SAFETY DATA SHEET

MARINE DISTILLATE FUELS (DMB/ DFB)

SDS # : 36587

Section 1. Identification

Product identifier : MARINE DISTILLATE FUELS (DMB/DFB)

Relevant identified uses of the substance or mixture and uses advised against

Identified uses
Fuel for diesel engines: vessel, boat Distribution of substance - Industrial Formulation & (re)packing of substances and mixtures - Industrial Use as a fuel - Industrial Use as a fuel - Professional Use as a fuel - Consumer

Supplier's details :

TotalEnergies Marine Fuels Pte Ltd
182 Cecil Street
#27-01 Frasers Tower
Singapore 069547
Tel : +65 6849 5266
ms.ap-sds@totalenergies.com

TotalEnergies Marketing Asia-Pacific Middle East Pte. Ltd.
182 Cecil Street
#27-01 Frasers Tower
Singapore 069547
Tel: +65 6879 2200
ms.ap-sds@totalenergies.com

Emergency telephone number (with hours of operation) :

Asia-Pacific: +65 3158 1074

Section 2. Hazards identification

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 3
ACUTE TOXICITY (inhalation) - Category 4
SKIN CORROSION/IRRITATION - Category 2
GERM CELL MUTAGENICITY - Category 2
CARCINOGENICITY - Category 1B
TOXIC TO REPRODUCTION - Category 2
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
ASPIRATION HAZARD - Category 1
AQUATIC HAZARD (ACUTE) - Category 1
AQUATIC HAZARD (LONG-TERM) - Category 1

GHS label elements, including precautionary statements

MARINE DISTILLATE FUELS (DMB/ DFB)

SDS # : 36587

Hazard pictograms :

Signal word : Danger

Hazard statements :
Flammable liquid and vapor.
May be fatal if swallowed and enters airways.
Causes skin irritation.
Harmful if inhaled.
Suspected of causing genetic defects.
May cause cancer.
Suspected of damaging fertility or the unborn child.
May cause damage to organs through prolonged or repeated exposure. (blood, bone marrow, liver, thymus)
Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating or lighting equipment. Use non-sparking tools. Take action to prevent static discharges. Ground and bond container and receiving equipment. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Do not breathe vapor. Wash thoroughly after handling. Wear protective gloves, protective clothing, eye protection, face protection, or hearing protection.

Response : Collect spillage. IF exposed or concerned: Get medical advice or attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell. IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice or attention.

Storage : Store locked up. Store in a well-ventilated place. Keep cool.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Other hazards which do not result in classification : The product may form flammable mixtures with air when heated above the flash point.
In the presence of hot spots, there is a special risk of fire or explosion under certain conditions involving accidental release of vapor or leaks of product under pressure.
Hazard of slipping on spilled product.
Vapor may be irritating to eyes and respiratory system.
High vapor concentrations can cause headaches, dizziness, drowsiness and nausea and may lead to unconsciousness.
If swallowed accidentally, the product may enter the lungs due to its low viscosity and lead to the rapid development of very serious pulmonary lesions (medical survey during 48 hours).

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	% (w/w)	Identifiers
Fuels, diesel	>70	CAS: 68334-30-5 EC: 269-822-7
Fuel oil, residual	<30	CAS: 68476-33-5 EC: 270-675-6

Additional information : Contains: multi-purposes additives to boost performance
May contain: Mixture of C16-C18 fatty acids methyl esters
Hydrogen sulphide can accumulate in the head space of storage tanks containing this product and can reach potentially hazardous concentrations
Component: % (v/v)

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Chemical formula : Not applicable.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.

Inhalation : Inhalation is unlikely because of the low vapour pressure of the substance at ambient temperature. Exposure to vapours may however occur when the substance is handled at high temperatures with poor ventilation.
Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus.
If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Seek immediate medical attention/advice.
If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Immediately remove any contaminated clothing, shoes or socks. Wash contaminated skin with soap and water. Continue to rinse for at least 10 minutes. Get medical attention if symptoms appear. Wash clothing before reuse. Clean shoes thoroughly before reuse.
High pressure injection of the products under the skin may have very serious consequences even though no symptom or injury may be apparent. In this case, the casualty should be sent immediately to hospital.

