Ccerta

HVO

Hydrotreated Vegetable Oil

Safety Data Sheet

Revision: (date) 31/01/2023
Version number 3.0

SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 Annex II (REACH) as amended by COMMISSION REGULATION (EU) 2020/878 and UK REACH

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Substance name	Renewable hydrocarbon (diesel type fraction)
EC No.	700-571-2
CAS No.	928771-01-1(*)
Index No.	Not applicable
REACH Registration No.	01-2119450077-42-0000 / -0001 / -0002 (EU) (UK) This substance is included in the UK REACH: grandfathered registrations notified substances list, UK-01-9638319484-0-XXXX.
Other means of identification	Gd+ HVO Green D+ renewable diesel HVO, Hydrotreated vegetable oil Alkanes, C10-20-branched and linear (*) Identity outside the EU: CAS 928771-01-1

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

Relevant identified uses	Distribution of substance (ES04). Use as a fuel (ES 06, 14, 23). Formulation & (re)packing of substances and mixtures (ES 02). Use as an intermediate (ES 05).
Uses advised against	Follow supplier's recommendations on correct use of the product. Uses other than those covered by the exposure scenarios included in this safety data sheet are not supported.

1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplier	Green Biofuels Ltd
Address	3rd Floor Waverley House 7-12 Noel Street London W1F 8GQ
Telephone number	+44 7850 246605
E-mail	info@greenbiofuelsplc.com

1.4. Emergency telephone number

Telephone number	+44 (0) 333 333 9443 (24/7, English only)

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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Asp. Tox. 1	H304	May be fatal if swallowed and enters airways.

Additional information

EUH066	Repeated exposure may cause skin dryness or cracking.

For full text of Hazard- and EU Hazard-statements: see SECTION 16

2.2. Label elements

Hazard pictogram(s)

Signal word	Danger
Hazard statement(s)	H304 May be fatal if swallowed and enters airways.
Precautionary statement(s)	P102 Keep out of reach of children. P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. P331 Do NOT induce vomiting. P405 Store locked up. P501 Dispose of contents/ container in accordance with national regulations.
Supplemental information on the label	
Supplementary Hazard Information (EU)	EUH066 Repeated exposure may cause skin dryness or cracking.

2.3. Other hazards

Combustible liquid.
The product does not meet the criteria for PBT or vPvB substances.
Risk of soil and ground water contamination. Caution - spillages may be slippery.

SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical Name	Renewable hydrocarbons (diesel type fraction)
Identification Number(s)	
EC No.	700-571-2
CAS No.	928771-01-1(*)
Index No.	Not applicable
REACH Registration No.	01-2119450077-42-0000 / -0001 / -0002 UK-01-9638319484-0-XXXX

Other means of identification	Gd+ HVO Green D+ renewable diesel HVO, Hydrotreated vegetable oil Alkanes, C10-20-branched and linear
%	*ca.* 100%
Other information	UVCB Substance Mixture of renewable raw material fuel and additives. Contains middle distillate-range iso- and n-paraffinic hydrocarbons. Total aromatics at maximum 1.0 Weight %. (*) Identity outside the EU: Alkanes, C10-20-branched and linear, CAS 928771-01-1.
M-factor	Not applicable
Acute Toxicity Estimate (ATE)	> 2000 mg/kg (oral and dermal)
Specific Concentration Limit (SCL)	Not applicable
Particle Characteristics	Not applicable
Chemical identity of any impurity, stabilising additive, or individual constituent	None

SECTION 4: First aid measures

4.1. Description of first aid measures

General notes	In case of accident or if you feel unwell, seek medical advice immediately. Show this SDS or product label to the doctor.
Following inhalation	Unlikely exposure route. If spray or mist has been inhaled, remove person to fresh air and keep comfortable for breathing. Keep warm and at rest. If symptoms persist, obtain medical attention.
Following skin contact	Remove contaminated clothing immediately. Wash skin with plenty of soap and water. Obtain medical attention if irritation persists after washing.
Following eye contact	Rinse immediately with plenty of water. Remove contact lenes, if present and easy to do. Continue rinsing. Obtain medical attention if irritation persist after washing.
Following ingestion	Do NOT induce vomiting. Obtain medical attention immediately. Do not give mouth-to-mouth resuscitation. Do not give anything by mouth because of risk of material entering the lungs and causing lung damage. If person is drowsy or unconscious and vomiting, place on left side with head down. If possible, do not leave unattended and observe closely for adequacy of breathing.

Self-protection of the first aider	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

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

If swallowed, aspiration into the lungs following ingestion or vomiting may cause chemical pneumonia.

Repeated exposure may cause skin dryness and cracking.

Spray/mist may cause respiratory tract irritation.

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

Treat symptomatically.

In case of accident or if you feel unwell, seek medical advice immediately. If swallowed, patient should be monitored for signs of breathing difficulty as effects of aspiration may be delayed for up to 48 hours. If breathing is laboured, oxygen should be administered by qualified personnel.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Water spray, foam, dry powder, or carbon dioxide.
Unsuitable extinguishing media	Do NOT use water jet.

5.2. Special hazards arising from the substance or mixture

Combustible liquid. Flash point > 61 °C.

The pressure in sealed containers can increase under the influence of heat. Cool containers / tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Hazardous combustion products	Incomplete combustion is likely to give rise to a complex mixture of airborne solid and liquid particulates and gases, including carbon monoxide and unidentified organic and inorganic compounds.

