

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**1.1 Product identifier****1.1.1 Commercial Product Name**

Clean Air HVO Renewable Diesel;

1.1.2 Product code

(ID 13898)

REACH Registration Number

01-2119450077-42-0000 / -0001 / -0002

Substance name

Renewable hydrocarbons (diesel type fraction)

1.2 Relevant identified uses of the substance or mixture and uses advised against**1.2.1 Recommended use**

Use as a fuel

Distribution of substance

Formulation & (re)packing of substances and mixtures

Use as an intermediate

See the PROC/SU/ERC codes of the identified uses in Section 16.

1.3 Details of the supplier of the safety data sheet**1.3.1 Supplier**

CAFT Ltd

Street address Postcode

71 - 75 Shelton Street

London

WC2H 9JQ

UK

Telephone

+44(0)7899 990344

Email

info@cleanairfueltechnologies.co.uk

1.4 Emergency telephone number**1.4.1 Telephone number, name and address**+44 7899 990344, Mike Webb, 4 Gunnell Close,
Kettering, NN15 7DJ**2. HAZARDS IDENTIFICATION****2.1 Classification of the substance or mixture****1272/2008 (CLP)**

Asp. Tox. 1, H304

EUH066

67/548/EEC - 1999/45/EC

Xn; R65-66

2.2 Label elements**1272/2008 (CLP)**

GHS08

Signal word

Danger**Hazard Statements**

H304

May be fatal if swallowed and enters airways.

EUH066

Repeated exposure may cause skin dryness or cracking.



Precautionary Statements

P301+P310

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P331

Do NOT induce vomiting.

P501

Dispose of contents/container according to national regulations and local authorities' advice.

2.3 Other hazards

Combustible liquid. Oil mist may irritate the eyes and the respiratory tract. Risk of soil and ground water contamination.

3. COMPOSITION/INFORMATION ON INGREDIENTS**3.1 Substances****CAS number****Chemical name of the substance****Concentration****Classification**

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Renewable hydrocarbons (diesel
type fraction)

Ca. 100 %

CLP: Asp. Tox. 1, H304
DSD-DPD: Xn; R65, R66**3.3 Other information**

Preparation of renewable raw material diesel and additives. Contains middle distillate-range iso- and n-paraffinic hydrocarbons. Total aromatics at maximum 1,0 Weight %.

Identity outside the EU (CAS number and name of the substance): Alkanes, C10-20 -branched and linear, CAS 928771-01-1. Registration number, See chapter 1.1.2.

4. FIRST AID MEASURES**4.1 Description of first aid measures****4.1.2 Inhalation**

Inhalation is unlikely because of the low vapour pressure of the substance at ambient temperature. If breathed in, move person into fresh air. Consult a physician.

4.1.3 Skin contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If skin irritation persists, call a physician.

4.1.4 Eye contact

Rinse immediately with plenty of water, also under the eyelids. If eye irritation persists, consult a specialist.

4.1.5 Ingestion

DO NOT INDUCE VOMITING. In case of ingestion, always assume that aspiration has occurred. Consult a physician (risk of aspiration into the lungs especially if nausea or irritation occurs).

4.2 Most important symptoms and effects, both acute and delayed

Aspiration into the lungs can cause fatal chemical pneumonitis. Oil mist may irritate the eyes and the respiratory tract. Prolonged or repeated contact causes drying and irritation of the skin.

4.3 Indication of immediate medical attention and special treatment needed

Aspiration into the lungs can cause fatal chemical pneumonitis.

5. FIREFIGHTING MEASURES**5.1 Extinguishing media****5.1.1 Suitable extinguishing media**

Dry powder, carbon dioxide. Sand. Heavy foam and water fog for professional fire-fighters.

5.1.2 Extinguishing media which must not be used for safety reasons

Water jet

5.2 Special hazards arising from the substance or mixture

Combustible liquid. Explosion risk due to pressure increase if product containers or tanks are subjected to fire. Strong heating or fire can produce carbon monoxide and other products resulting from uncomplete combustion.

5.3 Advice for firefighters

Cool product containers and tanks near the fire with water spray from a sufficiently safe distance.

5.4 Specific methods

Special protective equipment for fire-fighters: Self-contained breathing apparatus and full protective clothing.

6. ACCIDENTAL RELEASE MEASURES**6.1 Personal precautions, protective equipment and emergency procedures**

Eliminate fire risk by keeping ignition sources out of the area. Evacuate people upwind from the spill area. Wear adequate protective equipment at all operations.

6.2 Environmental precautions

Try to restrict the release and prevent spread of the product into the environment. Collect liquid before it spreads into drains, the ground and waters. In case of spill, immediately contact local authorities. Risk of soil and ground water contamination.

6.3 Methods and materials for containment and cleaning up

Immediately start clean-up of the liquid and contaminated soil. Small amounts can be collected using absorbent material. Pay attention to the fire and health hazards caused by the product.

6.4 Reference to other sections

For personal protection see section 8. Product waste should be disposed in accordance with section 13.

7. HANDLING AND STORAGE**7.1 Precautions for safe handling**

Handle the product in closed systems or provide sufficient ventilation. Avoid skin contact and inhalation of oil mist. Wear protective equipment when needed. When using, do not eat, drink or smoke. Wash hands before breaks and at the end of workday. Spillages make surfaces slippery. During tank operations follow special instructions (risk of oxygen displacement and hydrocarbons).

Keep away from fire, sparks and heated surfaces. Take measures to prevent the build up of electrostatic charge.

7.2 Conditions for safe storage, including any incompatibilities

In a tank or a store suitable for combustible liquids. Take precautionary measures to prevent product spills into drains, the ground or waters. Take precautions against leakage by constructing collecting pools and sewerage systems as well as by surfacing the loading and unloading stations. Retail batches are stored in tightly sealed, labelled containers which are impermeable to the product. Store in accordance with local regulations.

Keep in properly labelled containers. Recommended materials for containers or container linings: carbon steel, stainless steel. Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use.

7.3 Specific end use(s)

None known.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1 Control parameters****8.1.1 Threshold limits**

Oil mist 5 mg/m³ (8 h)
HTP 2011/FIN

8.1.2 Other information on limit values

The occupational exposure monitoring method: Oil mist: NIOSH Method 5026, SFS-EN 689
The individual limit values can be applied for the hydrocarbons.