Ingestion : Take victim immediately to hospital. SYMPTOMS MAY NOT APPEAR IMMEDIATELY. Wash out mouth with water. Keep person warm and at rest. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person.
If unconscious, place in recovery position and get medical attention immediately.
Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : Harmful if inhaled.

Skin contact : Causes skin irritation.

Ingestion : May be fatal if swallowed and enters airways.

Over-exposure signs/symptoms

Eye contact : May cause mild reversible eye irritation.
watering
redness

Inhalation : In case of exposure to hot product, inhalation of vapors in high concentration may cause irritation of respiratory system.
Can cause central nervous system (CNS) depression.
nausea or vomiting
headache
dizziness/vertigo
convulsive seizures
cardiac arrhythmia
Loss of coordination

Skin contact : Causes skin irritation.

Ingestion : nausea or vomiting
stomach pains
diarrhea
Can cause central nervous system (CNS) depression.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Aspiration hazard if swallowed. In this case, the product may enter the lungs and lead to the rapid development of very serious pulmonary lesions that may appear in the following hours. Seek immediate medical attention. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first-aiders : First aid personnel must be aware of personal risk during rescue! Put on appropriate personal protective equipment (see Section 8).
Before attempting to rescue casualties, isolate area from all potential sources of ignition including disconnecting electrical supply. Ensure adequate ventilation and check that a safe, breathable atmosphere is present before entry into confined spaces.
CAUTION! Hazard of slipping on spilled product.
IN CASE OF SERIOUS OR PERSISTENT CONDITIONS, CALL A DOCTOR OR EMERGENCY MEDICAL CARE.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : on small fires:
Use dry chemical, CO_2, water spray (fog) or foam. Sand.
large fires:
Foam, Water fog (trained personnel only)

Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.
Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

Specific hazards arising from the chemical : Flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back.
Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products : Carbon dioxide (CO_2).
carbon monoxide
nitrogen oxides (NO, NO_2 etc.)
various hydrocarbons
Aldehyde.
Soot
These maybe highly dangerous if inhaled in confined spaces or at high concentration.
If sulphur compounds are present in appreciable amounts, combustion products may include also H2S and SOx (sulfur oxides) or sulfuric acid

Special protective actions 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 to cool tanks and parts exposed to the thermal flux not caught up in the flames.

Special protective equipment for fire-fighters : In case of a large fire or in confined or poorly ventilated spaces, wear full fire resistantprotective clothing and self-contained breathing apparatus (SCBA) with a full face-pieceoperated in positive pressure mode.

Remark : Not considered explosive based on chemical structure and oxygen balance considerations

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training.
Only allow access to authorised persons. Do not touch or walk through spilled material. Hazard of slipping on spilled product.
ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Very toxic to aquatic life with long lasting effects. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk.
Move containers from spill area.
Use spark-proof tools and explosion-proof equipment.
Absorb with dry earth, sand or other non-combustible material.
Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Cover discharges with foam in order to reduce the risks of ignition.
Move containers from spill area. Approach release from upwind.
Prevent entry into sewers, water courses, basements or confined areas. Use spark-proof tools and explosion-proof equipment. 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. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8).
Avoid contact with eyes, skin and clothing.
Avoid breathing vapor. Never siphon by mouth. Manipulate in a well-ventilated area.
Ensure ventilation is adequate if there is a risk of aerosol formation or vapor build-up.
Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
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.
Avoid release to the environment.

Advice on general occupational hygiene : After handling, always wash hands thoroughly with soap and water. Take off immediately all contaminated clothing and wash it before reuse. Provide regular cleaning of equipment, work area and clothing. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Hazard of slipping on spilled product.