5.3. Advice for firefighters

Self-contained breathing apparatus and suitable protective clothing should be worn in fire conditions. Move undamaged containers from fire area if this can be done safely. Keep fire exposed containers cool by spraying with water. Avoid spreading burning liquid with water used for cooling purposes. Do not allow product or run-off to enter drains, sewers or watercourses.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

	Caution – spillage area may be slippery. Keep people and animals away from the spill area.
	Avoid breathing vapour, mist or spray. Avoid contact with skin and eyes.
For emergency responders	Keep unnecessary personnel away. Wear suitable protective clothing (See Section 8). Eliminate all ignition sources if safe to do so. Take precautionary measures against static discharge.

6.2. Environmental precautions

Avoid release to the environment. Stop leak if safe to do so. Absorb or contain any spilled liquid with an absorbent and dispose of according to regulations.

Risk of soil and ground water contamination. Do not allow spillage or run off to enter drains, sewers, or watercourses. Spillages or uncontrolled discharges into watercourses must be alerted to the Environment Agency or other appropriate regulatory body.

If spill occurs on water notify the appropriate authorities and advise shipping of any hazard (as appropriate).

6.3. Methods and material for containment and cleaning up

For containment

Stop the leak if it is safe to do so. Contain the spillage with sand, earth or any suitable absorbent material.

For cleaning up

Use sand, earth, or any suitable non-combustible absorbent material on spillages. Using non-sparking tools transfer the contaminated absorbent material into a container for disposal.

For spillages on water, remove use appropriate methods such as skimming, booms or adsorbents. For spillages onto soil, remove contaminated soil for remediation or disposal in accordance with local regulations.

Waste containers used should be plastic-lined sealable drums. Containers should be sealed before being disposed of via an authorised waste disposal contractor.

6.4. Reference to other sections

See Section 8 for personal protective equipment. See Section 13 for waste disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Take precautionary measures against static discharge. Use only non-sparkling tools. Use explosion-proof electrical, ventilating and lighting equipment.

Use only outdoors or in a well-ventilated area. Avoid breathing vapours/mist/spray. Avoid contact with skin and eyes. Wear suitable personal protective equipment and/or local exhaust ventilation when needed. (See Section 8)

Do not eat, drink or smoke in the vicinity of the product. Wash hands and other contaminated areas of the body thoroughly after handling.

Product Transfer

Electrostatic charges may be generated during pumping. Ensure electrical continuity by bonding all equipment. Avoid splash filling. Wait 2 minutes after tank filling (for tanks such as those on road tanker vehicles) before opening hatches or manholes. Wait 30 minutes after tank filling (for large storage tanks) before opening hatches or manholes. Contamination resulting from product transfer may give rise to light hydrocarbon vapour in the headspace of tanks that have previously contained gasoline. This vapour may explode if there is a source of ignition. Partly filled containers present a greater hazard than those that are full, therefore handling, transfer and sampling activities need special care.

Tank cleaning

Cleaning, inspection and maintenance of storage tanks is a specialist operation that requires the implementation of strict procedures and precautions. These include issue of work permits, gas-freeing of tanks, using a manned safety harness, lifelines and wearing air-supplied breathing apparatus. Prior to entry and while cleaning is underway, the atmosphere within the tank must be monitored using a gas monitor or oxygen meter and explosimeter. Additional precautions are required where the tank may have previously contained petroleum spirit.

7.2. Conditions for safe storage, including any incompatibilities

Flammable liquid storage. Store in accordance with local regulations.

Keep away from heat and sources of ignition. Keep away from direct sunlight. Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool. Empty containers retain product residue and can be hazardous.

Keep away from oxidising agents and reducing agents.

This product must never be stored in buildings occupied by people. Drums and small containers should be stored in well-ventilated areas, flameproof cabinets or stores. Keep in a bunded area with a sealed floor to provide containment against spillage. Stack drums to a height not exceeding three metres without the use of racking. Seek specialist advice for the design, construction and operation of bulk storage facilities.

Recommended Storage Container materials

For containers or container linings use mild steel or stainless steel, aluminium may also be used for applications where it does not present an unnecessary fire hazard. Examples of suitable materials are: high density polyethylene (HDPE), polypropylene (PP), and Viton (FKM) which have specifically tested for compatibility with the product. For container linings, use amine-adduct cured epoxy paint. For seals and gaskets use: graphite, PTFE, Viton A, Viton B.

Unsuitable Storage Container materials

Synthetic materials such as plastics and fiberglass may be unsuitable for containers or container linings depending on the material specification and intended use. Examples of materials to avoid are: natural rubber (NR), nitrile rubber (NBR), ethylene propylene rubber (EPDM), polymethyl methacrylate (PMMA), polystyrene, polyvinyl chloride (PVC), polyisobutylene. However, some may be suitable for glove materials.

7.3. Specific end use(s)

Distribution of substance (ES04). Use as a fuel (ES 06, 14, 23). Formulation & (re)packing of substances and mixtures (ES 02). Use as an intermediate (ES 05).

Refer to supplemental exposure scenarios attached.

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Workplace exposure limits

Substance	LTEL (8 hr TWA)		STEL (15 min)		Comments
	ppm	mg/m³	ppm	mg/m³	
Hydrocarbons, normal and branch-chained ≥C7	-	1200	-	-	UK EH40
Diesel Fuel as total hydrocarbons		100			ACGIH TLV

Source: EH40/2005, 4th Edition 2020

Derived No Effect level (DNEL)

Workers

Exposure Route	DNEL
Inhalation, Systemic Effects, long term exposure	147 mg/m³
Dermal, Systemic Effects, long term exposure	42 mg/kg bw/day

Consumers

Exposure Route	DNEL
Inhalation, Systemic Effects, long term exposure	94 mg/m3
Dermal, Systemic Effects, long term exposure	18 mg/kg bw/day
Oral, Systemic Effects, long term exposure	18 mg/kg bw/day

Predicted No Effect Concentration (PNEC)

Environmental Protection Target	PNEC
Aqua (freshwater)	0.01 mg/L
Freshwater (intermittent releases)	0.1 mg/L
Aqua (marine water)	0.01 mg/L
STP	10 mg/L
Sediment (freshwater)	3 810 mg/kg sediment dw
Sediment (marine water)	3.73 mg/kg sediment dw
Soil (terrestrial organisms)	761 mg/kg soil dw
Air	No hazard identified
Predators	No potential for bioaccumulation.