8.1.4 DNELs

Workers:

Dermal: 42 mg/kg bw /day (Long-term exposure, systemic effects)

Inhalation: 147 mg/m³ (Long-term exposure, systemic effects)

Consumers:

Dermal: 18 mg/kg bw /day (Long-term exposure, systemic effects)

Inhalation: 94 mg/m³ (Long-term exposure, systemic effects)

8.1.5 PNECs

PNEC derivation is not scientifically justified based on water solubility limitations.

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Handle the product in closed systems or provide sufficient ventilation. Wear protective equipment when needed. Handle in accordance with good industrial hygiene and safety practice.

8.2.2 Individual protection measures

8.2.2.1 Respiratory protection

Oil mist: respirator (combined particle and organic vapour filter, type A2/P2). Filter device could be used maximum 2 hours at a time. Filter devices must not be used in conditions where the oxygen level is low (< 17 vol.-%). At high concentrations a breathing apparatus must be used (self-contained or fresh air hose breathing apparatus). Filter must be changed often enough. Respirators according to standards EN 140 and EN 141.

8.2.2.2 Hand protection

Protective gloves (e.g. of nitrile, neoprene, PVC). Breakthrough time >240, Protection class 5. Protective gloves according to standards EN 420 and EN 374. Change protective gloves regularly.

8.2.2.3 Eye/face protection

Tightly fitting safety goggles.

8.2.2.4 Skin protection

Protective clothing (antistatic), splash-proof chemical protective clothing when needed.

8.2.3 Environmental exposure controls

Take precautions against leakage by constructing collecting pools and sewerage systems as well as by surfacing the loading and unloading stations.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

9.1.1 Appearance

Clear liquid with low viscosity.

9.1.2 Odour

A mild characteristic odour.

9.1.3 Odour threshold

no data available

9.1.4 pH

no data available

9.1.5 Melting point/freezing point

Melting point / Pour point < -20°C @ 1013 hPa (BS4633, Method EC A1)

9.1.6 Initial boiling point and boiling range

180 - 320°C (EN ISO 3405)

9.1.7 Flash point

> 61 °C @ 1013 hPa (EN ISO 2719, Method EC A9)

9.1.8 Evaporation rate

no data available

9.1.10	Explosive properties	
9.1.10.1	Lower explosion limit	no data available
9.1.10.2	Upper explosion limit	no data available
9.1.11	Vapour pressure	0,087 kPa @ 25°C (Method EC A4)
9.1.12	Vapour density	no data available
9.1.13	Relative density	0,77 - 0,79 (15/20 °C; water= 1, EN ISO 12185, Method EC A3)
9.1.14	Solubility(ies)	
9.1.14.1	Water solubility	Insoluble. (estimate: 0,075 mg/L @ 25 °C; (calculated))
9.1.14.2	Fat solubility (solvent /oil to be specified)	Soluble (Methanol, hexane)
9.1.15	Partition coefficient: n-octanol/water	Log Kow > 6,5 (Method EC A8)
9.1.16	Auto-ignition temperature	204 °C (Method EC A15)
9.1.17	Decomposition temperature	no data available
9.1.18	Viscosity	Kinematic viscosity 4.0 mm ² /s @ 20°C; 2.6 mm ² /s @ 40°C (OECD Guideline 114). Viscosity, dynamic ≤ 5 mPas @ 20°C.
9.1.19	Explosive properties	Not explosive (Method EC A14)
9.1.20	Oxidising properties	Not oxidizing
9.2	Other information	
	-	

10. STABILITY AND REACTIVITY

- 10.1 Reactivity**
No dangerous reaction known under conditions of normal use.
- 10.2 Chemical stability**
Stable under recommended storage conditions.
- 10.3 Possibility of hazardous reactions**
None known.
- 10.4 Conditions to avoid**
Keep away from fire, sparks and heated surfaces.
- 10.5 Incompatible materials**
Oxidizing agents
- 10.6 Hazardous decomposition products**
No hazardous decomposition products are known.

11. TOXICOLOGICAL INFORMATION

- 11.1 Information on toxicological effects**
- 11.1.1 Acute toxicity**
Very low toxicity:
LD50/oral/rat > 2000 mg/kg (Method EC B1 tris)
LD50/dermal/rat = > 2000 mg/kg (Method EC B3)
- 11.1.2 Irritation and corrosion**
Not classified. (Method EC B4 and B5). Prolonged or repeated skin contact may irritate the skin and produce dermatitis. Oil mist may irritate the eyes and the respiratory tract. When ingested, product irritates the digestive tract.

- 11.1.3 Sensitisation**
Non-sensitizing (Method EC B6).
- 11.1.4 Subacute, subchronic and prolonged toxicity**
In vitro tests did not show mutagenic effects (Method EC B10, B12, B13/14 and B17).
No toxicity to reproduction (OECD 416).
- 11.1.5 STOT-single exposure**
No known effect..
- 11.1.6 STOT-repeated exposure**
No known effect. (OECD 408).
- 11.1.7 Aspiration hazard**
May be fatal if swallowed and enters airways. Aspiration of product into the lungs can cause fatal chemical pneumonitis.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

12.1.1 Aquatic toxicity

Very low toxicity.

Acute aquatic toxicity:

fish: LL50/96h > 1000 mg/L, WAF (OECD 203).

crustacean: EL50/48h > 100 mg/L, WAF (OECD 202).

alga: EL50/72h > 100 mg/L, WAF (OECD 201).

Chronic aquatic toxicity:

crustacean: NOEC/21d > 1 mg/L, WAF; LOEC/21d = 3.2 mg/L, WAF (OECD 211).

sediment organisms: NOEC/10d = 373 mg/kg; LOEC/10d = 1165 mg/kg; LC50/10d = 1200 mg/kg

(OSPAR Protocols, Part A: Sediment Bioassay, 2005).

12.1.2 Toxicity to other organisms

Micro-organisms (wastewater sludge): EC50/30min > 1000 mg/L; EC50/3h > 1000 mg/L (OECD 209).

12.2 Persistence and degradability

12.2.1 Biodegradation

Readily degradable (OECD 301B).

12.2.2 Chemical degradation

Does not hydrolyze in water.

12.3 Bioaccumulative potential

Possibly accumulative (log Kow > 6,5).

12.4 Mobility in soil

Product evaporates slowly from surface soil and water. It dissolves slightly in water. Hydrocarbons can be adsorbed onto organic material in soil or sediment. (log Koc > 5.6; Method EC C19).

