 \leq 10$ mg/l

Chronics Toxicity

Fish : NOEC/NOEL expected to be $>0.1 - \leq 1.0$ mg/l
(based on modeled data)

Aquatic invertebrates : NOEC/NOEL expected to be $>0.1 - \leq 1.0$ mg/l
(based on modeled data)

Persistence and degradability : Biodegradable.
Oxidizes rapidly by photo-chemical reactions in air.

Bioaccumulative potential : Has potential to bioaccumulate.

Mobility : Adsorbs to soil and has low mobility. Floats on water.

13. DISPOSAL CONSIDERATIONS

Material Disposal : Recover or recycle if possible. It is the responsibility of the
waste generator to determine the toxicity and physical
properties of the material generated to determine the
proper waste classification and disposal methods in
compliance with applicable regulations.
Do not dispose into the environment, in drains or in water
courses. Waste product should not be allowed to
contaminate soil or water.

Container Disposal : Drain container thoroughly. After draining, vent in a safe place
away from sparks and fire. Residues may cause an explosion
hazard. Do not, puncture, cut, or weld uncleaned drums. Send to
drum recoverer or metal reclaimer.

Local Legislation : Disposal should be in accordance with applicable regional,
national, and local laws and regulations. Local regulations may
be more stringent than regional or national requirements and
must be complied with.

14. TRANSPORT INFORMATION

Land (as per ADR classification)	:	Regulated
Class	:	3
Packing group	:	III
Hazard Identification no.	:	30
UN no.	:	1993
Danger label (primary risk)	:	3
Proper shipping name	:	FUEL OIL
Environmentally Hazardous	:	Yes

UMDG

Identification number	:	UN 1993
Proper shipping name	:	Petroleum Vacuum Residue
Class / Division	:	3
Packing group	:	III
Marine pollutant	:	Yes

IATA

(Country variation may apply)

UN no.	:	1993
Proper shipping name	:	Petroleum Vacuum Residue
Class / Division	:	3
Packing group	:	III

Sea (Annex II of MARPOL 73/78 and the IBC code)

Pollution Category	:	Annex I
Ship Type	:	2
Product name	:	Waxy Petroleum Vacuum Residue
Special Precaution	:	Refer to Chapter 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport.

15. Regulatory Information

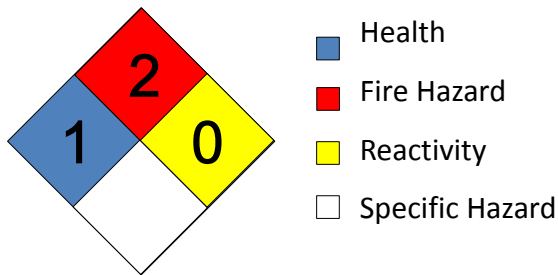
The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

Chemical Inventory Status

DSL	:	Listed
INV	:	Listed
TSCA	:	Listed
EINECS	:	Listed
KECI (KR)	:	Listed
PICCS (PH)	:	Listed

16. Other Information

National Fire Protection Association (USA) :



GHS Hazard Statements

H225	:	Highly Flammable liquid and vapor.
H226	:	Flammable liquid and vapor.
H302	:	Harmful if swallowed.
H304	:	May be fatal if swallowed and enters airways.
H315	:	Causes skin irritation.
H319	:	Causes serious eye irritation.
H332	:	Harmful if inhaled.
H335	:	May cause respiratory irritation.
H340	:	May cause genetic defects.
H350	:	May cause cancer (state route of exposure if it is conclusively proven that no routes of exposure cause hazard).
H351	:	Suspected of causing cancer. (state route of exposure if it is conclusively proven that no routes of exposure cause hazard).
H372	:	Causes damage to organs through prolonged or repeated exposure.
H400	:	Very toxic to aquatic life.
H410	:	Very toxic to aquatic life with long lasting effects.
H411	:	Toxic to aquatic life with long lasting effects.

Disclaimer: This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.