8.2. Exposure controls

Appropriate engineering controls

Use only outdoors or in a well-ventilated area. Provide adequate ventilation to ensure that occupational exposure limits are not exceeded. Local extraction may be required. Use personal protective equipment when needed. Handle in accordance with good industrial hygiene and safety practice. During tank operations follow special instructions (risk of oxygen displacement and hydrocarbons).

Individual protection measures, such as personal protective equipment

Eye/face protection		Goggles or safety glasses with side shields giving complete protection to eyes. (EN 166).
Skin protection		
Hand protection		Chemical-resistant gloves. (EN 374). Suitable glove material: nitrile, neoprene or PVC (breakthrough time > 240 minutes). Contact glove supplier to confirm suitable glove material, thickness and breakthrough times. Change protective gloves regularly.
Other		Wear suitable protective clothing as protection against splashing or contamination. Rubber boots. Wear antistatic protective clothing if there is a risk of ignition from static electricity.
Respiratory protection		Where airborne levels below the exposure limits cannot be maintained, wear an air-purifying respirator (EN 140) with a Type A/P2 filter or better suitable for organic gases and vapours with a boiling point above 65°C. (EN 14387). Change filters regularly. Filter devices must not be used in conditions where the oxygen level is low (< 19 vol. %). At high concentrations, a breathing apparatus must be used (self-contained or fresh air hose breathing apparatus).
Thermal hazards		Wear suitable temperature resistant gloves and protective clothing if the product is heated.

Environmental exposure controls

Avoid release to the environment. Inform environmental manager of all incidents involving this product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

(a) Physical state	Liquid
(b) Colour	Clear
(c) Odour	Mild
Odour Threshold	No data available
(d) Melting point/freezing point	Pour point < -20°C @ 1013 hPa (BS4633, EC A1)

(e) Boiling point or initial boiling point and boiling range	180 – 320 °C (ISO 3405)
(f) Flammability	Not applicable
(g) Lower and upper explosion limit	No data available
(h) Flash point	> 60 °C (EN ISO 2719, EC A9)
(i) Auto-ignition temperature	204 °C (EC A15)
(j) Decomposition temperature	No data available
(k) pH	Not applicable
(l) Kinematic viscosity	3.97 mm^2/s @ 20°C; 2.6 mm^2/s @ 40°C (OECD 114)
(m) Solubility	Insoluble in water. 0.075 mg/l water @ 25°C (calculated)
(n) Partition coefficient n-octanol/water (log value)	log Kow: > 6.5 (EU Method A8) log Kow (KOWWIN program) 4.7 – 10.2, weighted average 8.4 @ 20 °C
(o) Vapour pressure	0.087 kPa @ 25°C (EC A4)
(p) Density and/or relative density	0.780
(q) Relative vapour density	> 1
(r) Particle characteristics	Not applicable
(s) Explosive propeties	Not explosive
(t) Oxidising properties	Not oxidising

9.2. Other information

Information with regard to physical hazard classes

Flammable liquids	Flash point > 60 °C. Product is not classified as flammable according to the CLP Regulation. ADR: Diesel fuel, gasoil, heating oil (light) including synthetically manufactured products having a flash point above 60 °C and not more than 100 °C shall be deemed substances of Class 3, UN No. 1202.

Other safety characteristics

None known.

SECTION 10: Stability and reactivity

10.1. Reactivity

There are no know reactivity hazards associated with this product.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No hazardous reactions expected during normal use.

10.4. Conditions to avoid

Keep away from sources of ignition, hot surfaces, direct sunlight. Prevent accumulation of vapours. Contact with incompatible materials.

10.5. Incompatible materials

Oxidising agents e.g. chlorates and ammonium nitrate which may be used in agriculture.

10.6. Hazardous decomposition products

Incomplete combustion is likely to give rise to a complex mixture of airborne solid and liquid particulates and gases, including carbon monoxide and unidentified organic and inorganic compounds.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

(a) acute toxicity	
acute toxicity - oral	Not classified. Based on the available data the classification criteria are not met. LD50 (rat) > 2000 mg/kg
acute toxicity - dermal	Not classified. Based on the available data the classification criteria are not met. LD50 (rat) > 2000 mg/kg
acute toxicity - inhalation	Not classified. Based on the available data the classification criteria are not met. LC50 (rat, 8h) 23.4 mg/L (calculated n-nonane)
(b) skin corrosion/irritation	Not classified. Based on the available data the classification criteria are not met. However, may cause solvent-related defatting of the skin.
(c) serious eye damage/irritation	Not classified. Based on the available data the classification criteria are not met.
(d) respiratory or skin sensitisation	
respiratory sensitisation	Not classified. Based on the available data the classification criteria are not met.
skin sensitisation	Not classified. Based on the available data the classification criteria are not met. Maximisation test; method B6, guinea pig. No adverse effect observed (not sensitising).
(e) germ cell mutagenicity	Not classified. Based on the available data the classification criteria are not met. EU test methods B13/14; B10 & B17 No adverse effect observed (negative)
(f) carcinogenicity	Not classified. Based on the available data the classification criteria are not met.

(g) reproductive toxicity	Not classified. Based on the available data the classification criteria are not met. Reproductive Toxicity NOAEL (rat) = 1000 mg/kg bw/day
(h) STOT-single exposure	Not classified. Based on the available data the classification criteria are not met.
(i) STOT-repeated exposure	Not classified. Based on the available data the classification criteria are not met. NOAEL (oral, rat) = 1000 mg/kg bw/day
(j) aspiration hazard	May be fatal if swallowed and enters airways. Entry into the lungs following ingestion or vomiting may cause chemical pneumonia.