12.5 Results of PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT). This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

12.6 Other adverse effects

None known.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product waste should be treated according to national regulations and local authorities' advice. When handling the waste note the hazards and take care of necessary safety measures, labelling and information.

13.2 Waste from residues / unused products

Empty containers may contain combustible product residues Empty containers should be taken for local recycling or waste disposal.

14. TRANSPORT INFORMATION

- 14.1 UN number** 1202
- 14.2 UN proper shipping name** UN 1202 Diesel fuel, 3, III
- 14.3 Transport hazard class(es)** 3
- 14.4 Packing group** III
- 14.5 Environmental hazards**
ADN Special classification: F (floaters).
- 14.6 Special precautions for users**
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- 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**
Transported by ship as bulk: Product name: Alkanes, C10-C26 linear and branched, (Flashpoint >60 deg.C) (NExBTL Renewable Diesel), Category Y, ST3.

15. REGULATORY INFORMATION

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
WGK = 1; Alkanes, C10-20 -branched and linear (Wassergefährdungsklasse, Germany)
- This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006. Updated according to regulation (EU) N:o 453/2010 amending regulation (EC) N:o 1907/2006 (REACH).
- 15.2 Chemical safety assessment**
A Chemical Safety Assessment has been carried out for this substance.

16. OTHER INFORMATION

- 16.1 Additions, Deletions, Revisions**
Paragraph 1, 2, 11, 15, 16
- 16.2 Key or legend to abbreviations and acronyms**

CLP = Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006

DSD = Council Directive (67/548/EEC) on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances

DPD = Directive 1999/45/EC of the European Parliament and of the Council concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations

DNEL = Derived No-Effect Level

PNEC = Predicted No-Effect Concentration

WAF = Water Accommodated Fraction

SU = Sector of Use

PROC = Process Category

PC = Product Category

ERC = Environmental Release Category

16.3 Key literature references and sources for data

Regulations, databases, literature, own research. Chemical Safety Report 2013.

16.5 List of relevant R phrases, hazard statements, safety phrases and/or precautionary statements

R65 Harmful: may cause lung damage if swallowed.

R66 Repeated exposure may cause skin dryness or cracking.

H304 May be fatal if swallowed and enters airways.

16.7 Recommended restrictions

Identified uses:

Distribution of substance (PROC 2, 3, 8a, 8b, 15; SU 8; ERC 1)

Formulation & (re)packing of substances and mixtures

(PROC 2, 3, 8a, 8b, 15; SU 10; ERC 2) and (PROC 1, 3, 8a, 8b, 9, 15; SU 10; ERC 7)

Use as a fuel:

Industrial use (PROC 1, 2, 3, 8a, 8b, 15, 16; SU 3; ERC 7)

Professional use (PROC 1, 2, 8a, 8b, 16; SU 22; ERC 8B, 8E)

Consumers (PC 13; SU 21; ERC 8B, 8E)

Use as an intermediate (PROC 1, 2, 3, 4, 8a, 8b, 15; SU 8; ERC 6A)

DO NOT SIPHON DIESEL FUEL BY MOUTH SUCTION.

16.8 Further information

ADDITIONAL INFORMATION AVAILABLE FROM:

CAFT Ltd tel. +44(0)7899 990344 or info@cleanairfueltechnologies.co.uk

Date: 01.04.2018

Previous date: -

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SECTION 1	EXPOSURE SCENARIO TITLE	
Title	Distribution of Clean Air HVO renewable diesel - Industrial	
Use Descriptor	Sector(s) of Use	SU 8: Manufacture of bulk, large scale chemicals (including petroleum products)
	Process Categories	PROC 2: Use in closed, continuous process with occasional controlled exposure PROC 3: Use in closed batch process (synthesis or formulation) PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 15: Use as laboratory reagent
	Product Categories	PC: NA
	Environmental Release Categories	ERC 1: Manufacture of substances
Processes, Tasks and Activities Covered	Loading (including marine vessel/barge, rail/road car and IBC loading) of substance, including its distribution and associated laboratory activities.	
SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Section 2.1	Control of worker exposure	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0,5 kPa [OC3]. Kinematic viscosity < 20,5 mm ² /s @ 40 °C.
	Vapour Pressure	87,1 Pa
	Concentration of substance in product	Covers percentage substance in the product up to 100% (unless stated differently) [G13].
	Amount used	Not applicable
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2].
	Human factors not influenced by risk management	Not applicable.
	Other operational conditions affecting worker exposure	Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].

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<p>Risk Management Measures</p>	<p>General exposures (closed systems) [CS15] Material transfer in closed lines</p> <p>Process sampling [CS2]</p> <p>Laboratory activities [CS36]</p> <p>Bulk transfers [CS14] (closed systems) [CS107]</p> <p>Equipment cleaning and maintenance [CS39]</p> <p>Storage [CS67]</p>	<p>Outdoor [OC9].</p> <p>Wear suitable gloves tested to EN374 [PPE15]. Outdoor [OC9].</p> <p>Handle in a fume cupboard or under extract ventilation [E83]. Wear suitable gloves tested to EN374 [PPE15].</p> <p>Wear suitable gloves tested to EN374 [PPE15]. Use vapour recovery units when necessary [A7]. Outdoor [OC9].</p> <p>Drain down system prior to equipment break-in or maintenance [E65].Wear suitable gloves tested to EN374 [PPE15]. All waste product is assumed to be collected and returned for re-processing or use as a fuel [ENVT8].</p> <p>Transfer via enclosed lines [E52]. Store substance within a closed system [E84]. Outdoor [OC9].</p>
<p>Section 2.2</p>	<p>Control of environmental exposure</p>	
	<p>Assessment method</p> <p>Product characteristics</p> <p>Amounts used</p> <p>Frequency and duration of use</p> <p>Environmental factors not influenced by risk management</p> <p>Other Operational Conditions of use affecting environmental exposure</p> <p>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</p> <p>Organisation measures to prevent/limit release from site</p> <p>Conditions and measures related to municipal sewage treatment plant</p>	<p>Petrorisk</p> <p>Clean Air HVO renewable diesel is a readily biodegradable, slightly water soluble liquid of low volatility. Water solubility is 1.4E-3 mg/l at 25°C (Petrorisk); the vapour pressure is 5.1 Pa (Petrorisk); log Kow is 8.4. Not toxic to environment.</p> <p>Regional tonnage: 800 ktonnes per year</p> <p>Max site tonnage: 40 tonnes per year</p> <p>Emission days per year: 300</p> <p>Local freshwater dilution fraction: 10</p> <p>Local marine dilution fraction: 100</p> <p>Release fraction to air from process: 1.0E-5</p> <p>Release fraction to (waste)water from process: 1.0E-7</p> <p>Release fraction to soil from process (regional): 1.0E-5</p> <p>TCR8: Treat air emissions to provide a typical removal efficiency of 90%. TCR13: Provide onsite wastewater removal efficiency of ≥ 92.5%.</p> <p>OMS2: Do not apply industrial sludge to natural soils.</p> <p>OMS3: Sludge should be incinerated, contained or reclaimed.</p> <p>Not applicable.</p>

