



**SAFETY DATA SHEET**  
according to Regulation (EC) No. 1907/2006

SDS # : 30234

**MARINE DISTILLATE FUEL  
(DMA/DFA)**

Date of the previous version: 2019-11-26

Revision Date: 2019-12-02

Version 3.01

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

**Product name** **MARINE DISTILLATE FUEL (DMA/DFA)**  
**Substance/mixture** Mixture

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

**Identified uses** Fuel for diesel engines: vessel, boat.

1.3. Details of the supplier of the safety data sheet

**Supplier** TOTAL MARINE FUELS GLOBAL SOLUTIONS  
182 Cecil Street  
#27-01 Frasers Tower  
Singapore 069547  
Tel : +65 6849 5266  
Fax : +65 6337 9483

For further information, please contact:

**Contact Point** HSE  
**E-mail Address** rm.mkefr-fds@total.com

1.4. Emergency telephone number

Emergency telephone: +44 1235 239670

See section 16 for additional information

Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

**REGULATION (EC) No 1272/2008**

*For the full text of the H-Statements mentioned in this Section, see Section 2.2.*

**Classification**

Flammable liquids - Category 3 - (H226)  
Aspiration toxicity - Category 1 - (H304)  
Acute inhalation toxicity - vapor - Category 4 - (H332)



SDS # : 30234

## MARINE DISTILLATE FUEL (DMA/DFA)

Revision Date: 2019-12-02

Version 3.01

Skin corrosion/irritation - Category 2 - (H315)  
 Carcinogenicity - Category 2 - (H351)  
 Specific target organ toxicity (repeated exposure) - Category 2 - (H373)  
 Chronic aquatic toxicity - Category 2 - (H411)

### 2.2. Label elements

**Labelled according to** REGULATION (EC) No 1272/2008

Contains Fuels, diesel



**Signal word**  
DANGER

#### Hazard Statements

H226 - Flammable liquid and vapor  
 H304 - May be fatal if swallowed and enters airways  
 H315 - Causes skin irritation  
 H332 - Harmful if inhaled  
 H351 - Suspected of causing cancer  
 H373 - May cause damage to organs through prolonged or repeated exposure  
 H411 - Toxic to aquatic life with long lasting effects

#### Precautionary Statements

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  
 P261 - Avoid breathing dust/fume/gas/mist/vapors/spray  
 P280 - Wear protective gloves/protective clothing/eye protection/face protection  
 P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor  
 P331 - Do NOT induce vomiting  
 P403 + P233 - Store in a well-ventilated place. Keep container tightly closed  
 P273 - Avoid release to the environment  
 P501 - Dispose of contents/container to industrial incineration plant

### 2.3. Other hazards

#### Physical-Chemical Properties

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.

#### Properties Affecting Health

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



SDS # : 30234

## MARINE DISTILLATE FUEL (DMA/DFA)

Revision Date: 2019-12-02

Version 3.01

hours).

Hydrogen sulphide can accumulate in the head space of storage tanks containing this product and can reach potentially hazardous concentrations.

### Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.2. Mixture

##### Chemical nature

Fuels, diesel. A complex combination of hydrocarbons produced by the distillation of crude oil. It consists of hydrocarbons having carbon chain lengths predominantly in the range of C9 to C20 and boiling in the range of approximately 163°C to 357°C.

##### Hazardous ingredients

Chemical Name	EC-No	REACH registration No	CAS-No	Weight %	Classification (Reg. 1272/2008)
Fuels, diesel	269-822-7	01-2119484664-27	68334-30-5	>93	Flam. Liq. 3 (H226) Acute Tox. 4 (H332) Skin Irrit. 2 (H315) Carc. 2 (H351) Asp. Tox. 1 (H304) STOT RE 2 (H373) Aquatic Chronic 2 (H411)

##### Additional information

Hydrogen sulphide can accumulate in the head space of storage tanks containing this product and can reach potentially hazardous concentrations.

May contain:

Mixture of C16-C18 fatty acids methyl esters,  
multi-purposes additives to boost performance.

For the full text of the H-Statements mentioned in this Section, see Section 16.

### Section 4: FIRST AID MEASURES

#### 4.1. Description of first-aid measures

##### General advice

IN CASE OF SERIOUS OR PERSISTENT CONDITIONS, CALL A DOCTOR OR EMERGENCY MEDICAL CARE.

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.

##### Eye contact

Rinse thoroughly with plenty of water, also under the eyelids.

Check for and remove any contact lenses. Rinse eyes.

If eye irritation persists, consult a specialist.

##### Skin contact

Remove contaminated clothing and shoes. Wash skin with soap and water.

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.

For minor thermal burns. Hold the burned area under cold running water for at least five



SDS # : 30234

## MARINE DISTILLATE FUEL (DMA/DFA)

Revision Date: 2019-12-02

Version 3.01

minutes, or until the pain subsides.

### 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. In case of exposure to intense concentrations of vapours, fumes or spray, transport the person away from the contaminated zone, keep warm and allow to rest.

Immediately begin artificial respiration if breathing has ceased. Call a physician immediately.

If there is any suspicion of inhalation of H<sub>2</sub>S, Rescuers must wear breathing apparatus, belt and safety rope, and follow rescue procedures. If not breathing, give artificial respiration. Provision of oxygen may help. Remove casualty to fresh air as quickly as possible. Obtain medical advice for further treatment.

### Ingestion

Give nothing to drink.

Do NOT induce vomiting. as there is high risk of aspiration. The fluid can enter the lungs and cause damage (chemical pneumonitis, potentially fatal).

Take victim immediately to hospital.

Do not wait for symptoms to develop.

### Protection of First-aiders

CAUTION! First aid personnel must be aware of personal risk during rescue!. Use personal protective equipment. See Section 8 for more detail.

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

### Eye contact

May cause slight irritation.

### Skin contact

May cause slight irritation.

### Inhalation

Inhalation of vapors in high concentration may cause irritation of respiratory system. May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination.

Risk of hydrogen sulphide intoxication (H<sub>2</sub>S).

### Ingestion

Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May cause central nervous system depression.

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

### Notes to physician

Harmful: If swallowed accidentally, the product may enter the lungs due to its low viscosity and lead to the rapid development of very serious inhalation pulmonary lesions (medical survey during 48 hours).

Treat symptomatically.

## Section 5: FIRE-FIGHTING MEASURES

### 5.1. Extinguishing media

#### Suitable Extinguishing Media

Extinguishing media - small fires: Carbon dioxide (CO<sub>2</sub>), Dry powder, Sand or earth.  
Extinguishing media - large fires: Foam, Water fog (trained personnel only).