Information on likely routes of exposure

Inhalation: low vapour pressure indicates unlikely exposure route

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact: mild, fully reversible irritation.

Skin contact: mild, fully reversible irritation; may cause solvent-related defatting of the skin.

Ingestion: may be fatal if swallowed and enters airways. Entry into the lungs following ingestion or vomiting may cause chemical pneumonia.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

If swallowed, patient should be monitored for signs of breathing difficulty as effects of aspiration may be delayed for up to 48 hours.

11.2 Information on other hazards

Endocrine disrupting properties

None known.

Other information

No other information.

SECTION 12: Ecological information

12.1. Toxicity

Not classified.

Data on aquatic toxicity

Acute (short-term) toxicity

Fish	LL50 (96h) >1 g/L WAF (OECD 203)
Crustaceans	EL50 (48h) 100 mg/L WAF (OECD 202)
Algae and other aquatic plants	EL50 (72 h) 100 mg/L WAF (OECD 201)
Microorganisms	EC50 (30 – 180 min) >1 g/L [1]

	Wastewater sludge (OECD 209)
Chronic (long-term) toxicity	
Fish	NOELR (28 days) 1 g/L
Crustaceans	NOEC (21 days) 1 mg/L WAF (OECD 211)
	LOEC (21 days) 3.2 mg/L WAF (OECD 211)
	EL50 (21 days) 100 mg/L WAF (OECD 211)
Sediment organisms	NOEC (10 days) 373 mg/kg sediment dw
	LOEC (10 days) 1165 mg/kg sediment dw
	LC50 (10 days) 1200 mg/kg sediment dw
	OSPAR Protocols, Part A, Sediment Bioassay 2005)

12.2. Persistence and degradability

Hydrolysis: No significant reaction in water.

Biodegradation: Rapidly degradable. 82 % degradation within 28 days (OECD 301B)

12.3. Bioaccumulative potential

Possibly bioaccumulative.

Partition coefficient n-octanol /water (log Kow)	> 6.5
Bioconcentration factor (BCF)	116 (estimated)

12.4. Mobility in soil

Tendency to sorb to sediment or soil. Log Koc > 5.63.

Known or predicted distribution to environmental compartments	> 99 % ends up in sediments when released in water whereas emissions to soil and air lead to contamination of soil.

12.5. Results of PBT and vPvB assessment

The substance is not PBT / vPvB

12.6. Endocrine disrupting properties

None known.

12.7. Other adverse effects

None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal should be in accordance with local, state or national legislation. Do not empty into drains; dispose of this material and its container in a safe way.

Empty containers retain product residue and can be hazardous.

Contaminated adsorbent must be removed in sealed, plastic lined drums and disposed of via an authorised waste disposal contractor.

SECTION 14: Transport information

ADR/RID/IMDG/IATA

14.1. UN number or ID number

ADR/RID: UN 1202

IMDG/IATA: Not classified under IMDG/IATA:

14.2. UN proper shipping name

ADR/RID: DIESEL FUEL

14.3. Transport hazard class(es)

ADR/RID: 3

14.4. Packing group

ADR/RID: III

14.5. Environmental hazards

ADR/RID: None

14.6. Special precautions for user

ADR Tunnel Restriction Code	(D/E)
ADR Transport Category	3

14.7. Maritime transport in bulk according to IMO instruments

Considered an Energy-rich fuel should be carried subject to Annex I of MARPOL.

MARPOL Bulk transport: Product name: Alkanes, C10-C26 linear and branched (Flashpoint > 60 °C) (Renewable Diesel) Category Y, ST3

SECTION 15: Regulatory information

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

EU Regulations

The product is classified in accordance with EC Regulation 1272/2008 (CLP).

Safety data sheet according to Regulation (EC) No 1907/2006 Annex II (REACH) as amended by COMMISSION REGULATION (EU) 2020/878.

Authorisations and/or restrictions on use

Authorisations	None
Restrictions on use	None

National regulations

UK Regulations

The product is classified in accordance with EC Regulation 1272/2008 (CLP) as amended by GB CLP, UK SI 2019/720 and UK SI 2020/1567

Safety data sheet according to Regulation (EC) No 1907/2006 Annex II (REACH) as amended by UK REACH, UK SI 2019/758, as amended, and UK SI 2020/1577

This substance is included in the UK REACH: grandfathered registrations notified substances list, UK-01-9638319484-0-XXXX

15.2. Chemical safety assessment

A chemical safety assessment has been carried out.

SECTION 16: Other information

i) Indication of changes

SDS Reference	Gd+ renewable diesel
Version number	3.0
Revision: (date)	5th August 2022
Reason for revision	Inclusion of UK REACH information, update to SDS format.
Previous version	Supersedes SDS version of 10th January 2022

ii) Abbreviations and acronyms

CAS	Chemical Abstracts Service
EC50	Effective concentration, 50%
EC No.	EINECS / ELINCS / NLP number. The official number of the substance within the EU.
EL50	Effective loading, 50%.
LC50	Lethal concentration, 50%
LD50	Lethal dose, 50%
LOEC	Lowest overall effect concentration
NOAEL	No observed adverse effect level
NOEC	No observed effect concentration
NOELR	No observable effect loading rate
PBT	Persistent, bioaccumulative and toxic
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
UVCB	Substance of unknown or variable composition, complex reaction products or biological materials
vPvB	Very persistent and very bioaccumulative
WAF	Water Accommodated Fraction

iii) Key literature references and sources for data

Supplier Safety Data Sheet
ECHA REACH dossiers
ECHA Classification and Labelling Inventory
UK: EH40/2005 4th edition 2020
Ireland: HSA 2021 Code of Practice
Gestis ILV (https://limitvalue.ifa.dguv.de/)

iv) Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]

Not applicable.

v) Relevant H-statements (number and full text)

Asp. Tox. 1 H304	Aspiration hazard, Hazard Category 1. May be fatal if swallowed and enters airways.

vi) Training advice

Read the SDS and any additional instructions for handling this substance from the supplier or your employer. Workers should be trained to handle hazardous chemicals. It is recommended that they are familiar with the contents of this safety data sheet.