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	Conditions and measures related to external treatment of waste for disposal	ETW3: Dispose of waste in accordance with environmental legislation.
	Conditions and measures related to external recovery of waste	ETW1: Dispose of waste in accordance with environmental legislation.
	Other environmental control measures additional to above	ENV3: Bund storage facilities to prevent soil and water pollution in the event of spillage.
SECTION 3	EXPOSURE ESTIMATION	
Section 3.1	Health	
	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1 as indicated in Appendix A.2.	
Section 3.2	Environment	
	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.	
SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO	
Section 4.1	Health	
	Confirm that RMMs and OCs are as described or of equivalent efficiency. See Appendix A.2 for details of efficiencies and OC.	
Section 4.2	Environment	
	Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 92.5% which would be typically found in waste-water treatment plant.	

SECTION 1		EXPOSURE SCENARIO TITLE
Title	Formulation of Clean Air HVO renewable diesel: fuel blends - Industrial	
Use Descriptor	Sector(s) of Use Process Categories Product Categories Environmental Release Categories	<p>SU 10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys)</p> <p>PROC 2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC 3: Use in closed batch process (synthesis or formulation)</p> <p>PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</p> <p>PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p>PROC 15: Use as laboratory reagent</p> <p>PC: NA</p> <p>ERC 2: Formulation of preparations*</p>
Processes, Tasks and Activities Covered	Formulation of the substance and its mixtures in closed batch or continuous operations, including storage, materials transfers, mixing, maintenance and associated laboratory activities.	
SECTION 2		OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Section 2.1	Control of worker exposure	
Product characteristics	Physical form of product Vapour Pressure Concentration of substance in product Amount used Frequency and duration of use Human factors not influenced by risk management Other operational conditions affecting worker exposure	<p>Liquid, vapour pressure < 0,5 kPa [OC3]. Kinematic viscosity < 20,5 mm²/s @ 40 °C.</p> <p>87,1 Pa</p> <p>Covers percentage substance in the product up to 100% (unless stated differently) [G13].</p> <p>Not applicable.</p> <p>Covers daily exposures up to 8 hours (unless stated differently) [G2].</p> <p>Not applicable.</p> <p>Assumes activities are at ambient temperature (unless stated differently) [G17].</p> <p>Assumes a good basic standard of occupational hygiene is implemented [G1].</p>

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<p>Risk Management Measures</p>	<p>General exposures (closed systems) [CS15] with sampling</p> <p>Mixing operations (closed systems) [CS29]</p> <p>Process sampling [CS2]</p> <p>Bulk transfers [CS14] (closed systems) [CS107]</p> <p>Laboratory activities [CS36]</p> <p>Equipment cleaning and maintenance [CS39]</p> <p>Storage [CS67]</p>	<p>No specific measures identified [E118].</p> <p>Transfer via enclosed lines [E52]. Outdoor [OC9].</p> <p>Wear suitable gloves tested to EN374 [PPE15]. Outdoor [OC9].</p> <p>Wear suitable gloves tested to EN374 [PPE15].</p> <p>Handle in a fume cupboard or under extract ventilation [E83]. Wear suitable gloves tested to EN374 [PPE15].</p> <p>Drain down system prior to equipment break-in or maintenance [E65]. Wear suitable gloves tested to EN374 [PPE15]. All waste product is assumed to be collected and returned for re-processing or use as a fuel [ENVT8].</p> <p>Store substance within a closed system [E84]. Transfer via enclosed lines [E52].</p>
<p>Section 2.2</p>	<p>Control of environmental exposure</p>	
	<p>Assessment method</p> <p>Product characteristics</p> <p>Amounts used</p> <p>Frequency and duration of use</p> <p>Environmental factors not influenced by risk management</p> <p>Other Operational Conditions of use affecting environmental exposure</p> <p>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</p> <p>Organisation measures to prevent/limit release from site</p>	<p>Petrorisk</p> <p>Clean Air HVO renewable diesel is a readily biodegradable, slightly water soluble liquid of low volatility. Water solubility is 1.4E-3 mg/l at 25°C (Petrorisk); the vapour pressure is 5.1 Pa (Petrorisk); log Kow is 8.4. Not toxic to environment.</p> <p>Regional tonnage: 672 ktonnes per year</p> <p>Max site tonnage: 30 ktonnes per year</p> <p>Fraction of main source: 0.1</p> <p>Emission days per year: 300</p> <p>Local freshwater dilution fraction: 10</p> <p>Local marine dilution fraction: 100</p> <p>Release fraction to air from process: 0.0025</p> <p>Release fraction to wastewater from process: 5.0E-6</p> <p>Release fraction to soil from process (regional): 1.0E-4</p> <p>TCR8: Treat air emissions to provide a typical removal efficiency of 0%. TCR13: Provide onsite wastewater removal efficiency of ≥ 92.5%.</p> <p>OMS2: Do not apply industrial sludge to natural soils.</p> <p>OMS3: Sludge should be incinerated, contained or reclaimed.</p>

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	<p>Conditions and measures related to municipal sewage treatment plant</p> <p>Conditions and measures related to external treatment of waste for disposal</p> <p>Conditions and measures related to external recovery of waste</p> <p>Other environmental control measures additional to above</p>	<p>Not applicable.</p> <p>ETW3: Dispose of waste in accordance with environmental legislation.</p> <p>ETW1: Dispose of waste in accordance with environmental legislation</p> <p>ENV3: Bund storage facilities to prevent soil and water pollution in the event of spillage.</p>
SECTION 3	EXPOSURE ESTIMATION	
Section 3.1	Health	
	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1 as indicated in Appendix A.3.	
Section 3.2	Environment	
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SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO	
Section 4.1	Health	
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Section 4.2	Environment	
	Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 92.5% which would be typically found in waste-water treatment plant.	