SDS # : 30234

## MARINE DISTILLATE FUEL (DMA/DFA)

Revision Date: 2019-12-02

Version 3.01

**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.

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

**Special Hazard** Incomplete combustion and thermolysis may produce gases of varying toxicity such as carbon monoxide, carbon dioxide, various hydrocarbons, aldehydes and soot. These may be highly dangerous if inhaled in confined spaces or at high concentration. Vapors may form explosive mixtures with air.  
If sulphur compounds are present in appreciable amounts, combustion products may include also H<sub>2</sub>S and SO<sub>x</sub> (sulfur oxides) or sulfuric acid.

### 5.3. Advice for fire-fighters

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

**Other information** Cool down any tanks and surfaces exposed to fire by spraying abundantly with water. Use water to cool tanks and parts exposed to the thermal flux not caught up in the flames. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Cool containers / tanks with water spray.

## Section 6: ACCIDENTAL RELEASE MEASURES

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

**General Information** Except in case of small spillages, The feasibility of any actions should always be assessed and advised, if possible, by a trained, competent person in charge of managing the emergency.  
If required, notify relevant authorities according to all applicable regulations.  
Avoid direct contact with released material. Evacuate non-essential personnel. For personal protection see section 8.  
If spilled, take caution, as material can cause surfaces to become very slippery. Ensure adequate ventilation, especially in confined areas.  
Stay upwind. In case of large spillages, alert occupants in downwind areas. Stop or contain leak at the source, if safe to do so. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Cover discharges with foam in order to reduce the risks of ignition.

**Advice for non-emergency personnel** Do not touch or walk through spilled material. Ensure adequate ventilation. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).  
For personal protection see section 8.

**Advice for emergency responders** In case of:  
Small spillages: normal antistatic working clothes are usually adequate.  
Large spillages: full body suit of chemically resistant and antistatic material. Work gloves (preferably gauntlets) providing adequate chemical resistance. Remarks: Gloves made of PVA are not water-resistant, and are not suitable for emergency use. Work helmet.



SDS # : 30234

## MARINE DISTILLATE FUEL (DMA/DFA)

Revision Date: 2019-12-02

Version 3.01

Antistatic non-skid safety shoes or boots. Goggles and/or face shield, if splashes or contact with eyes is possible or anticipated.

Respiratory protection: A half or full-face respirator with filter(s) for organic vapours (and when applicable: for H<sub>2</sub>S). A Self-Contained Breathing Apparatus (SCBA) can be used according to the extent of spill and predictable amount of exposure.

If the situation cannot be completely assessed, or if an oxygen deficiency is possible, only SCBA's should be used.

### 6.2. Environmental precautions

#### **General Information**

The product should not be allowed to enter drains, water courses or the soil. Do not allow material to contaminate ground water system.

If necessary, Consult an expert. Local authorities should be advised if significant spillages cannot be contained.

### 6.3. Methods and material for containment and cleaning up

#### **Methods for containment**

Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see Section 13). Large spillages may be cautiously covered with foam, if available, to limit fire risk. In case of spillage in the water, contain product with floating barriers or other equipment. The use of dispersants should be advised by an expert, and, if required, approved by local authorities.

#### **Methods for cleaning up**

Never use dispersing agents. Do not use direct jets.

Do not flush into surface water or sanitary sewer system. Transfer recovered product and other materials to suitable tanks or containers and store/dispose according to relevant regulations.

### 6.4. Reference to other sections

#### **Personal Protective Equipment**

See Section 8 for more detail.

#### **Waste treatment**

See section 13.

#### **Other information**

Recommended measures are based on the most likely spillage scenarios for this material. However, local conditions (wind, air temperature, wave/current direction and speed) may significantly influence the choice of appropriate actions. For this reason, local experts should be consulted when necessary. Local regulations may also prescribe or limit actions to be taken.

Concentration of H<sub>2</sub>S in tank headspaces may reach hazardous values, especially in case of prolonged storage. This situation is especially relevant for those operations which involve direct exposure to the vapours in the tank.

Spillages of limited amounts of products, especially in the open air when vapours will be usually quickly dispersed, are dynamic situations, which presumably do not entail exposure to dangerous concentrations. As H<sub>2</sub>S has a density greater than ambient air, a possible exception may regard the build-up of dangerous concentrations in specific spots, like trenches, depressions or confined spaces. In all these circumstances, however, the correct actions should be assessed on a case-by-case basis.

Section 7: HANDLING AND STORAGE
---------------------------------



SDS # : 30234

## MARINE DISTILLATE FUEL (DMA/DFA)

Revision Date: 2019-12-02

Version 3.01

### 7.1. Precautions for safe handling

#### Advice on safe handling

Take precautionary measures against static electricity.  
The inspection, cleaning and maintenance of storage containers require the application of strict procedures and must be entrusted to qualified personnel (internal or external).  
Ensure adequate ventilation. Vapors may form explosive mixtures with air. Do not smoke.  
Avoid breathing vapors or mists. Avoid contact with skin, eyes and clothing.  
**NEVER ATTEMPT TO PRIME THE CONTAINER SIPHON BY SUCKING WITH THE MOUTH.** Prevent the formation of vapors, mists and aerosols.  
Do not use compressed air for filling, discharging, or handling operations. Never pierce, drill, grind, cut, saw or weld any empty container.  
Do not use mobile phones during handling. For personal protection see section 8.

#### Technical measures

Ensure adequate ventilation.  
**WHILE MOVING THE PRODUCT:** To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.  
Take all necessary precautions to prevent water from entering the containers, tanks, transfer lines etc...

#### Prevention of fire and explosion

Handle away from any source of ignition (open flame and sparks) and heat (hot manifolds or casings). Take precautionary measures against static discharges. Ground/bond containers, tanks and transfer/receiving equipment. Friction generated by product discharge can create static charges of sufficient magnitude to cause **SPARKS WHICH MAY LEAD TO FIRE OR EXPLOSION.** Do not allow splash loading and ensure that the product is poured slowly, particularly at the beginning of the operation.  
Empty containers may contain flammable or explosive vapors. Never weld any container or empty pipe that has not been degassed.  
**OPERATE ONLY ON COLD AND DEGASSED TANKS IN VENTILATED PREMISES (TO AVOID RISK OF EXPLOSION).**  
Design installations (machinery and equipment) to prevent burning product from spreading (tanks, retention systems, interceptors (traps) in drainage systems).

#### Hygiene measures

When using, do not eat, drink or smoke. Avoid contact with skin, eyes and clothing. Do not put product contaminated rags into workwear pockets. Wash hands before breaks and immediately after handling the product. **IF ON SKIN:** Wash skin with soap and water.  
Remove contaminated clothing and shoes.  
Gloves must be periodically inspected and changed in case of wear, perforations or contaminations.  
Provide regular cleaning of equipment, work area and clothing. Keep away from food, drink and animal feeding stuffs.  
Ensure the application of strict rules of hygiene by the personnel exposed to the risk of contact with the product. Use personal protective equipment as required.