Users are advised to refer to relevant legislation, approved codes of practice and guidance available from the Health & Safety Executive (www.hse.gov.uk) and to the IP Codes of Practice available from the Energy Institute (www.energyinst.org.uk)

vii) Further information

No further information.

End of safety data sheet

DISCLAIMER

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety, and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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EXPOSURE SCENARIO

Annex to extended Safety Data Sheet (eSDS)

Formulation & (re)packing - Industrial (ES02).

Identification	
Product Name	Renewable hydrocarbons (diesel type fraction)
EU REACH registration number	01-2119450077-42-XXXX
ES Reference	02

1. Title of exposure scenario	
Main title	Formulation & (re)packing - Industrial
Process Scope	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities
Main sector	SU3 Industrial uses
Environment	
Environmental release category	ERC2 Formulation into mixture
SPERC	ESVOC SPERC 2.2.v1
Worker	
Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent.

2. Conditions of use affection exposure (Industrial – Environment 1)	
Amounts used	
	Fraction of EU tonnage used in region: 1 Daily amount per site: ≤ 100 t

	Annual amount per site: ≤ 1 500 000 t
Frequency and duration of use	
	Emission days: 300 days/year
Other given operational conditions affecting environmental exposure	
Emission factor - air	0.25%
Emission factpr – water	0.005%
Emission factor – soil	0.01%
Environmental factors not influenced by risk management measures	
Dilution	Local freshwater dilution factor: 10
	Local marine water dilution factor: 100
Risk management measures	
STP type	Aerobic biological treatment
STP details	Assumed domestic sewage treatment plant flow (m^3/day): 2000.
Conditions and measures related to external treatment of waste for disposal	
Waste treatment	Dispose of waste in accordance with environmental legislation.
Conditions and measures related to external recovery of waste	
Recovery method	All waste product is assumed to be collected and returned for re-processing or use as a fuel.

2. Conditions of use affection exposure (Workers – Health 1)

Product characteristics	
Physical state	Liquid
Concentration details	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).
Human factors not influenced by risk management measures	
Potentially exposed body parts	PROC 1, PROC 3, PROC 15: Covers skin contact area up to 240 cm^2. Palm of one hand.
	PROC 2, PROC 5, PROC 9: Covers skin contact area up to 480 cm^2. Palm of both hands.
	PROC 8a, 8b: Covers skin contact area up to 960 cm^2. Both hands.
Other given operational conditions affecting workers exposure	
Setting	Indoor use.
Temperature	≤ 40°C
Ventilation rate	1 -3 air changes per hour Unless otherwise stated.
	Assumes a good basic standard of occupational hygiene is implemented.
Risk management measures	
	Mixing operations (PROC 3)
	No specific measures identified.
	Batch processes at elevated temperatures (PROC 3)
	No specific measures identified.
	Process sampling (PROC 3)
	Wear suitable gloves tested to EN374.

Laboratory activities (PROC 15)
Provide adequate general and local exhaust ventilation.
Wear suitable gloves tested to EN374.
Recommendation:
Handle in a fume cupboard or under extract ventilation.
Bulk transfers (PROC 8b)
No specific measures identified.
Mixing operations (open systems). With potential for aerosol generation (PROC 5)
Recommendation:
Wear suitable gloves tested to EN374.
Transfer from/pouring from containers. Manual. (PROC 8a)
Wear suitable gloves tested to EN374.
Drum/batch transfers (PROC 8b)
No specific measures identified.
Drum and small package filling (PROC 9)
Provide adequate general and local exhaust ventilation.
Recommendation:
Fill containers/cans at dedicated fill points supplied with local extract ventilation.
Equipment cleaning and maintenance (PROC 8a)
Provide adequate general and local exhaust ventilation.
Recommendation:
Drain down and flush system prior to equipment break-in or maintenance. Wear suitable gloves tested to EN374.
Storage (PROC 1, PROC 2)
No specific measures identified.

3. Exposure estimation (Environment 1)	
Assessment method	Used Petrorisk model.

4. Exposure estimation (Health 1)	
Assessment method	Used CHESAR model.

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Distribution of substance (ES04).

Identification	
Product Name	Renewable hydrocarbons (diesel type fraction)
EU REACH registration number	01-2119450077-42-XXXX
ES Reference	04

1. Title of exposure scenario	
Main title	Distribution of Substance - Industrial
Process Scope	Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities.
Main sector	SU3 Industrial uses
Environment	
Environmental release category	ERC7 Use of functional fluid at industrial site
SPERC	ESVOC SPERC 1.1b.v1
Worker	
Process category	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent.

2. Conditions of use affection exposure (Industrial – Environment 1)	
Amounts used	
	Fraction of EU tonnage used in region: 1
	Daily amount per site: ≤ 5000 t
	Annual amount per site: ≤ 1 500 000 t
Frequency and duration of use	
	Emission days: 300 days/year
Other given operational conditions affecting environmental exposure	
Emission factor - air	0.001%
Emission factpr – water	4E-7%.
Emission factor – soil	0.001%
Environmental factors not influenced by risk management measures	
Dilution	Local freshwater dilution factor: 10
	Local marine water dilution factor: 100

Risk management measures

STP type	Aerobic biological treatment
STP details	Assumed domestic sewage treatment plant flow (m^3/day): 2000.