Conditions for safe storage, including any incompatibilities : Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep locked up. 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. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

OPERATE ONLY ON COLD AND DEGASSED TANKS IN VENTILATED

PREMISES (TO AVOID RISK OF EXPLOSION). Never weld any container or empty pipe that has not been degassed.
Before entering storage tanks and commencing any operation in a confined area, check the atmosphere for oxygen content and flammability.
Ensure all equipment is electrically grounded before beginning transfer operations.

Design installations (machinery and equipment) to prevent burning product from spreading (tanks, retention systems, interceptors (traps) in drainage systems).
Friction generated by product discharge can create static charges of sufficient magnitude to cause SPARKS WHICH MAY LEAD TO FIRE OR EXPLOSION.
Storage installations should be designed with adequate bunds so as to prevent ground orwater pollution in case of leaks or spills.
Prevent leaks and prevent soil/water pollution caused by leaks. Take all necessary precautions to prevent water from entering the containers, tanks, transfer lines etc...
Use only containers, seals, pipes, etc... made in a material suitable for use with aromatic hydrocarbons. Recommended materials for containers, or container linings: Mild steel, Stainless steel. High density polyethylene (HDPE). Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Compatibility should be checked with the manufacturer.

If the working temperature is higher than the flash point : Ground and bond container and receiving equipment.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Fuels, diesel	**ACGIH TLV (United States, 7/2023) [Diesel Fuel]** A3. Absorbed through skin. TWA 8 hours: 100 mg/m³ (measured as total hydrocarbons). Form: Inhalable fraction and vapor.

Biological exposure indices

No exposure indices known.

Advisory OEL : Hydrogen sulphide (EU): OEL = 7 mg/m3, 5ppm (8 h), 14 mg/m3, 10ppm (short-time). (US) ACGIH: TLV-TWA = 1ppm, 1.4 mg/m3/ TLV-STEL = 5ppm, 7mg/m3. NIOSH: REL = 10ppm, 10 minute ceiling. IDHL = 100ppm

Appropriate engineering controls : Ensure adequate ventilation and check that a safe, breathable atmosphere is present before entry into confined spaces.
Explosive atmosphere in confined spaces. Check that the vapor concentration is lower than the lower flammability limit (explosimeter, ...).

Environmental exposure controls : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Individual protection measures

Hygiene measures : See section 7.

Eye/face protection : In case of contact through splashing: Chemical splash goggles or face shield.

Skin protection

Hand protection : Hydrocarbon-proof gloves for aromatic hydrocarbons.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.
Note: Gloves made of PVA are not water-resistant, and are not suitable for emergency use.

Repeated or prolonged exposure:
Glove material: polyvinyl alcohol (PVA); any thickness; Break through time > 480 min; standard : EN 374
Glove material: Fluorinated rubber; any thickness; Break through time > 480 min; standard : EN 374
Glove material: Nitrile rubber; Glove thickness > 0.5 mm; Break through time > 480 min; standard : EN 374

In case of contact through splashing:
Glove material: Neoprene; Glove thickness > 0.75 mm; Break through time > 60 min; standard : EN 374
Glove material: polyvinyl chloride (PVC); Glove thickness > 1.3 mm; Break through time > 30 min; standard : EN 374

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Chemical-resistant protective suit. When there is a risk of ignition from static electricity, wear anti-static protective clothing.
Antistatic non-skid safety shoes or boots

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
In case of insufficient ventilation, wear suitable respiratory equipment. When using a mask or half mask : Full face piece respirator with organic vapor/acid gas cartridge or canister, Type A. Respirator with combination filter for vapor/particulate, Type A/P2. In an emergency or for exceptional short-lasting jobs in an atmosphere polluted by the product, it is necessary to wear protective respiratory equipment.
To enter tankers, tanks, reservoirs where the oxygen content is too low, wear insulating respiratory apparatus. The use of breathing apparatus must comply strictly with the manufacturer's instructions and the regulations governing their choices and uses.

Section 9. Physical and chemical properties

The conditions of measurement of all properties are at standard temperature (20°C / 68°F) and pressure (1013 hPa) unless otherwise indicated

Appearance

Physical state : Liquid. [limpid]

Color : Brown.