SECTION 1	EXPOSURE SCENARIO TITLE	
Title	(Re-)packing of Clean Air HVO renewable diesel - Industrial	
Use Descriptor	Sector(s) of Use Process Categories Product Categories Environmental Release Categories	SU 10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys) PROC 1: Use in closed process, no likelihood of exposure PROC 3: Use in closed batch process (synthesis or formulation) PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC 15: Use as laboratory reagent PC: NA ERC 7: Industrial use of substances in closed systems
Processes, Tasks and Activities Covered	Packing and re-packing of the substance in batch operations, including storage, materials transfers, large and small scale packing, maintenance and associated laboratory activities.	
SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Section 2.1	Control of worker exposure	
Product characteristics	Physical form of product Vapour Pressure Concentration of substance in product Amount used Frequency and duration of use Human factors not influenced by risk management Other operational conditions affecting worker exposure	Liquid, vapour pressure < 0,5 kPa [OC3]. Kinematic viscosity < 20,5 mm ² /s @ 40 °C. 87,1 Pa Covers percentage substance in the product up to 100% (unless stated differently) [G13]. Not applicable. Covers daily exposures up to 8 hours (unless stated differently) [G2]. Not applicable. Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].

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Risk Management Measures	Process sampling [CS2]	Wear suitable gloves tested to EN374 [PPE15].
	Laboratory activities [CS36]	Handle in a fume cupboard or under extract ventilation [E83]. Wear suitable gloves tested to EN374 [PPE15].
	Bulk transfers [CS14] (closed systems) [CS107] Closed line transfer of product to storage tanks	Ensure material transfers are under containment or extract ventilation [E66]. Wear suitable gloves tested to EN374 [PPE15].
	Drum/Batch transfers [CS8]	Wear suitable gloves tested to EN374 [PPE15].
	Drum and small package filling [CS6]	Fill containers/cans at dedicated fill points supplied with local extract ventilation [E51]. Wear suitable gloves tested to EN374 [PPE15].
	Equipment cleaning and maintenance [CS39]	Drain down system prior to equipment break-in or maintenance [E65]. Wear suitable gloves tested to EN374 [PPE15]. Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENV4].
	Storage [CS67]	Store substance within a closed system [E84]. Transfer via enclosed lines [E52]. Store finished products in closed containers (e.g., bulk tanks, drums, cans) [A5].
Section 2.2	Control of environmental exposure	
	Assessment method	Petrorisk
	Product characteristics	Clean Air HVO renewable diesel is a readily biodegradable, slightly water soluble liquid of low volatility. Water solubility is 1.4E-3 mg/l at 25°C (Petrorisk); the vapour pressure is 5.1 Pa (Petrorisk); log Kow is 8.4. Not toxic to environment.
	Amounts used	Regional tonnage: 40 ktonnes per year Max site tonnage: 4 ktonnes per year Fraction of main source: 0.1
	Frequency and duration of use	Emission days per year: 300
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10 Local marine dilution fraction: 100
	Other Operational Conditions of use affecting environmental exposure	Release fraction to air from process: 2.5E-3 Release fraction to wastewater from process: 5.0E-6 Release fraction to soil from process (regional): 1.0E-4
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	TCLR8: Treat air emissions to provide a typical removal efficiency of 0%. STP 4: Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is 92.5%.
	Organisation measures to prevent/limit release from site	OMS2: Do not apply industrial sludge to natural soils. OMS3: Sludge should be incinerated, contained or reclaimed.

	<p>Conditions and measures related to municipal sewage treatment plant</p> <p>STP7: Assumed domestic sewage treatment plant effluent flow is 2000 m3/d.</p> <p>STP3: Estimated substance removal from wastewater via domestic sewage treatment is 92.5%.</p> <p>Conditions and measures related to external treatment of waste for disposal</p> <p>ETW3: Dispose of waste in accordance with environmental legislation.</p> <p>Conditions and measures related to external recovery of waste</p> <p>ETW1: Dispose of waste in accordance with environmental legislation</p> <p>Other environmental control measures additional to above</p> <p>ENV3: Bund storage facilities to prevent soil and water pollution in the event of spillage.</p>
SECTION 3	EXPOSURE ESTIMATION
Section 3.1	Health
	<p>When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1 as indicated in Appendix A.5.</p>
Section 3.2	Environment
	<p>When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.</p>
SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 4.1	Health
	<p>Confirm that RMMs and OCs are as described or of equivalent efficiency. See Appendix A.5 for details of efficiencies and OC.</p>
Section 4.2	Environment
	<p>Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 92.5% which would be typically found in waste-water treatment plant.</p>

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Use as a fuel of Clean Air HVO renewable diesel - Industrial
Use Descriptor	<p>Sector(s) of Use SU 3: Industrial uses</p> <p>Process Categories PROC 1: Use in closed process, no likelihood of exposure PROC 2: Use in closed, continuous process with occasional controlled exposure PROC 3: Use in closed batch process (synthesis or formulation) PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 15: Use as laboratory reagent PROC 16: Using material as fuel sources, limited exposure to unburned product to be expected</p> <p>Product Categories PC: NA</p> <p>Environmental Release Categories ERC 7: Industrial use of substances in closed systems</p>
Processes, Tasks and Activities Covered	Covers the use as a fuel and includes activities associated with its transfer, use, storage, maintenance, laboratory activities and waste disposal.
SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Section 2.1	Control of worker exposure
Product characteristics	<p>Physical form of product Liquid, vapour pressure < 0,5 kPa [OC3]. Kinematic viscosity < 20,5 mm²/s @ 40 °C.</p> <p>Vapour Pressure 87,1 Pa</p> <p>Concentration of substance in product Covers percentage substance in the product up to 100% (unless stated differently) [G13].</p> <p>Amount used Not applicable.</p> <p>Frequency and duration of use Covers daily exposures up to 8 hours (unless stated differently) [G2].</p> <p>Human factors not influenced by risk management Not applicable.</p> <p>Other operational conditions affecting worker exposure Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].</p>