Conditions and measures related to external treatment of waste for disposal

Waste treatment	Dispose of waste in accordance with environmental legislation.

Conditions and measures related to external recovery of waste

Recovery method	All waste product is assumed to be collected and returned for re-processing or use as a fuel.

2. Conditions of use affection exposure (Workers – Health 1)

Product characteristics

Physical state	Liquid
Concentration details	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).

Human factors not influenced by risk management measures

Potentially exposed body parts	PROC 3, PROC 15: Covers skin contact area up to 240 cm^2. Palm of one hand.
	PROC 2, PROC 9: Covers skin contact area up to 480 cm^2. Palm of both hands.
	PROC 8a, 8b: Covers skin contact area up to 960 cm^2. Both hands.

Other given operational conditions affecting workers exposure

Setting	Indoor use.
Temperature	≤ 40°C
Ventilation rate	1 -3 air changes per hour Unless otherwise stated.
	Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures

General exposures (closed systems) With occasional controlled exposure. (PROC 3)
No specific measures identified
Process sampling (PROC 3)
Wear suitable gloves tested to EN374.
Laboratory activities (PROC 15)
Provide adequate general and local exhaust ventilation.
Wear suitable gloves tested to EN374.
Recommendation:
Handle in a fume cupboard or under extract ventilation
Bulk transfers. Road tanker/rail car loading. (closed systems) (PROC 8b)
Recommendation:
Use vapour recovery units when necessary.
Wear suitable gloves tested to EN374.

Bulk transfers. Marine vessel/barge (un)loading. (closed systems) (PROC 8b)

Recommendation:

Wear suitable gloves tested to EN374.

Equipment cleaning and maintenance (PROC 8a)

Provide adequate general and local exhaust ventilation.

Recommendation:

Drain down and flush system prior to equipment break-in or maintenance.

Wear suitable gloves tested to EN374.

Storage. With occasional controlled exposure (PROC 2)

No specific measures identified.

Drum and small package filling (PROC 9)

Recommendation:

Wear suitable gloves tested to EN374.

3. Exposure estimation (Environment 1)	
Assessment method	Used Petrorisk model.

4. Exposure estimation (Health 1)	
Assessment method	Used CHESAR model.

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Use as Intermediate - Industrial (ES05).

Identification	
Product Name	Renewable hydrocarbons (diesel type fraction)
EU REACH registration number	01-2119450077-42-XXXX
ES Reference	05

1. Title of exposure scenario	
Main title	Use as Intermediate - Industrial
Process Scope	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).
Main sector	SU3 Industrial uses
Environment	
Environmental release category	ERC6a Use of intermediate
SPERC	ESVOC SPERC 6.1a.v1
Worker	
Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions. PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition. PROC4 Chemical production where opportunity for exposure arises. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities. PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities. PROC15 Use as laboratory reagent.

2. Conditions of use affection exposure (Industrial – Environment 1)	
Amounts used	
	Fraction of EU tonnage used in region: 1
	Daily amount per site: ≤ 50 t
	Annual amount per site: ≤ 15 000 t
Frequency and duration of use	
	Emission days: 300 days/year
Other given operational conditions affecting environmental exposure	
Emission factor - air	0.002%
Emission factpr – water	0.001%
Emission factor – soil	0.1%
Environmental factors not influenced by risk management measures	

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100

Risk management measures

STP type	Aerobic biological treatment
STP details	Assumed domestic sewage treatment plant flow (m^3/day): 2000.

Conditions and measures related to external treatment of waste for disposal

Waste treatment	Dispose of waste in accordance with environmental legislation.

Conditions and measures related to external recovery of waste

Recovery method	Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

2. Conditions of use affection exposure (Workers – Health 1)

Product characteristics

Physical state	Liquid
Concentration details	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).

Human factors not influenced by risk management measures

Potentially exposed body parts	PROC 1, PROC 3, PROC 15: Covers skin contact area up to 240 cm^2. Palm of one hand. PROC 2, PROC 4: Covers skin contact area up to 480 cm^2. Palm of both hands. PROC 8a, 8b: Covers skin contact area up to 960 cm^2. Both hands.

Other given operational conditions affecting workers exposure

Setting	Indoor use.
Temperature	≤ 40°C
Ventilation rate	1 -3 air changes per hour Unless otherwise stated. Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures

General exposures (closed systems) (PROC 1)

No specific measures identified.

General exposures (closed systems). With sample collection. With occasional controlled exposure. (PROC 2)

No specific measures identified.

General exposures (closed systems). Batch process. (PROC 3)

No specific measures identified.

General exposures (open systems). Batch process. With sample collection. (PROC 4)

No specific measures identified

Sampling. (PROC 8b)

No specific measures identified.

Laboratory activities (PROC 15)

Provide adequate general and local exhaust ventilation.

Wear suitable gloves tested to EN374.
Recommendation:
Handle in a fume cupboard or under extract ventilation.
Bulk transfers (closed systems) (PROC 8b)
No specific measures identified.
Equipment cleaning and maintenance. (PROC 8a)
Provide adequate general and local exhaust ventilation.
Recommendation:
Drain down and flush system prior to equipment break-in or maintenance. Wear suitable gloves tested to EN374.
Storage (PROC 1, PROC 2)
No specific measures identified.