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

#### Technical measures/Storage conditions

Storage area layout, tank design, equipment and operating procedures must comply with the relevant European, national or local legislation. Before entering storage tanks and commencing any operation in a confined area, check the atmosphere for oxygen content and flammability. If sulphur compounds are suspected to be present in the product, check the atmosphere for H<sub>2</sub>S content. Take precautionary measures against static discharges.  
. Ensure all equipment is electrically grounded before beginning transfer operations.



SDS # : 30234

## MARINE DISTILLATE FUEL (DMA/DFA)

Revision Date: 2019-12-02

Version 3.01

Storage installations should be designed with adequate bunds so as to prevent ground or water pollution in case of leaks or spills. Do not remove the hazard labels of the containers (even if they are empty).

. Store the packed products (drums, samples, cans ...) in properly ventilated rooms, away from damp, heat and any potential source of ignition.

. Keep preferably in the original container. Otherwise reproduce all indication of the regulation label on the new container.

. Keep containers tightly closed and properly labelled. Store separately from oxidising agents.

. Store in accordance with the particular national regulations.

### Materials to Avoid

Strong oxidizing agents, Strong acids, Strong bases, (herbicides...), Halogens.

### Packaging material

Use only containers, seals, pipes, etc... made in a material suitable for use with aromatic hydrocarbons. Recommended materials for containers, or container linings use 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.

### 7.3. Specific end uses

**Specific use(s)** See exposure scenarios.

## Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

**Exposure limits** Hydrogen sulphide (EU): OEL = 7 mg/m<sup>3</sup>, 5ppm (8 h), 14 mg/m<sup>3</sup>, 10ppm (short-time)

**Legend** See section 16

### Derived No Effect Level (DNEL)

#### DNEL Worker (Industrial/Professional)

Chemical Name	Short term, systemic effects	Short term, local effects	Long term, systemic effects	Long term, local effects
Fuels, diesel 68334-30-5	4300 mg/m <sup>3</sup> /15min (aerosol - inhalation)		2.9 mg/kg/8h (dermal) 68 mg/m <sup>3</sup> /8h (aerosol - inhalation)	

#### DNEL Consumer

Chemical Name	Short term, systemic effects	Short term, local effects	Long term, systemic effects	Long term, local effects
Fuels, diesel 68334-30-5	2600 mg/m <sup>3</sup> /15min (aerosol - inhalation)		1.3 mg/kg/24h (dermal) 20 mg/m <sup>3</sup> /24h (aerosol - inhalation)	

### 8.2. Exposure controls

#### Occupational Exposure Controls

#### Engineering Measures

Ensure adequate ventilation. Do not enter empty storage tanks until measurements of





SDS # : 30234

## MARINE DISTILLATE FUEL (DMA/DFA)

Revision Date: 2019-12-02

Version 3.01

available oxygen have been carried out.  
When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.

### Personal Protective Equipment

#### General Information

Protective engineering solutions should be implemented and in use before personal protective equipment is considered.

#### Respiratory protection

To enter tankers, tanks, reservoirs where the oxygen content is too low, wear insulating respiratory apparatus.  
. In an emergency or for exceptional short-lasting jobs in an atmosphere polluted by the product, it is necessary to wear protective respiratory equipment.  
. When using a mask or half mask :. Full face piece respirator with organic vapor/acid gas cartridge or canister: Type A.  
. The use of breathing apparatus must comply strictly with the manufacturer's instructions and the regulations governing their choices and uses.

#### Eye Protection

If splashes are likely to occur, wear:. Safety glasses with side-shields. or. Face-shield.

#### Skin and body protection

Wear suitable protective clothing, hydrocarbon-proof clothing. Protective shoes or boots.

#### 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	Glove thickness	Break through time	Remarks
PVA	(*)	> 480 min	EN 374 (*) any thickness
Fluorinated rubber	(*)	> 480 min	EN 374 (*) any thickness
Nitrile rubber	> 0.3 mm	> 480 min	EN 374

In case of contact through splashing:			
Glove material	Glove thickness	Break through time	Remarks
Neoprene	> 0.5 mm	> 60 min	EN 374
PVC	> 0.2 mm	> 60 mn	EN 374

### Environmental exposure controls

#### General Information

The product should not be allowed to enter drains, water courses or the soil.

### Section 9: PHYSICAL AND CHEMICAL PROPERTIES

#### 9.1. Information on basic physical and chemical properties

##### Appearance

limpid

##### Color

yellow To brown

##### Physical State @20°C

liquid

##### Odor

Characteristic



SDS # : 30234

## MARINE DISTILLATE FUEL (DMA/DFA)

Revision Date: 2019-12-02

Version 3.01

<u>Property</u>	<u>Values</u>	<u>Remarks</u>	<u>Method</u>
<b>Odor Threshold</b>		No information available	
<b>pH</b>		Not applicable	
<b>Melting point/range</b>		No information available	
<b>Boiling point/boiling range</b>	150 - 380 °C 302 - 716 °F		EN ISO 3405 EN ISO 3405
<b>Flash point</b>	> 60 °C > 140 °F		ISO 2719 ISO 2719
<b>Evaporation rate</b>		Not applicable	
<b>Flammability Limits in Air</b>			
<b>upper</b>	5 %		
<b>Lower</b>	0.5 %		
<b>Vapor Pressure</b>	< 1 kPa @ 37.8 °C		EN 13016-1
<b>Vapor density</b>	> 5		
<b>Relative density</b>		No information available	
<b>Density</b>	<= 890 kg/m <sup>3</sup>	@ 15 °C	ISO 12185
<b>Water solubility</b>		Not applicable	
<b>Solubility in other solvents</b>		Soluble in many common organic solvents	
<b>logPow</b>		Not applicable	
<b>Autoignition temperature</b>	> 250 °C > 482 °F		ASTM E659 ASTM E659
<b>Decomposition temperature</b>		No information available	
<b>Viscosity, kinematic</b>	2 - 6 mm <sup>2</sup> /s	@ 40 °C	ISO 3104
<b>Explosive properties</b>	Not considered explosive based on chemical structure and oxygen balance considerations		
<b>Oxidizing Properties</b>	This product is not considered oxidising based on chemical structure considerations		
<b>Possibility of hazardous reactions</b>	None under normal processing		