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Risk Management Measures	General exposures (closed systems) [CS15]	No specific measures identified [E118].
	General exposures (closed systems) [CS15] Continuous process [CS54]	Ensure material transfers are under containment or extract ventilation [E66].
	General exposures (closed systems) [CS15] Continuous process [CS54] with sample collection [CS56]	Ensure material transfers are under containment or extract ventilation [E66].
	Filling / preparation of equipment from drums or containers.[CS45]	Use drum pumps or carefully pour from container [E64]. Wear suitable gloves tested to EN374 [PPE15].
	Refuelling vehicles	Pumped transfer. [E64]. Use vapour recovery units when necessary [A7]. Wear suitable gloves tested to EN374 [PPE15].
	Bulk transfers [CS14] (Closed systems) [CS107]	Wear suitable gloves tested to EN374 [PPE15].
	Process sampling [CS2]	Wear suitable gloves tested to EN374 [PPE15].
	Laboratory activities [CS36]	Handle in a fume cupboard or under extract ventilation [E83]. Wear suitable gloves tested to EN374 [PPE15].
	Equipment cleaning and maintenance [CS39]	Drain down and flush system prior to equipment break-in or maintenance [E55].Wear suitable gloves tested to EN374 [PPE15]. Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4].
	Vessel and container cleaning [CS103]	Wear suitable gloves tested to EN374 [PPE15]. Wear suitable coveralls to prevent exposure to the skin [PPE27]. Drain down system prior to equipment break-in or maintenance [E65]. Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4]. Provide enhanced general ventilation by mechanical means [E48]. If above technical/organisational control measures are not feasible, then adopt following PPE [PPE30]: Wear positive pressure air supplied respirator if required by safe entry procedures [PPE31].
Storage [CS67]	Store substance within a closed system [E84]. Transfer via enclosed lines [E52].	
Section 2.2	Control of environmental exposure	
Assessment method	Petrorisk	
Product characteristics	Clean Air HVO renewable diesel is a readily biodegradable, slightly water soluble liquid of low volatility. Water solubility is 1.4E-3 mg/l at 25°C (Petrorisk); the vapour pressure is 5.1 Pa (Petrorisk); log Kow is 8.4. Not toxic to environment.	

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	<p>Amounts used</p> <p>Frequency and duration of use</p> <p>Environmental factors not influenced by risk management</p> <p>Other Operational Conditions of use affecting environmental exposure</p> <p>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</p> <p>Organisation measures to prevent/limit release from site</p> <p>Conditions and measures related to municipal sewage treatment plant</p> <p>Conditions and measures related to external treatment of waste for disposal</p> <p>Conditions and measures related to external recovery of waste</p> <p>Other environmental control measures additional to above</p>	<p>Regional tonnage: 457 ktonnes per year Max site tonnage: 45.7 ktonnes per year Fraction of main source: 0.1</p> <p>Emission days per year: 300</p> <p>Local freshwater dilution fraction: 10 Local marine dilution fraction: 100</p> <p>Release fraction to air from process: 2.5E-4 Release fraction to wastewater from process: 1.0E-5 Release fraction to soil from process (regional): 0</p> <p>TCR8: Treat air emissions to provide a typical removal efficiency of 95%. TCR9: Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of 92.5%.</p> <p>OMS2: Do not apply industrial sludge to natural soils. OMS3: Sludge should be incinerated, contained or reclaimed.</p> <p>STP7: Assumed domestic sewage treatment plant effluent flow is 2000 m3/d. STP3: Estimated substance removal from wastewater via domestic sewage treatment is 92.5%.</p> <p>ETW3: Dispose of waste in accordance with environmental legislation.</p> <p>ETW1: Dispose of waste in accordance with environmental legislation</p> <p>ENV3: Bund storage facilities to prevent soil and water pollution in the event of spillage.</p>
SECTION 3	EXPOSURE ESTIMATION	
Section 3.1	Health	
	<p>When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1 as indicated in Appendix A.6.</p>	
Section 3.2	Environment	
	<p>When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.</p>	

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SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 4.1	Health
	Confirm that RMMs and OCs are as described or of equivalent efficiency. See Appendix A.6 for details of efficiencies and OC.
Section 4.2	Environment
	Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 92.5% which would be typically found in waste-water treatment plant.

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Use as a fuel of Clean Air HVO renewable diesel - Professional
Use Descriptor	<p>Sector(s) of Use SU 22: Professional uses</p> <p>Process Categories PROC 1: Use in closed process, no likelihood of exposure</p> <p> PROC 2: Use in closed, continuous process with occasional controlled exposure</p> <p> PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</p> <p> PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p> PROC 16: Using material as fuel sources, limited exposure to unburned product to be expected</p> <p>Product Categories PC: NA</p> <p>Environmental Release Categories ERC 8B: Wide dispersive indoor use of reactive substances in open systems</p> <p> ERC 8E: Wide dispersive outdoor use of reactive substances in open systems</p>
Processes, Tasks and Activities Covered	Covers the use as a fuel and includes activities associated with its transfer, use, storage, maintenance and handling of waste.
SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Section 2.1	Control of worker exposure
Product characteristics	<p>Physical form of product Liquid, vapour pressure < 0,5 kPa [OC3]. Kinematic viscosity < 20,5 mm²/s @ 40 °C.</p> <p>Vapour Pressure 87,1 Pa</p> <p>Concentration of substance in product Covers percentage substance in the product up to 100% (unless stated differently) [G13].</p> <p>Amount used Not applicable.</p> <p>Frequency and duration of use Covers daily exposures up to 8 hours (unless stated differently) [G2].</p> <p>Human factors not influenced by risk management Not applicable.</p> <p>Other operational conditions affecting worker exposure Assumes activities are at ambient temperature (unless stated differently) [G17].</p> <p> Assumes a good basic standard of occupational hygiene is implemented [G1].</p>