3. Exposure estimation (Environment 1)	
Assessment method	Used Petrorisk model.

4. Exposure estimation (Health 1)	
Assessment method	Used CHESAR model.

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Use as a fuel – Industrial (ES 06)

Identification	
Product Name	Renewable hydrocarbons (diesel type fraction)
EU REACH registration number	01-2119450077-42-XXXX
ES Reference	06

1. Title of exposure scenario	
Main title	Use as a fuel – Industrial
Process Scope	Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.
Main sector	SU3 Industrial uses
Environment	
Environmental release category	ERC7 Use of functional fluid at industrial site
SPERC	ESVOC SPERC 7.12a.v1
Worker	
Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC15 Use as laboratory reagent. PROC16 Use of fuels

2. Conditions of use affection exposure (Industrial – Environment 1)

Amounts used

Fraction of EU tonnage used in region: 1
Daily amount per site: ≤ 5000 t
Annual amount per site: ≤ 10 000 t

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	0.025%
Emission factpr – water	0.001%
Emission factor – soil	0 %

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100

Risk management measures

STP type	Aerobic biological treatment
STP details	Assumed domestic sewage treatment plant flow (m^3/day): 2000.

Conditions and measures related to external treatment of waste for disposal

Disposal method	Dispose of waste in accordance with environmental legislation.

Conditions and measures related to external recovery of waste

Recovery method	Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

2. Conditions of use affection exposure (Workers – Health 1)

Product characteristics

Physical state	Liquid
Concentration details	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).

Human factors not influenced by risk management measures

Potentially exposed body parts	PROC 1, PROC 3, PROC 15, PROC 16: Covers skin contact area up to 240 cm^2. Palm of one hand. PROC 2, PROC 4: Covers skin contact area up to 480 cm^2. Palm of both hands. PROC 8a, 8b: Covers skin contact area up to 960 cm^2. Both hands.

Other given operational conditions affecting workers exposure

Setting	Indoor use.
Temperature	≤ 40 °C
Ventilation rate	1 - 3 air changes per hour Unless otherwise stated. Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures

Bulk transfers (PROC 4)
Recommendation:
Wear suitable gloves tested to EN374.
Drum/batch transfers (PROC 8b)
Provide adequate general and local exhaust ventilation.
Recommendation:
Use drum pumps or carefully pour from container.
Wear suitable gloves tested to EN374.
Bulk transfers (PROC 8b)
Recommendation:
Use drum pumps or carefully pour from container.
Wear suitable gloves tested to EN374.
General exposures (closed systems). Continuous process (PROC 1)

No specific measures identified.

General exposures (closed systems). Continuous process With sample collection (PROC 2)

Recommendation:

Ensure material transfers are under containment or extract ventilation.

General exposures (closed systems). Batch process. (PROC 3)

Recommendation:

Ensure material transfers are under containment or extract ventilation.

General exposures (open systems) (PROC 16)

Recommendation:

Ensure material transfers are under containment or extract ventilation.

Process sampling (PROC 3)

Recommendation:

Wear suitable gloves tested to EN374.

Equipment cleaning and maintenance (PROC 8a)

Provide adequate general and local exhaust ventilation.

Recommendation:

Drain down and flush system prior to equipment break-in or maintenance. Wear suitable gloves tested to EN374.

Vessel and container cleaning (PROC 8a)

Provide adequate general and local exhaust ventilation.

Recommendation:

Drain down and flush system prior to equipment break-in or maintenance.

Provide enhanced general ventilation by mechanical means.

If above technical/organisational control measures are not feasible, then adopt following PPE:

Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Wear suitable gloves tested to EN374. Wear suitable coveralls to prevent exposure to the skin.

Storage (PROC 1, PROC 2)

No specific measures identified.

Refuelling (PROC 8b)

Recommendation:

Use drum pumps or carefully pour from container. Use vapour recovery units when necessary. Wear suitable gloves tested to EN374.

Laboratory activities (PROC 15)

Recommendation:

Handle in a fume cupboard or under extract ventilation. Wear suitable gloves (tested to EN374), coverall and eye protection.

3. Exposure estimation (Environment 1)	
Assessment method	Used Petrorisk model.

4. Exposure estimation (Health 1)

Assessment method	Used CHESAR model

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Use as a fuel – Professional (ES 14)

Identification	
Product Name	Renewable hydrocarbons (diesel type fraction)
EU REACH registration number	01-2119450077-42-XXXX
ES Reference	14

1. Title of exposure scenario	
Main title	Use as a fuel - Professional
Process Scope	Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.
Main sector	SU22 Professional uses
Environment	
Environmental release category	ERC9a Widespread use of functional fluid (indoor) ERC9b Widespread use of functional fluid (outdoor)
SPERC	ESVOC SPERC 9.12b.v1
Worker	
Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC16 Use of fuels

2. Conditions of use affection exposure (Industrial – Environment 1)	
Amounts used	
	Fraction of EU tonnage used in region: 0.1
	Daily amount per site: ≤ 160 kg
Frequency and duration of use	
	Emission days: 365 days/year
Other given operational conditions affecting environmental exposure	
Emission factor - air	0.01 %
Emission factor – water	0.001 %
Emission factor – soil	0.001 %
Environmental factors not influenced by risk management measures	
Dilution	Local freshwater dilution factor: 10
	Local marine water dilution factor: 100

Risk management measures

STP type	Aerobic biological treatment
STP details	Assumed domestic sewage treatment plant flow (m^3/day): 2000.

Conditions and measures related to external treatment of waste for disposal

Disposal method	Dispose of waste in accordance with environmental legislation.

2. Conditions of use affection exposure (Workers – Health 1)

Product characteristics

Physical state	Liquid
Concentration details	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).

Human factors not influenced by risk management measures

Potentially exposed body parts	PROC 1, PROC 3, PROC 16: Covers skin contact area up to 240 cm^2. Palm of one hand. PROC 2: Covers skin contact area up to 480 cm^2. Palm of both hands. PROC 8a, 8b: Covers skin contact area up to 960 cm^2. Both hands.