### 9.2. Other information

**Freezing Point** No information available

## Section 10: STABILITY AND REACTIVITY

### 10.1. Reactivity

**General Information** No information available.

### 10.2. Chemical stability

**Stability** Stable under recommended storage conditions.

### 10.3. Possibility of hazardous reactions

**Hazardous Reactions** None under normal processing.

### 10.4. Conditions to avoid



SDS # : 30234

## MARINE DISTILLATE FUEL (DMA/DFA)

Revision Date: 2019-12-02

Version 3.01

**Conditions to avoid** Heat (temperatures above flash point), sparks, ignition points, flames, static electricity.

### 10.5. Incompatible materials

**Materials to Avoid** Strong oxidizing agents, Strong acids, Strong bases, (herbicides...), Halogens.

### 10.6. Hazardous Decomposition Products

**Hazardous Decomposition Products** None under normal use.

## Section 11: TOXICOLOGICAL INFORMATION

### 11.1. Information on toxicological effects

#### Acute toxicity Local effects Product Information

**Skin contact** Samples of the substance have been tested in skin irritation studies. Based on a mean erythema score of 3.9 and 2.5 (24, 72 hours) and a mean oedema score of 2.96 and 1.5 (24, 72 hours), distillate fuels oils are irritating to the skin.  
May cause slight irritation.

**Eye contact** This product does not meet the EU criteria for classification.  
May cause slight irritation.

**Inhalation** . Inhalation of vapors in high concentration may cause irritation of respiratory system. May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination.  
Risk of hydrogen sulphide intoxication (H<sub>2</sub>S).

**Ingestion** This product does not meet the EU criteria for classification.  
Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May cause central nervous system depression.

**ATEmix (oral)** 2,007.00 mg/kg

**ATEmix (dermal)** 5,017.00 mg/kg

**ATEmix (inhalation-dust/mist)** 1.50 mg/l

**ATEmix (inhalation-vapor)** 11.00 mg/l

#### Acute toxicity - Component Information

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Fuels, diesel	LD50 > 2000 mg/kg bw (rat - OECD 401)	LD50 > 5000 mg/kg bw (rabbit - OECD 434)	LC50 (4h) > 4.10 mg/l (aerosol) (rat - OECD 403)

#### Sensitization

**Sensitization** This product does not meet the EU criteria for classification.



SDS # : 30234

## MARINE DISTILLATE FUEL (DMA/DFA)

Revision Date: 2019-12-02

Version 3.01

### Specific effects

**Carcinogenicity** Carcinogenic activity is reported in the presence of repeated dermal irritation. Based on this information and PAH analysis, this kind of gas oil can show a low carcinogenic potential. Findings from different studies support classification.

Chemical Name	European Union
Fuels, diesel 68334-30-5	Carc. 2 (H351)

### Mutagenicity

#### **Germ Cell Mutagenicity**

This product does not meet the EU criteria for classification.

### Reproductive toxicity

This product does not meet the EU criteria for classification.

### Repeated dose toxicity

### Target Organ Effects (STOT)

#### **Specific target organ systemic toxicity (single exposure)**

This product does not meet the EU criteria for classification.

#### **Specific target organ systemic toxicity (repeated exposure)**

May cause damage to organs through prolonged or repeated exposure.

### Aspiration toxicity

The fluid can enter the lungs and cause damage (chemical pneumonitis, potentially fatal).

### Other information

#### **Other information**

No information available.

## Section 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

Toxic to aquatic life with long lasting effects.

#### Acute aquatic toxicity - Product Information

No information available.

#### Acute aquatic toxicity - Component Information

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish	Toxicity to microorganisms
Fuels, diesel 68334-30-5	EL50 (72 h) 22 mg/l (Pseudokirchnerella subcapitata - OECD 201) EL50 (72 h) 2.9 mg/l (Pseudokirchnerella subcapitata - OECD 201)	EL50 (48 h) 68 mg/l (Daphnia magna - OECD 202) EL50 (48 h) 5.3 mg/l (Daphnia magna - OECD 202)	LL50 (96 h) 21 mg/l (Oncorhynchus mykiss - OECD 203) LL50 (96 h) 3.2 mg/l (Menidia beryllina - US EPA/600/4-85/013)	

#### Chronic aquatic toxicity - Product Information



SDS # : 30234

## MARINE DISTILLATE FUEL (DMA/DFA)

Revision Date: 2019-12-02

Version 3.01

No information available.

### Chronic aquatic toxicity - Component Information

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish	Toxicity to microorganisms
Fuels, diesel 68334-30-5		NOEL (21d) 0.2 mg/l (Daphnia magna - OECD 211)	NOEL (14/28d) 0.083 mg/l (Oncorhynchus mykiss - QSAR Petrotox)	

### Effects on terrestrial organisms

No information available.

### 12.2. Persistence and degradability

#### **General Information**

Standard tests for this parameter are not appropriate.

### 12.3. Bioaccumulative potential

#### **Product Information**

Standard tests for this parameter are not appropriate.

#### **logPow**

Not applicable

#### **Component Information**

No information available.

### 12.4. Mobility in soil

Mobility				
Method	Compartment	Result	(%)	Remarks
Percent distribution in media (Calculation according to Mackay, Level III)	Soil		62.86	
Percent distribution in media (Calculation according to Mackay, Level III)	Sediment		12.64	
Percent distribution in media (Calculation according to Mackay, Level III)	Water		0.14	
Percent distribution in media (Calculation according to Mackay, Level III)	Air		24.36	

#### **Soil**

Given its physical and chemical characteristics, the product is generally mobile in the ground. It may contaminate ground water.

#### **Air**

Volatilisation is dependent on Henry's Constant which is not applicable to UVCB.

#### **Water**

The product spreads on the surface of the water. A small amount may solubilise in 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.



SDS # : 30234

## MARINE DISTILLATE FUEL (DMA/DFA)

Revision Date: 2019-12-02

Version 3.01

### 12.5. Results of PBT and vPvB assessment

**PBT and vPvB assessment** This preparation contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

### 12.6. Other adverse effects

**General Information** No information available.

## Section 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

**Waste from Residues / Unused Products** Dispose of in accordance with the European Directives on waste and hazardous waste.

**Contaminated packaging** Empty containers may contain flammable or explosive vapors. Do not cut, weld, bore, burn or incinerate emptied containers, unless they have been cleaned and declared safe. Empty containers should be taken to an approved waste handling site for recycling or disposal.