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<p>Risk Management Measures</p>	<p>Bulk transfers [CS14] heating oil and diesel deliveries [CS62]</p> <p>Filling / preparation of equipment from drums or containers [CS45]</p> <p>Refuelling vehicles, aircraft or marine</p> <p>General exposures (closed systems) [CS15]</p> <p>General exposures (open systems) [CS16] (closed systems) [CS107]</p> <p>Equipment cleaning and maintenance [CS39]</p> <p>Vessel / container cleaning [CS103]</p> <p>Storage [CS67]</p>	<p>Handle substance within a closed system [E47]. Wear suitable gloves tested to EN374 [PPE15].</p> <p>Use drum pumps or carefully pour from container [E64]. Wear suitable gloves tested to EN374 [PPE15].</p> <p>Use drum pumps or carefully pour from container [E64]. Wear suitable gloves tested to EN374 [PPE15]. Use vapour recovery units when necessary [A7].</p> <p>No specific measures identified [E118].</p> <p>No specific measures identified [E118].</p> <p>Drain down and flush system prior to equipment break-in or maintenance [E55].Wear suitable gloves tested to EN374 [PPE15]. Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4].</p> <p>Drain down system prior to equipment break-in or maintenance [E65]. Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4]. Provide enhanced general ventilation by mechanical means [E48]. If above technical/organisational control measures are not feasible, then adopt following PPE [PPE30]: Wear positive pressure air supplied respirator if required by safe entry procedures [PPE31]. Wear suitable gloves tested to EN374 [PPE15]. Wear suitable coveralls to prevent exposure to the skin [PPE27].</p> <p>Store substance within a closed system [E84].</p>
<p>Section 2.2</p>	<p>Control of environmental exposure</p>	
	<p>Assessment method</p> <p>Product characteristics</p> <p>Amounts used</p> <p>Frequency and duration of use</p> <p>Environmental factors not influenced by risk management</p>	<p>Petrorisk</p> <p>Clean Air HVO renewable diesel is a readily biodegradable, slightly water soluble liquid of low volatility. Water solubility is 1.4E-3 mg/l at 25°C (Petrorisk); the vapour pressure is 5.1 Pa (Petrorisk); log Kow is 8.4. Not toxic to environment.</p> <p>Regional tonnage: 89 ktonnes per year</p> <p>Max site tonnage: 4.45 ktonnes per year</p> <p>Fraction of main source: 0.1</p> <p>Emission days per year: 365</p> <p>Local freshwater dilution fraction: 10</p> <p>Local marine dilution fraction: 100</p>

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	<p>Other Operational Conditions of use affecting environmental exposure</p> <p>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</p> <p>Organisation measures to prevent/limit release from site</p> <p>Conditions and measures related to municipal sewage treatment plant</p> <p>Conditions and measures related to external treatment of waste for disposal</p> <p>Conditions and measures related to external recovery of waste</p> <p>Other environmental control measures additional to above</p>	<p>Release fraction to air from process (regional): 1.0E-4 Release fraction to wastewater from process (regional): 1.0E-5 Release fraction to soil from process (regional): 1.0E-5</p> <p>Not applicable.</p> <p>Not applicable.</p> <p>STP7: Assumed domestic sewage treatment plant effluent flow is 2000 m3/d. STP3: Estimated substance removal from wastewater via domestic sewage treatment is 92.5%.</p> <p>ETW3: Dispose of waste in accordance with environmental legislation.</p> <p>ETW1: Dispose of waste in accordance with environmental legislation</p> <p>Not applicable.</p>
SECTION 3	EXPOSURE ESTIMATION	
Section 3.1	Health	
	<p>When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1 as indicated in Appendix A.7.</p>	
Section 3.2	Environment	
	<p>When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.</p>	
SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO	
Section 4.1	Health	
	<p>Confirm that RMMs and OCs are as described or of equivalent efficiency. See Appendix A.7 for details of efficiencies and OC.</p>	

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Section 4.2	Environment
	Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 92.5% which would be typically found in waste-water treatment plant.

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SECTION 1	EXPOSURE SCENARIO TITLE	
Title	Use as a fuel of Clean Air HVO renewable diesel - Consumer	
Use Descriptor	Sector(s) of Use	SU 21: Consumer uses
	Process Categories	PROC: NA
	Product Categories	PC 13: Fuels
	Environmental Release Categories	ERC 8B: Wide dispersive indoor use of reactive substances in open systems ERC 8E: Wide dispersive outdoor use of reactive substances in open systems
Processes, Tasks and Activities Covered	Covers the use as a fuel and includes activities associated with its transfer, use, storage, maintenance and handling of waste.	
SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Section 2.1	Control of consumer exposure	
	Physical form of product	Liquid, vapour pressure < 0,5 kPa [OC3]. Kinematic viscosity < 20,5 mm ² /s @ 40 °C.
	Concentration of substance in product	Unless otherwise stated, cover concentrations up to 100% [ConsOC1]
	Frequency and duration of use/exposure	Covers exposure up to 2 hours per event (unless stated differently) [ConsOC14]
	Other operational conditions affecting exposure	Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m3 room [ConsOC11]; assumes use with typical ventilation [ConsOC8].
Section 2.1.1	Product categories	
PC13:Fuels-- Liquid - subcategories added: Automotive Refuelling	OC	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 52 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 210,00 cm ² [ConsOC5]; for each use event, covers use amounts up to 38600g [ConsOC2]; covers outdoor use [ConsOC12]; covers use in room size of 100m ³ [ConsOC11]; for each use event, covers exposure up to 0,05hr/event[ConsOC14];
	RMM	No specific RMMs developed beyond those OCs stated

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PC13:Fuels-- Liquid - subcategories added: Garden Equipment - Use	OC	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 26 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 772g [ConsOC2]; covers outdoor use [ConsOC12]; covers use in room size of 100m3[ConsOC11]; for each use event, covers exposure up to 2,00hr/event[ConsOC14];
	RMM	No specific RMMs developed beyond those OCs stated
PC13:Fuels-- Liquid (subcategories added): Garden Equipment - Refueling	OC	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 26 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 420,00 cm2 [ConsOC5]; for each use event, covers use amounts up to 772g [ConsOC2]; Covers use in a one car garage (34m3) under typical ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0,03hr/event[ConsOC14];
	RMM	No specific RMMs developed beyond those OCs stated
PC13:Fuels-- Liquid - subcategories added: Lamp oil	OC	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 52 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 210,00 cm2 [ConsOC5]; for each use event, covers use amounts up to 100g [ConsOC2]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0,01hr/event[ConsOC14];
	RMM	No specific RMMs developed beyond those OCs stated
PC13:Fuels-- Liquid - subcategories added: Home heating fuel	OC	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 210,00 cm2 [ConsOC5]; for each use event, covers use amounts up to 1500g [ConsOC2]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0,03hr/event[ConsOC14];
	RMM	No specific RMMs developed beyond those OCs stated
Section 2.2	Control of environmental exposure	
Assessment method	Petrorisk	
Product characteristics	Clean Air HVO renewable diesel is a readily biodegradable, slightly water soluble liquid of low volatility. Water solubility is 1.4E-3 mg/l at 25°C (Petrorisk); the vapour pressure is 5.1 Pa (Petrorisk); log Kow is 8.4. Not toxic to environment.	

