

Material Safety Data Sheet HVO100

Item number: 30-038



Revision date: April 28th, 2022

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

1.1. Product identifier:

Chemical name: Renewable hydrocarbons (diesel type fraction)

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

Identified uses: Formulation & (re)packing of substances and mixtures, (ES 02)
Distribution of substance, (ES 04)
Use as an intermediate, (ES 05)
Use as a fuel, (ES 06, 14, 23)

1.3. Details of the supplier of the safety data sheet:

UCY business services & trading GmbH
Street: Am Villepohl 4
Post code / town: DE-53347 Alfter
Phone: +49 228 2428 732
Facsimile: +49 228 2428 731
E-mail: sales@ucy-energy.com

1.4. Emergency telephone number:

+49 228 19 240 (Poison Information Centre, GER)
+43 1 406 43 43 (Poison Information Centre, AUT)
+41 44 251 51 51 (Tox Info Suisse)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture (Classification (EC) No. 1272/2008)

Physical hazards: Not Classified
Health hazards: Asp. Tox. 1 - H304
Environmental hazards: Not Classified

2.2. Label elements (Regulation (EC) No. 1272/ 2008)

Hazard pictograms:



Signal word: Danger

Contains: Renewable hydrocarbons (diesel type fraction)

Hazard statements: H304
May be fatal if swallowed and enters airways.

Material Safety Data Sheet HVO100

Item number: 30-038



Precautionary statements:

P301+P310 IF SWALLOWED: Immediately call a POISON CENTRE / doctor.

P331 Do NOT induce vomiting.

P501 Dispose of contents/container in accordance with national regulations.

Supplemental label information:

EUH066 Repeated exposure may cause skin dryness or cracking.

2.3. Other hazards:

Combustible liquid. Risk of soil and ground water contamination.

SECTION 3: Composition/information on ingredients

3.1. Substances:

CAS No.	EC-No.
928771-01-1	618-882-6

Other information: A complex combination of hydrocarbons produced by hydrotreating renewable raw materials. It consists of hydrocarbons having carbon numbers predominantly in the C10 to C20 range and boiling in the range from 180° C to 320° C. Total aromatics content: max. 1.0 %m.

SECTION 4: First aid measures

4.1. Description of first aid measures:

Inhalation:

Unlikely to be hazardous due to low vapour pressure of the product at ambient temperature. If spray/mist has been inhaled, proceed as follows. Remove person to fresh air and keep comfortable for breathing. Get medical attention if symptoms are severe or persist.

Skin contact:

Remove contaminated clothing immediately and wash skin with water and soap. Get medical attention if irritation persists after washing.

Eye contact:

Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation persists after washing.

Ingestion:

Do not induce vomiting. Get medical attention immediately.

Material Safety Data Sheet HVO100

Item number: 30-038



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

General information: Repeated exposure may cause skin dryness or cracking, Spray/mist may cause irritation of respiratory tract. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.

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

Notes for the doctor: Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media:

Suitable extinguishing media:

Water spray, foam, dry powder, carbon dioxide.

Unsuitable extinguishing media:

Water jet, will spread burning fuel and fire.

5.2. Special hazards arising from the substance or mixture:

Specific hazards:

Combustible liquid. Containers can burst violently or explode when heated, due to excessive pressure build-up.

Hazardous combustion products:

Carbon Monoxide (CO); Carbon Dioxide (CO₂)

5.3. Advice for firefighters:

Protective actions during firefighting:

Cool containers exposed to heat with water spray and remove from the fire area if can be done without risk.

Special protective equipment for firefighters:

Wear positive-pressure, self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures:

Personal precautions:

Wear adequate protective equipment at all operations.

For emergency responders:

Prevent unauthorised access. 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. Avoid spillage or runoff to enter drains, sewers or watercourses. Inform relevant authorities if environmental pollution occurs (sewers, waterways, soil or air). Risk of soil and ground water contamination.