**EWC Waste Disposal No.** According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used.

## Section 14: TRANSPORT INFORMATION

### ADR/RID

<b>UN/ID No</b>	UN1202
<b>Proper shipping name</b>	GAS OIL
<b>Proper shipping name</b>	GAS OIL
<b>Hazard class</b>	3
<b>Packing Group</b>	III
<b>ADR/RID-Labels</b>	3
<b>Environmental hazard</b>	Yes
<b>Classification Code</b>	F1
<b>Special Provisions</b>	640L, 664
<b>Tunnel Restriction Code</b>	(D/E)
<b>ADR Hazard Id (Kemmler Number)</b>	30
<b>Description</b>	UN1202, GAS OIL, 3, III, (D/E), Environmentally hazardous
<b>Excepted Quantity</b>	E1
<b>Limited quantity</b>	5 L

### IMDG/IMO

<b>UN/ID No</b>	UN1202
<b>Proper shipping name</b>	Gas oil
<b>Hazard class</b>	3
<b>Packing Group</b>	III
<b>Marine pollutant</b>	Yes



SDS # : 30234

## MARINE DISTILLATE FUEL (DMA/DFA)

Revision Date: 2019-12-02

Version 3.01

<b>EmS No.</b>	F-E, S-E
<b>Description</b>	UN1202, GAS OIL, 3, III, (60°C C.C.), MARINE POLLUTANT
<b>Excepted Quantity</b>	E1
<b>Limited quantity</b>	5 L

### ICAO/IATA

<b>UN/ID No</b>	UN1202
<b>Proper shipping name</b>	Diesel fuel
<b>Hazard class</b>	3
<b>Packing Group</b>	III
<b>ERG Code</b>	3L
<b>Special Provisions</b>	A3
<b>Description</b>	UN1202, Diesel fuel, 3, III
<b>Excepted Quantity</b>	E1
<b>Limited quantity</b>	10 L

### ADN

<b>UN/ID No</b>	UN1202
<b>Proper shipping name</b>	GAS OIL
<b>Proper shipping name</b>	GAS OIL
<b>Hazard class</b>	3
<b>Hazard Labels</b>	3
<b>Packing Group</b>	III
<b>Environmental hazard</b>	Yes
<b>Classification Code</b>	F1
<b>Special Provisions</b>	640L
<b>Description</b>	UN1202, GAS OIL, 3, III, Environmentally hazardous
<b>Excepted Quantity</b>	E1
<b>Limited quantity</b>	5 L
<b>Ventilation</b>	VE01
<b>Equipment Requirements</b>	PP, EX, A

### Section 15: REGULATORY INFORMATION

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

European Union

#### REACH

This mixture contains only ingredients which have been registered, or are exempt from registration, according to Regulation (EC) No. 1907/2006 (REACH).

#### Other regulations

Directive 2004/37/EC of the European Parliament and of the Council of 29 April 2004 on the protection of workers from the risks related to exposure to carcinogens or mutagens at work

Take note of Dir 92/85/EEC on the safety and health at work of pregnant workers.

Take note of Dir 94/33/EC on the protection of young people at work.



SDS # : 30234

## MARINE DISTILLATE FUEL (DMA/DFA)

Revision Date: 2019-12-02

Version 3.01

International Inventories All the substances contained in this product are listed or exempted from listing in the following inventories:  
 Europe (EINECS/ELINCS/NLP)  
 U.S.A. (TSCA)  
 Canada (DSL/NDSL)  
 China (IECSC)  
 Korea (KECL)  
 Philippines (PICCS)  
 Australia (AICS)  
 New Zealand (NZIoC)

Further information

No information available

### 15.2. Chemical Safety Assessment

**Chemical Safety Assessment** See exposure scenarios

### Section 16: OTHER INFORMATION

#### Full text of H-Statements referred to under sections 2 and 3

H226 - Flammable liquid and vapor

H304 - May be fatal if swallowed and enters airways

H315 - Causes skin irritation

H332 - Harmful if inhaled

H351 - Suspected of causing cancer if inhaled

H373 - May cause damage to the kidneys/ liver/ eyes/ brain/ digestive system/ central nervous system through prolonged or repeated exposure if swallowed

H411 - Toxic to aquatic life with long lasting effects

#### Abbreviations, acronyms

ACGIH = American Conference of Governmental Industrial Hygienists

bw = body weight

bw/day = body weight/day

EC x = Effect Concentration associated with x% response

GLP = Good Laboratory Practice

IARC = International Agency for Research of Cancer

LC50 = 50% Lethal concentration - Concentration of a chemical in air or a chemical in water which causes the death of 50% (one half) of a group of test animals

LD50 = 50% Lethal Dose - Chemical amount, given at once, which causes the death of 50% (one half) of a group of test animals

LL = Lethal Loading

NIOSH = National Institute of Occupational Safety and Health

NOAEL = No Observed Adverse Effect Level

NOEC = No Observed Effect Concentration

NOEL = No Observed Effect Level

OECD = Organization for Economic Co-operation and Development

OSHA = Occupational Safety and Health Administration

UVCB = Substance of unknown or Variable composition, Complex reaction products or Biological material

ATE = Acute Toxicity Estimate





SDS # : 30234

## MARINE DISTILLATE FUEL (DMA/DFA)

Revision Date: 2019-12-02

Version 3.01

QSAR = Quantitative Structure-Activity Relationship  
 EL50 = median Effective Loading  
 NOELR = No Observed Effect Loading Rate  
 PAH = Polycyclic aromatic hydrocarbons  
 LOEC = Lowest Observed Effect Concentration  
 PVA = Polyvinyl alcohol  
 PVC = Polyvinyl chloride  
 ECOSAR = Ecological Structure Activity Relationships  
 CNS = Central nervous system  
 EPA = Environmental Protection Agency  
 ErL50 = effective loading on growth rate in algae test, to cause a 50% response  
 EbL50 = effective loading on growth with the control in algae test, to cause a 50% response  
 DNEL = Derived No Effect Level  
 PNEC = Predicted No Effect Concentration  
 dw = dry weight  
 fw = fresh water  
 mw = marine water  
 or = occasional release

### Legend Section 8

OEL = Occupational Exposure Limit  
 TWA: Time Weight Average  
 STEL: Short Time Exposure Limit  
 PEL: Permissible exposure limit  
 REL: Recommended exposure limit  
 TLV: Threshold Limit Values

+	Sensitizer	*	Skin designation
**	Hazard Designation	C:	Carcinogen
M:	Mutagen	R:	Toxic to reproduction