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	<p>Amounts used</p> <p>Frequency and duration of use</p> <p>Environmental factors not influenced by risk management</p> <p>Other Operational Conditions of use affecting environmental exposure</p> <p>Conditions and measures related to municipal sewage treatment plant</p> <p>Conditions and measures related to external treatment of waste for disposal</p> <p>Conditions and measures related to external recovery of waste</p> <p>Other environmental control measures additional to above</p>	<p>Regional tonnage: 55.7 ktonnes per year</p> <p>Max site tonnage: 2.79 tonnes per year</p> <p>Fraction of main source: 0.1</p> <p>Emission days per year: 365</p> <p>Local freshwater dilution fraction: 10</p> <p>Local marine dilution fraction: 100</p> <p>Release fraction to air from process (regional): 1.0E-4</p> <p>Release fraction to wastewater from process (regional): 1.0E-5</p> <p>Release fraction to soil from process (regional): 1.0E-5</p> <p>STP7: Assumed domestic sewage treatment plant effluent flow is 2000 m3/d.</p> <p>STP3: Estimated substance removal from wastewater via domestic sewage treatment is 92.5%.</p> <p>ETW3: Dispose of waste in accordance with environmental legislation.</p> <p>ETW1: Dispose of waste in accordance with environmental legislation.</p> <p>Not applicable</p>
SECTION 3	EXPOSURE ESTIMATION	
Section 3.1	Health	
	<p>When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1 as indicated in Appendix A.8.</p>	
Section 3.2	Environment	
	<p>When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.</p>	

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SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 4.1	Health
	Confirm that RMMs and OCs are as described or of equivalent efficiency. See Appendix A.8 for details of efficiencies and OC.
Section 4.2	Environment
	Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 92.5% which would be typically found in waste-water treatment plant.

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SECTION 1	EXPOSURE SCENARIO TITLE	
Title	Use as Intermediate - Industrial	
Use Descriptor	Sector(s) of Use	SU 8: Manufacture of bulk, large scale chemicals (including petroleum products)
	Process Categories	PROC 1: Use in closed process, no likelihood of exposure PROC 2: Use in closed, continuous process with occasional controlled exposure PROC 3: Use in closed batch process (synthesis or formulation) PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 15: Use as laboratory reagent
	Product Categories	PC: NA
	Environmental Release Categories	ERC 6A: Industrial use resulting in manufacture of another substance (use of intermediates)
Processes, Tasks and Activities Covered	Use of substance as an intermediate (not related to Strictly Controlled Conditions). Includes recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).	
SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Section 2.1	Control of worker exposure	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0,5 kPa [OC3]. Kinematic viscosity < 20,5 mm ² /s @ 40 °C.
	Vapour Pressure	87,1 Pa
	Concentration of substance in product	Covers percentage substance in the product up to 100% (unless stated differently) [G13].
	Amount used	Not applicable.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2].
	Human factors not influenced by risk management	Not applicable.
	Other operational conditions affecting worker exposure	Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].

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Contributing Scenarios	Risk Management Measures	
	General process exposures (closed systems) [CS15]	No specific measures identified [E118].
	General process exposures (closed systems) [CS15] with sample collection [CS56]	No specific measures identified [E118].
	General process exposures [CS15] (Closed batch process)	No specific measures identified [E118].
	General exposures open batch process[CS16]	Wear suitable gloves tested to EN374 [PPE15]. Transfer via enclosed lines [E52].
	Sample collection [CS2]	Wear suitable gloves tested to EN374 [PPE15].
	Laboratory activities [CS36]	Handle in a fume cupboard or under extract ventilation [E83]. Wear suitable gloves tested to EN374 [PPE15].
	Bulk transfers (closed systems) e.g bottom loading [CS501]	Wear suitable gloves tested to EN374 [PPE15].
	Bulk transfers (open systems) [CS503]	Wear suitable gloves tested to EN374 [PPE15].
	Clean down and Maintenance [CS39]	Drain down system prior to equipment break-in or maintenance [E65]. Wear suitable gloves tested to EN374 [PPE15].
	Bulk Storage [CS85]	Store substance within a closed system [E84]. Transfer via enclosed lines [E52]. Outdoor [OC9].
SECTION 2.2	Control of environmental exposure	
	Assessment method	Petrorisk
	Product characteristics	Clean Air HVO renewable diesel is a readily biodegradable, slightly water soluble liquid of low volatility. Water solubility is 1.4E-3 mg/l at 25°C (Petrorisk); the vapour pressure is 5.1 Pa (Petrorisk); log Kow is 8.4. Not toxic to environment.
	Amounts used	Regional tonnage: 80 ktonnes per year Max site tonnage: 80 ktonnes per year
	Frequency and duration of use	Emission days per year: 300
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10 Local marine dilution fraction: 100
	Other Operational Conditions of use affecting environmental exposure	Release fraction to air from process: 2.0E-5 Release fraction to (waste)water from process: 1.0E-5 Release fraction to soil from process (regional): 1.0E-3

Previous date: -

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	<p>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</p> <p>Organisation measures to prevent/limit release from site</p> <p>Conditions and measures related to municipal sewage treatment plant</p> <p>Conditions and measures related to external treatment of waste for disposal</p> <p>Conditions and measures related to external recovery of waste</p> <p>Other environmental control measures additional to above</p>	<p>TCR8: Treat air emissions to provide a typical removal efficiency of 80%. TCR9: Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of 92.5%.</p> <p>OMS2: Do not apply industrial sludge to natural soils. OMS3: Sludge should be incinerated, contained or reclaimed.</p> <p>STP7: Assumed domestic sewage treatment plant effluent flow is 2000 m3/d.</p> <p>STP3: Estimated substance removal from wastewater via domestic sewage treatment is 92.5%.</p> <p>ETW3: Dispose of waste in accordance with environmental legislation.</p> <p>ETW1: Dispose of waste in accordance with environmental legislation.</p> <p>ENV3: Bund storage facilities to prevent soil and water pollution in the event of spillage.</p>
SECTION 3	EXPOSURE ESTIMATION	
Section 3.1	Health	
	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1 as indicated in Appendix A.10.	
Section 3.2	Environment	
	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.	
SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO	
Section 4.1	Health	
	Confirm that RMMs and OCs are as described or of equivalent efficiency. See Appendix A.10 for details of efficiencies and OC.	
Section 4.2	Environment	
	Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 92.5% which would be typically found in waste-water treatment plant.	