Odor : Characteristic.

Odor threshold : Not available.

pH : Not applicable.

Melting point/freezing point : Not available.

Boiling point : ≥150°C (≥302°F) [ISO 3405]

Flash point : Closed cup: ≥60°C (≥140°F) [ISO 2719]

Evaporation rate : Not applicable.

Flammability (solid, gas) : Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge.

Lower and upper explosive (flammable) limits : Lower: 0.5%
Upper: 5%

Vapor pressure : Not available.

Vapor density : >5 [Air = 1]

Relative density : <0.9 [ISO 12185]

Density : <0.9 g/cm³ [15°C] [ISO 12185]

Solubility(ies) :

Media	Result
water	Not soluble

Miscible with water : No.

Partition coefficient: n-octanol/water : Not applicable.

Auto-ignition temperature : >250°C (>482°F) [ASTM E 659]

Decomposition temperature : Not available.

Viscosity : Dynamic (room temperature): Not available.
Kinematic (room temperature): Not available.
Kinematic (40°C (104°F)): <20.5 mm^2/s (<20.5 cSt) [ISO 3104]

Flow time (ISO 2431) : Not available.

Particle characteristics

Median particle size : Not applicable.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : Stable under recommended storage and handling conditions (see Section 7).

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Take precautionary measures against static discharges.

Incompatible materials : Reactive or incompatible with the following materials:
strong acids
Strong oxidizing agents
Strong bases
Halogens

Hazardous decomposition products : Use as a fuel.: Carbon dioxide (CO_2), carbon monoxide, nitrogen oxides (NO, NO_2 etc.), various hydrocarbons, Aldehyde. Soot.

SADT : Not available.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/substance	Result	Species	Dose	Exposure	Test
Fuels, diesel	LC50 Inhalation Dusts and mists	Rat - Male, Female	4.1 mg/l	4 hours	OECD 403
	LD50 Dermal	Rabbit - Male, Female	>4300 mg/kg	-	OECD 434
	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-	OECD 401
Fuel oil, residual	LC50 Inhalation Dusts and mists	Rat - Male, Female	4.1 mg/l	4 hours	OECD 403
	LD50 Dermal	Rabbit - Male, Female	>2000 mg/kg	-	OECD 434
	LD50 Oral	Rat	4320 mg/kg	-	OECD 401

Conclusion/Summary : Based on available data, the classification criteria are met.

Irritation/Corrosion

Product/substance	Result	Species	Score	Exposure	Test
Fuels, diesel	Eyes - Cornea opacity	Rabbit	0	0.5 minutes	OECD 405
	Skin - Edema	Rabbit	3.9	24 hours	OECD 404
	Skin - Erythema/Eschar	Rabbit	2.96	24 hours	OECD 404

Conclusion/Summary

Skin : Based on available data, the classification criteria are met.

Eyes : Based on available data, the classification criteria are not met.

Respiratory : Based on available data, the classification criteria are not met.

Sensitization

Product/substance	Route of exposure	Species	Result
Fuels, diesel	skin	Guinea pig	Not sensitizing

Conclusion/Summary

Skin : Based on available data, the classification criteria are not met.

Respiratory : Based on available data, the classification criteria are not met.

Mutagenicity

Conclusion/Summary : Based on available data, the classification criteria are met.

Carcinogenicity

Product/substance	Result	Species	Dose	Exposure
Fuels, diesel	Positive - Dermal - TC	Mouse	-	2 years
Fuel oil, residual	Positive - Dermal - TD	Mouse	-	-

Conclusion/Summary : Based on available data, the classification criteria are met.

Reproductive toxicity

Conclusion/Summary : Based on available data, the classification criteria are not met.

Teratogenicity

Product/substance	Result	Species	Dose	Exposure
Fuel oil, residual	Positive - Dermal	Rat	-	-

Conclusion/Summary : Based on available data, the classification criteria are met.