**Revision Date:** 2019-12-02  
**Revision Note** (M)SDS sections updated: 1, 2, 4, 7, 8, 9, 11, 12, 14, 15, 16.

**Further information** Other uses than these listed under section 1.2 may have been foreseen for the substance(s) contained in the product. Please contact us if your use is not listed under section 1.2.  
 Emergency telephone numbers  
 FRANCE:  
 ORFILA Tél : 01.45.42.59.59  
 PARIS : Hôpital Fernand Widal 200, rue du Faubourg Saint-Denis 75475 Paris Cédex 10 ,  
 Tel : 01.40.05.48.48. - MARSEILLE : Hopital Salvator, 249 bd Ste Marguerite 13274  
 Marseille cedex 5, Tel : 04.91.75.25.25. - LYON : Hopital Hédouard Herriot, 5 place  
 d'Arsonvil, 69437 Lyon cedex 3, Tel : 04.72.11.69.11. - NANCY : Hopital central, 29 Av du  
 Mal De Lattre de Tassigny, 54000 Nancy, Tel : 03.83.32.36.36 ou le SAMU : Tel ( 15 )  
 UK:  
 01923 694000 - NHS Direct: 0845 46 47 / Textphone: 0845 606 46 47  
 GERMANY:  
 Giftnotruf Berlin, Tel. 0049 (0)30 19240 (24 h erreichbar, Beratung in Deutsch und  
 Englisch)  
 SPAIN:



---

SDS # : 30234

## MARINE DISTILLATE FUEL (DMA/DFA)

Revision Date: 2019-12-02

Version 3.01

---

NÚMERO DE EMERGENCIAS 24 HORAS 900 181 566

BELGIUM:

Poison center: c/o Hôpital Militaire Reine Astrid - Militair Hospitaal Koningin Astrid, 1 Rue Bruyn - Bruynstraat 1, B-1120 Bruxelles - Brussel  
+32 (0)70 245 245

NETHERLAND:

+ 31 (0) 800 0996612

ITALY :

Centro Antiveleni Ospedale Niguarda Ca' Granda, Piazza Ospedale Maggiore 3  
Milan 20162 , +39 02 6610 1029.

**This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006**

---

**This safety data sheet serves to complete but not to replace the technical product sheets. The information contained herein is given in good faith and is accurate to the best of knowledge at the date indicated above. It is understood by the user that any use of the product for purposes other than those for which it was designed entails potential risk. The information given herein in no way dispenses the user from knowing and applying all provisions regulating his activity. The user bears sole liability for the precautions required when using the product. The regulatory texts indicated herein are intended to aid the user to fulfil his obligations. This list is not to be considered complete and exhaustive. It is the user's responsibility to ensure that he is subject to no other obligations than those mentioned.**

**End of the Safety Data Sheet**

**ES05003**

Version 1.0

Trade name / designation Vacuum Gas oils (VGO) - Hydrocracked Gas Oils (HGO) - Distillate fuel oils

**1. Exposure scenario****Industrial, Distribution of substance.****Use Descriptor****Sector of use**

SU3 - Industrial Manufacturing (all)

**Process category**

PROC1 - Use in closed process, no likelihood of exposure

PROC2 - Use in closed, continuous process with occasional controlled exposure

PROC3 - Use in closed batch process (synthesis or formulation)

PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises

PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC15 - Use as laboratory reagent

**Environmental Release Category**

ERC1 - Manufacture of substances

ERC2 - Formulation of preparations

ERC3 - Formulation in materials

ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

ERC5 - Industrial use resulting in inclusion into or onto a matrix

ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

ERC6b - Industrial use of reactive processing aids

ERC6c - Industrial use of monomers for manufacture of thermoplastics

ERC6d - Industrial use of process regulators for polymerization processes in production of resins, rubbers, polymers

ERC7 - Industrial use of substances in closed systems

**Specific Environmental Release Category**

ESVOC SpERC 1.1b. v1.

**Processes, tasks, activities covered**

Bulk loading (including marine vessel/barge, rail/road car and IBC loading) of substance within closed or contained systems, including incidental exposures during its sampling, storage, unloading, maintenance and associated laboratory activities.

**2. Operational conditions and risk management measures****2.1. Control of environmental exposure****Product characteristics**

Substance is complex UVCB. Predominantly hydrophobic.

**Amounts used**

:

Fraction of EU tonnage used in region: 0.1

Regional use tonnage (tonnes/year): 2.8E+7

Fraction of Regional tonnage used locally: 0.002

Annual site tonnage (tonnes/year): 5.6E+4

Maximum daily site tonnage (kg/day): 1.9E+5

**Frequency and duration of use** Continuous release

Emission Days (days/year): 300

**Environment factors not influenced by risk management**

-

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

#### **Other operational conditions of use affecting environmental exposure**

.

Release fraction to air from process (initial release prior to RMM): 1.0E-3

Release fraction to wastewater from process (initial release prior to RMM): 1.0E-6

Release fraction to soil from process (initial release prior to RMM): 0.00001

#### **Technical conditions and measures at process level to prevent release**

Common practices vary across sites thus conservative process release estimates used.

#### **Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil**

Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion)

Prevent discharge of undissolved substance to or recover from onsite wastewater

No wastewater treatment required

Treat air emission to provide a typical removal efficiency of (%): 90

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%):  $\geq 0$

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%):  $\geq 0$

#### **Organizational measures to prevent/limit release from the site**

Prevent discharge of undissolved substance to or recover from onsite wastewater. Do not apply industrial sludge to natural soils.

Sludge should be incinerated, contained or reclaimed.

#### **Conditions and measures related to municipal sewage treatment plant**

:

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.1

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.1

Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 2.9E+6

Assumed domestic sewage treatment plant flow (m<sup>3</sup>/d): 2000

#### **Conditions and measures related to external treatment of waste for disposal**

External treatment and disposal of waste should comply with applicable local and/or national regulations.

#### **Conditions and measures related to external recovery of waste**

External treatment and disposal of waste should comply with applicable local and/or national regulations.

#### **Remarks**

Additional information on the basis for the allocation of the identified OCs (operating conditions) and RMMs (Risk Management Measures) is contained in Petrorisk file

## **2.2. Control of exposure - Workers / Consumers**

#### **Product characteristics**

##### **Physical State**

Liquid, vapor pressure < 0.5 kPa at STP

##### **Concentration of substance in product**

Covers percentage substance in the product up to 100 % (unless stated differently).

##### **Frequency and duration of use**

Covers daily exposures up to 8 hours (unless stated differently)

##### **Other operational conditions affecting exposure**

Operation is carried out at elevated temperature (> 20°C above ambient temperature). Assumes a good basic standard of occupational hygiene is implemented.

<b>2.2a. Control of worker exposure</b>	
<b>Contributing Scenarios</b>	<b>Operational conditions and risk management measures</b>
<b>General measures applicable to all activities</b>	Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.
<b>General measures (skin irritants)</b>	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
<b>General exposures (closed systems)</b>	Handle substance within a closed system.
<b>General exposures (open systems)</b>	Wear suitable gloves tested to EN374.
<b>Process sampling</b>	No other specific measures identified.
<b>Bulk closed loading and unloading</b>	Handle substance within a closed system. Wear suitable gloves tested to EN374.
<b>Bulk open loading and unloading</b>	Wear suitable gloves tested to EN374.
<b>Equipment cleaning and maintenance</b>	Drain down and flush system prior to equipment break-in or maintenance. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
<b>Laboratory activities</b>	No other specific measures identified.
<b>Drum and small package filling</b>	Wear suitable gloves tested to EN374.
<b>Storage</b>	Handle substance within a closed system.