Other given operational conditions affecting workers exposure

Setting	Indoor use.
Temperature	≤ 40 °C
Ventilation rate	1 - 3 air changes per hour Unless otherwise stated.

Risk management measures

Bulk transfers. Heating oil and diesel deliveries. (PROC 8b)
Provide adequate general and local exhaust ventilation.
Recommendation:
Handle substance within a closed system. Wear suitable gloves tested to EN374.
Drum/batch transfers (PROC 8b)
Provide adequate general and local exhaust ventilation.
Recommendation:
Use drum pumps or carefully pour from container. Wear suitable gloves tested to EN374.
Refuelling (PROC 8b)
Provide adequate general and local exhaust ventilation.
Recommendation:
Use drum pumps or carefully pour from container. Wear suitable gloves tested to EN374.
Dipping, immersion and pouring. (PROC 8b)
Wear suitable gloves tested to EN374.
General exposures (PROC 1, PROC 2, PROC 3, PROC 16)
No specific measures identified.
Equipment cleaning and maintenance (PROC 8a)
Provide adequate general and local exhaust ventilation.
Recommendation:

Drain down and flush system prior to equipment break-in or maintenance. Wear suitable gloves tested to EN374.

Vessel and container cleaning. (PROC 8a)

Provide adequate general and local exhaust ventilation.

Recommendation:

Drain down and flush system prior to equipment break-in or maintenance. Wear suitable gloves tested to EN374.

Storage (PROC 1, PROC 2)

No specific measures identified.

3. Exposure estimation (Environment 1)	
Assessment method	Used Petrorisk model.

4. Exposure estimation (Health 1)	
Assessment method	Used CHESAR model.

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Use as a fuel – Consumer (ES 23)

Identification	
Product Name	Renewable hydrocarbons (diesel type fraction)
EU REACH registration number	01-2119450077-42-XXXX
ES Reference	23

1. Title of exposure scenario	
Main title	Use as a fuel - Consumer
Process Scope	Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.
Product category	PC13 Fuels.
Main sector	SU21 Consumer uses
Environment	
Environmental release category	ERC9a Widespread use of functional fluid (indoor) ERC9b Widespread use of functional fluid (outdoor)
SPERC	ESVOC SPERC 9.12c.v1
Non-industrial	
Product sub-category	PC13_1 Liquid: automotive refuelling PC13_2 Liquid: scooter refuelling PC13_3 Liquid: garden equipment - use PC13_4 Liquid: Garden equipment - Refuelling PC13_5 Liquid: lamp oil PC13_6 Liquid: home space heater fuel PC13_n Liquid: refuelling of boats

2. Conditions of use affection exposure (Non-industrial – Environment 1)	
Amounts used	
	Fraction of EU tonnage used in region: 0,1 Daily amount per site: ≤ 550 kg
Frequency and duration of use	
	Emission days: 365 days/year
Other given operational conditions affecting environmental exposure	
Emission factor - air	0.01 %
Emission factpr – water	0.001 %
Emission factor – soil	0.001 %
Environmental factors not influenced by risk management measures	
Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
Risk management measures	
Technical measures	Indoor/outdoor use.
STP type	Aerobic biological treatment
STP details	Assumed domestic sewage treatment plant flow (m^3/day): 2000.
Conditions and measures related to external treatment of waste for disposal	

Disposal method	Dispose of waste in accordance with environmental legislation.

2. Conditions of use affection exposure (Non-industrial – Health 1)

Product characteristics

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

Amounts used

PC13_1 Liquid: automotive refuelling
For each use event, covers use amounts up to 38.6 kg.
PC13_2 Liquid: scooter refuelling
For each use event, covers use amounts up to 7.5 kg.
PC13_3 Liquid: garden equipment - use
For each use event, covers use amounts up to 772 g.
PC13_4 Liquid: Garden equipment - Refuelling
For each use event, covers use amounts up to 772 g.
PC13_5 Liquid: lamp oil
For each use event, covers use amounts up to 100 g.
PC13_6 Liquid: home space heater fuel
For each use event, covers use amounts up to 3320 g.
PC13_n Liquid: refuelling of boats
For each use event, covers use amounts up to 156 kg.

Frequency and duration of use

Covers use up to 1 time(s)/day.
PC13_1 Liquid: automotive refuelling
Covers exposure up to 0.05 hours per event.
(occasional use over a year)
PC13_2 Liquid: scooter refuelling
Covers exposure up to 0.02 hours per event.
(frequent use over a year)
PC13_3 Liquid: garden equipment - use
Covers exposure up to 2 hours per event.
(occasional use over a year)
PC13_4 Liquid: Garden equipment - Refuelling
Covers exposure up to 0.03 hours per event.
(occasional use over a year)
PC13_5 Liquid: lamp oil
Covers exposure up to 0.01 hours per event.
(occasional use over a year)
PC13_6 Liquid: home space heater fuel
Covers exposure up to 0.1 hours per event.
(frequent use over a year)
PC13_n Liquid: refuelling of boats
Covers exposure up to 0.25 hours per event.
(infrequent use over a year)

Human factors not influenced by risk management measures

Potentially exposed body parts	Palm of one hand. Unless otherwise stated. PC13_4 Liquid: Garden equipment - Refuelling : Palm of both hands.

Other given operational conditions affecting non-industrial exposure

Setting	Outdoor use. Unless otherwise stated. PC13_5 Liquid: lamp oil : Indoor/outdoor use

Other given operational conditions affecting non-industrial exposure

Avoid contact with skin, eyes and clothing. Wash promptly if skin becomes contaminated. All handling should only take place in well-ventilated areas. Do not ingest. If swallowed, then seek immediate medical assistance.

3. Exposure estimation (Environment 1)

Assessment method	Used Petrorisk model.

4. Exposure estimation (Health 1)

Assessment method	Used CHESAR model.