Specific target organ toxicity (single exposure)

Not available.

Conclusion/Summary : Based on available data, the classification criteria are not met.

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Fuels, diesel	Category 2	-	bone marrow, liver, thymus
Fuel oil, residual	Category 2	-	blood, liver, thymus

Conclusion/Summary : Based on available data, the classification criteria are met.

Aspiration hazard

Name	Result
Fuels, diesel	ASPIRATION HAZARD - Category 1

Conclusion/Summary : Based on available data, the classification criteria are met.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : Harmful if inhaled.

Skin contact : Causes skin irritation.

Ingestion : May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : May cause mild reversible eye irritation.
watering
redness

Inhalation : In case of exposure to hot product, inhalation of vapors in high concentration may cause irritation of respiratory system.
Can cause central nervous system (CNS) depression.
nausea or vomiting
headache
dizziness/vertigo
convulsive seizures
cardiac arrhythmia
Loss of coordination

Skin contact : Causes skin irritation.

Ingestion : nausea or vomiting
stomach pains
diarrhea
Can cause central nervous system (CNS) depression.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Product/substance	Result	Species	Dose	Exposure
Fuels, diesel	Sub-chronic NOAEC Inhalation Dusts and mists	Rat - Male, Female	>1710 mg/m³	13 weeks; 2 days per week
	Sub-chronic NOAEC Inhalation Dusts and mists	Rat - Male, Female	880 mg/m³	13 weeks; 2 days per week
	Sub-chronic NOAEL Dermal	Rat	30 mg/kg	13 weeks; 5 days per week
Fuel oil, residual	Sub-chronic NOAEL Dermal	Rat	1 mg/kg Read across	-

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 : Suspected of causing genetic defects.

Reproductive toxicity : Suspected of damaging fertility or the unborn child.

Numerical measures of toxicity

Acute toxicity estimates

Product/substance	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
MARINE DISTILLATE FUELS (DMB/DFB)	N/A	N/A	N/A	N/A	4.1
Fuels, diesel	N/A	N/A	N/A	N/A	4.1
Fuel oil, residual	4320	N/A	N/A	N/A	4.1

Other information :

Not available.

Section 12. Ecological information

Very toxic to aquatic life with long lasting effects.

Toxicity

Product/substance	Result	Species	Exposure	Test
Fuels, diesel	Acute EL50 22 mg/l Fresh water	Algae - *Raphidocelis subcapitata*	72 hours	OECD 201
	Acute EL50 68 mg/l Fresh water	Daphnia	48 hours	OECD 202
	Acute LL50 21 mg/l Fresh water	Fish - *Oncorhynchus mykiss*	96 hours	OECD 203 203
	Chronic NOEL 1 mg/l	Algae - *Pseudokirchnerella subcapitata*	72 hours	OECD 201
	Chronic NOEL 0.2 mg/l	Daphnia	21 days	QSAR QSAR
Fuel oil, residual	Acute EL50 0.32 mg/l Fresh water	Algae - *Pseudokirchnerella subcapitata*	72 hours	OECD 201
	Acute EL50 0.22 mg/l	Crustaceans - *Daphnia magna*	48 hours	OECD 202
	Acute LL50 79 mg/l Fresh water	Fish - *Oncorhynchus mykiss*	96 hours	OECD 203
	Chronic NOELR 0.05 mg/l Fresh water	Algae - *Pseudokirchnerella subcapitata*	72 hours	OECD 201

Conclusion/Summary : Not available.

Persistence/degradability

Product/substance	Test	Result	Dose	Inoculum
Fuels, diesel	OECD 301F	60 % - 28 days	-	Activated sludge

Product/substance	Aquatic half-life	Photolysis	Biodegradability
Fuels, diesel	-	-	Readily
Fuel oil, residual	-	-	Readily

Bioaccumulative potential

Product/substance	$LogK_{ow}$	BCF	Potential
Fuels, diesel	1.99 to 18	0.417 to 71100	High
Fuel oil, residual	1.99 to 18.02	0.4 to 71100	High

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Mobility in soil : Given its physical and chemical characteristics, the product is generally mobile in the ground It may contaminate ground water. Volatilisation is dependent on Henry's Constant which is not applicable to UVCB The product spreads on the surface of the water. In water, the majority of components of this product will be absorbed on sediments. The product are resistant to hydrolysis because they lack a functional group that is hydrolytically reactive.