<b>2.2b. Control of consumer exposure</b>	
<b>Product Category(ies)</b>	<b>Operational conditions and risk management measures</b>
<b>Not applicable</b>	

### **3. Exposure estimation and references**

#### **Health**

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

#### **Environment**

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

### **4. Guidance for Downstream User to check compliance with the Exposure scenario**

**Health**

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterization.

**Environment**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

**ES05004**

**Version** 1.0

**Trade name / designation** Vacuum Gas oils (VGO) - Hydrocracked Gas Oils (HGO) - Distillate fuel oils

## 1. Exposure scenario

### Formulation & (re)packing of substances and mixtures, Industrial.

**Use Descriptor**

**Sector of use**

SU3 - Industrial Manufacturing (all)

SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

**Process category**

PROC1 - Use in closed process, no likelihood of exposure

PROC2 - Use in closed, continuous process with occasional controlled exposure

PROC3 - Use in closed batch process (synthesis or formulation)

PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises

PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation

PROC15 - Use as laboratory reagent

**Environmental Release Category**

ERC2 - Formulation of preparations

**Specific Environmental Release Category**

ESVOC SpERC 2.2.v1.

**Processes, tasks, activities covered**

Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

## 2. Operational conditions and risk management measures

### 2.1. Control of environmental exposure

**Product characteristics**

Substance is complex UVCB. Predominantly hydrophobic.

**Amounts used**

:

Fraction of EU tonnage used in region: 0.1

Regional use tonnage (tonnes/year): 2.8E+7

Fraction of Regional tonnage used locally: 0.0011

Annual site tonnage (tonnes/year): 3.0E+4

Maximum daily site tonnage (kg/day): 1.0E+5

**Frequency and duration of use** Continuous release

Emission Days (days/year): 300

**Environment factors not influenced by risk management**

-

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

**Other operational conditions of use affecting environmental exposure**

.

Release fraction to air from process (initial release prior to RMM): 1.0E-2  
 Release fraction to wastewater from process (initial release prior to RMM): 2.0E-5  
 Release fraction to soil from process (initial release prior to RMM): 0.0001

#### Technical conditions and measures at process level to prevent release

Common practices vary across sites thus conservative process release estimates used.

#### Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater sediment  
 Prevent discharge of undissolved substance to or recover from onsite wastewater  
 If discharging to domestic sewage treatment plant, no onsite wastewater treatment required

Treat air emission to provide a typical removal efficiency of (%): 0  
 Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%):  $\geq 59.9$   
 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%):  $\geq 0$

#### Organizational measures to prevent/limit release from the site

Prevent discharge of undissolved substance to or recover from onsite wastewater. Do not apply industrial sludge to natural soils.  
 Sludge should be incinerated, contained or reclaimed.

#### Conditions and measures related to municipal sewage treatment plant

:

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.1  
 Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.1  
 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 6.8E+5  
 Assumed domestic sewage treatment plant flow (m<sup>3</sup>/d): 2000

#### Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations.

#### Conditions and measures related to external recovery of waste

External treatment and disposal of waste should comply with applicable local and/or national regulations.

#### Remarks

Additional information on the basis for the allocation of the identified OCs (operating conditions) and RMMs (Risk Management Measures) is contained in Petrorisk file

## 2.2. Control of exposure - Workers / Consumers

#### Product characteristics

##### Physical State

Liquid, vapor pressure < 0.5 kPa at STP

##### Concentration of substance in product

Covers percentage substance in the product up to 100 % (unless stated differently).

##### Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently)

##### Other operational conditions affecting exposure

Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.



## 2.2a. Control of worker exposure

Contributing Scenarios	Operational conditions and risk management measures
<b>General measures applicable to all activities</b>	Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.
<b>General measures (skin irritants)</b>	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
<b>General exposures (closed systems)</b>	Handle substance within a closed system.
<b>General exposures (open systems)</b>	Wear suitable gloves tested to EN374.
<b>Process sampling</b>	No other specific measures identified.
<b>Drum/batch transfers</b>	Use drum pumps or carefully pour from container. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
<b>Bulk transfers</b>	Handle substance within a closed system. Wear suitable gloves tested to EN374.
<b>Mixing operations (open systems)</b>	Provide extract ventilation to points where emissions occur. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
<b>Laboratory activities</b>	No other specific measures identified.
<b>Production or preparation of articles by tableting, compression, extrusion or pelletization</b>	Wear suitable gloves tested to EN374.
<b>Drum and small package filling</b>	Wear suitable gloves tested to EN374.
<b>Equipment cleaning and maintenance</b>	Drain down system prior to equipment break-in or maintenance. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
<b>Storage</b>	Store substance within a closed system.

## 2.2b. Control of consumer exposure

Product Category(ies)	Operational conditions and risk management measures
Not applicable	

## 3. Exposure estimation and references

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

**Environment**

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

## 4. Guidance for Downstream User to check compliance with the Exposure scenario

**Health**

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterization.

**Environment**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

**ES05015**

**Version** 1.0

**Trade name / designation** Vacuum Gas oils (VGO) - Hydrocracked Gas Oils (HGO) - Distillate fuel oils

**1. Exposure scenario**

**Use as a fuel, Industrial.**

**Use Descriptor**

**Sector of use**

SU3 - Industrial Manufacturing (all)

**Process category**

PROC1 - Use in closed process, no likelihood of exposure

PROC2 - Use in closed, continuous process with occasional controlled exposure

PROC3 - Use in closed batch process (synthesis or formulation)

PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected

**Environmental Release Category**

ERC7 - Industrial use of substances in closed systems

**Specific Environmental Release Category**

ESVOC SpERC 7.12a.v1.

**Processes, tasks, activities covered**

Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

**2. Operational conditions and risk management measures**

**2.1. Control of environmental exposure**

**Product characteristics**

Substance is complex UVCB. Predominantly hydrophobic.

**Amounts used**

:

Fraction of EU tonnage used in region: 0.1

Regional use tonnage (tonnes/year): 4.5E+6

Fraction of Regional tonnage used locally: 0.34

Annual site tonnage (tonnes/year): 1.5E+6

Maximum daily site tonnage (kg/day): 5.0E+6

**Frequency and duration of use** Continuous release

Emission Days (days/year): 300

**Environment factors not influenced by risk management**

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

**Other operational conditions of use affecting environmental exposure**

.

Release fraction to air from process (initial release prior to RMM): 5.0E-3

Release fraction to wastewater from process (initial release prior to RMM): 0.00001

Release fraction to soil from process (initial release prior to RMM): 0

**Technical conditions and measures at process level to prevent release**

Common practices vary across sites thus conservative process release estimates used.

**Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil**

Risk from environmental exposure is driven by freshwater sediment

If discharging to domestic sewage treatment plant, no onsite wastewater treatment required

Treat air emission to provide a typical removal efficiency of (%): 95

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%):  $\geq 97.7$

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%):  $\geq 60.4$

**Organizational measures to prevent/limit release from the site**

Prevent discharge of undissolved substance to or recover from onsite wastewater. Do not apply industrial sludge to natural soils.

Sludge should be incinerated, contained or reclaimed.

**Conditions and measures related to municipal sewage treatment plant**

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.1

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 97.7

Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 5.0E+6

Assumed domestic sewage treatment plant flow (m<sup>3</sup>/d): 2000

**Conditions and measures related to external treatment of waste for disposal**

Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment.

**Conditions and measures related to external recovery of waste**

External recovery and recycling of waste should comply with applicable local and/or national regulations.

**Remarks**

Additional information on the basis for the allocation of the identified OCs (operating conditions) and RMMs (Risk Management Measures) is contained in Petrorisk file

**2.2. Control of exposure - Workers / Consumers****Product characteristics****Physical State**

Liquid, vapor pressure < 0.5 kPa at STP

**Concentration of substance in product**

Covers percentage substance in the product up to 100 % (unless stated differently).

**Frequency and duration of use**

Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting exposure**

Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

<b>2.2a. Control of worker exposure</b>	
<b>Contributing Scenarios</b>	<b>Operational conditions and risk management measures</b>
<b>General measures applicable to all activities</b>	Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.
<b>General measures (skin irritants)</b>	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
<b>Bulk transfers</b>	Wear suitable gloves tested to EN374.
<b>Drum/batch transfers</b>	Wear suitable gloves tested to EN374.
<b>Use as a fuel (closed systems)</b>	No other specific measures identified.
<b>Equipment cleaning and maintenance</b>	Drain down system prior to equipment break-in or maintenance. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
<b>Storage</b>	Handle substance within a closed system.

<b>2.2b. Control of consumer exposure</b>	
<b>Product Category(ies)</b>	<b>Operational conditions and risk management measures</b>
<b>Not applicable</b>	

### **3. Exposure estimation and references**

#### **Health**

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

#### **Environment**

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

### **4. Guidance for Downstream User to check compliance with the Exposure scenario**

#### **Health**

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterization.

#### **Environment**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using

onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

**ES05016**

**Version** 1.0

**Trade name / designation** Vacuum Gas oils (VGO) - Hydrocracked Gas Oils (HGO) - Distillate fuel oils

**1. Exposure scenario**

**Use as a fuel, Professional.**

**Use Descriptor**

**Sector of use**

SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

**Process category**

PROC1 - Use in closed process, no likelihood of exposure

PROC2 - Use in closed, continuous process with occasional controlled exposure

PROC3 - Use in closed batch process (synthesis or formulation)

PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected

**Environmental Release Category**

ERC9a - Wide dispersive indoor use of substances in closed systems

ERC9b - Wide dispersive outdoor use of substances in closed systems

**Specific Environmental Release Category**

ESVOC SpERC 9.12.v1.

**Processes, tasks, activities covered**

Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

**2. Operational conditions and risk management measures**

**2.1. Control of environmental exposure**

**Product characteristics**

Substance is complex UVCB. Predominantly hydrophobic.

**Amounts used**

:

Fraction of EU tonnage used in region: 0.1

Regional use tonnage (tonnes/year): 6.7E+6

Fraction of Regional tonnage used locally: 0.0005

Annual site tonnage (tonnes/year): 3.3E+3

Maximum daily site tonnage (kg/day): 9.2E+3

**Frequency and duration of use** Continuous release

Emission Days (days/year): 365

**Environment factors not influenced by risk management**

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

**Other operational conditions of use affecting environmental exposure**

.

Release fraction to air from process (initial release prior to RMM): 1.0E-4

Release fraction to wastewater from process (initial release prior to RMM): 0.00001

Release fraction to soil from process (initial release prior to RMM): 0.00001

**Technical conditions and measures at process level to prevent release**

Common practices vary across sites thus conservative process release estimates used.

**Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil**

Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion)

No wastewater treatment required

Treat air emission to provide a typical removal efficiency of (%): N/A

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%):  $\geq 0$

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%):  $\geq 0$

**Organizational measures to prevent/limit release from the site**

Prevent discharge of undissolved substance to or recover from onsite wastewater. Do not apply industrial sludge to natural soils.

Sludge should be incinerated, contained or reclaimed.

**Conditions and measures related to municipal sewage treatment plant**

:

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.1

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.1

Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 1.4E+5

Assumed domestic sewage treatment plant flow (m<sup>3</sup>/d): 2000

**Conditions and measures related to external treatment of waste for disposal**

Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment.

**Conditions and measures related to external recovery of waste**

External recovery and recycling of waste should comply with applicable local and/or national regulations.

**Remarks**

Additional information on the basis for the allocation of the identified OCs (operating conditions) and RMMs (Risk Management Measures) is contained in Petrorisk file

## 2.2. Control of exposure - Workers / Consumers

**Product characteristics**

**Physical State**

Liquid, vapor pressure < 0.5 kPa at STP

**Concentration of substance in product**

Covers percentage substance in the product up to 100 % (unless stated differently).

**Frequency and duration of use**

Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting exposure**

Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.



<b>2.2a. Control of worker exposure</b>	
<b>Contributing Scenarios</b>	<b>Operational conditions and risk management measures</b>
<b>General measures applicable to all activities</b>	Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.
<b>General measures (skin irritants)</b>	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
<b>Bulk transfers</b>	Wear suitable gloves tested to EN374.
<b>Drum/batch transfers</b>	Use drum pumps or carefully pour from container. Wear suitable gloves tested to EN374.
<b>Refueling</b>	Wear suitable gloves tested to EN374.
<b>Use as a fuel (closed systems)</b>	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). or. Ensure operation is undertaken outdoors.
<b>Equipment cleaning and maintenance</b>	Drain down system prior to equipment break-in or maintenance. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
<b>Storage</b>	Store substance within a closed system.

<b>2.2b. Control of consumer exposure</b>	
<b>Product Category(ies)</b>	<b>Operational conditions and risk management measures</b>
<b>Not applicable</b>	

### **3. Exposure estimation and references**

#### **Health**

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

#### **Environment**

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

### **4. Guidance for Downstream User to check compliance with the Exposure scenario**

#### **Health**

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterization.

**Environment**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).