Other adverse effects : Not applicable.

Section 13. Disposal considerations

Disposal methods : Hazardous waste.: Dispose of waste product or used containers according to local regulations.

The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

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. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally.
Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	ICAO/IATA	ADR/RID	ADN
UN/ID No	UN1202	UN1202	UN1202	UN1202	UN1202
UN proper shipping name	GAS OIL	GAS OIL	Gas oil	GAS OIL	GAS OIL
Transport hazard class (es)	3 	3 	3 	3 	3 
Packing group	III	III	III	III	III
Environmental hazards	Yes. The environmentally hazardous substance mark is not required.	Yes.	Yes. The environmentally hazardous substance mark is not required.	Yes.	Yes.

Additional information

IMDG : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.
Emergency schedules F-E, S-E

ICAO/IATA : The environmentally hazardous substance mark may appear if required by other transportation regulations.
Quantity limitation Passenger and Cargo Aircraft: 60 L. Packaging instructions: 355. Cargo Aircraft Only: 220 L. Packaging instructions: 366. Limited Quantities - Passenger Aircraft: 10 L. Packaging instructions: Y344.
Special provisions A3

ADR/RID : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.
Hazard identification number 30
Limited quantity 5 L
Special provisions 640M, 664
Tunnel code (D/E)

ADN : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.
Special provisions 640M

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.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

Singapore - hazardous chemicals under government control

None.

National regulations

This Safety Data Sheet (SDS) has been prepared according to Singapore Standard SS 586 on "Specification for Hazard Communication for Hazardous Chemicals and Dangerous Goods"

Workplace Safety and Health (General Provision) Regulations

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia inventory (AIIC) : All components are listed or exempted.

Canada inventory (DSL/NDSL) : All components are listed or exempted.

China inventory (IECSC) : All components are listed or exempted.

Europe inventory (EC) : All components are listed or exempted.

Japan inventory : **Japan inventory (CSCL)**: All components are listed or exempted.
Japan inventory (ISHL): Not determined.

New Zealand Inventory of Chemicals (NZIoC) : All components are listed or exempted.

Philippines inventory (PICCS)	: Not determined.
Korea inventory (KECI)	: Not determined.
Taiwan Chemical Substances Inventory (TCSI)	: All components are listed or exempted.
Thailand inventory	: Not determined.
Turkey inventory	: All components are listed or exempted.
United States inventory (TSCA 8b)	: All components are listed or exempted.
Vietnam inventory	: All components are listed or exempted.

The information stated in this section relates solely to the conformity of the chemical product with the countries Inventories. The information used to confirm the inventory status of this product may be based on additional data to the chemical composition shown in Section 3. Other regulations may apply for importation or marketing authorizations.

Section 16. Other information

History

Date of revision	: 2024/07/16
previous revision date	: 2023/05/02
Version	: 1.01
Key to abbreviations	: ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) N/A = Not available SGG = Segregation Group UN = United Nations

Procedure used to derive the classification

Classification	Justification
FLAMMABLE LIQUIDS - Category 3	Calculation method
ACUTE TOXICITY (inhalation) - Category 4	Calculation method
SKIN CORROSION/IRRITATION - Category 2	Calculation method
GERM CELL MUTAGENICITY - Category 2	Calculation method
CARCINOGENICITY - Category 1B	Calculation method
TOXIC TO REPRODUCTION - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2	Calculation method
ASPIRATION HAZARD - Category 1	Calculation method
AQUATIC HAZARD (ACUTE) - Category 1	Calculation method
AQUATIC HAZARD (LONG-TERM) - Category 1	Calculation method

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.