Material Safety Data Sheet HVO100

Item number: 30-038



6.3. Methods and material for containment and cleaning up:

Methods for cleaning up: Immediately begin clean-up of the liquid and contaminated soil. Contain spillage with sand, earth or other suitable non-combustible material. Pay attention to the fire and health hazards caused by the product.

6.4. Reference to other sections:

Reference to other sections: For personal protection see section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling:

Usage precautions: Avoid heat, flames and other sources of ignition. Take precautionary measures against static discharges. All handling should only take place in well-ventilated areas. Avoid inhalation of vapours and contact with skin and eyes. Use personal protective equipment and/or local ventilation when needed. Do not eat, drink or smoke when using this product. Wash hands and any other contaminated areas of the body with soap and water before leaving the work site. During tank operations follow special instructions (risk of oxygen displacement and hydrocarbons).

7.2. Conditions for safe storage, including any incompatibilities:

Storage precautions: Flammable liquid storage. Store in accordance with local regulations. Store in a demarcated bunded area to prevent release to drains and/or watercourses. Take precautions against leakage by constructing collecting pools and sewerage systems as well as by surfacing the loading and unloading stations. Only store in correctly labelled containers. Use containers made of the following materials: Carbon steel. Stainless steel.

7.3. Specific end use(s):

Specific end use(s): Not known.

SECTION 8: Exposure controls / personal protection

8.1. Control parameters:

Ingredient comments: The individual limit values can be applied for the hydrocarbons. Diesel fuel as total hydrocarbons; ACGIH TLV®-TWA (8h) 100 mg/m³ (IFV).

PNEC: Not available.

DNELs:

Workers:	Inhalation; Long term systemic effects: 147 mg/m ³ Dermal; Long term systemic effects: 42 mg/kg/day
Consumer:	Inhalation; Long term systemic effects: 94 mg/m ³ Dermal; Long term systemic effects: 18 mg/kg/day

Material Safety Data Sheet HVO100

Item number: 30-038



8.2. Exposure controls:

Appropriate engineering controls:

All handling should only take place in well-ventilated areas. Use personal protective equipment and/or local ventilation when needed. Handle in accordance with good industrial hygiene and safety practice. During tank operations follow special instructions (risk of oxygen displacement and hydrocarbons).

Respiratory protection:

Filter device/half mask Combination 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 (< 19 vol.-%). At high concentrations a breathing apparatus must be used (self-contained or fresh air hose breathing apparatus). Filter must be changed often enough. Respirator according to standard EN 140.

Hand protection:

Wear protective gloves. It is recommended that gloves are made of the following material: Nitrile rubber. Neoprene. Polyvinyl chloride (PVC). The selected gloves should have a breakthrough time of at least 4 hours. Protection class 5. Protective gloves according to standards EN 420 and EN 374. Change protective gloves regularly.

Eye / face protection:

Tight-fitting safety glasses.

Other skin and body protection:

Wear suitable protective clothing as protection against splashing or contamination. Wear antistatic protective clothing if there is a risk of ignition from static electricity.

Environmental exposure controls:

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

Material Safety Data Sheet HVO100

Item number: 30-038



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties:

Appearance:	Liquid
Colour:	Clear
Odour:	Mild
Odour threshold:	-
pH:	-
Melting point:	Pour point: < -20°C @ 1013 hPa (BS4633, EC A1)
Initial boiling point and range:	180-320°C (EN ISO 3405)
Flash point:	> 61°C (EN ISO 2719, EC A9)
Upper/lower flammability or explosive limits:	-
Vapour pressure:	0,087 kPa @ 25°C (EC A4)
Vapour density:	-
Relative density:	0,77 - 0,79 @ 15/4°C (EN ISO 12185, EC A3)
Solubility(ies):	Insoluble in water. ~ 0,075 mg/l water @ 25°C (calculated) Soluble in the following materials: Methanol. Hydrocarbons.
Partition coefficient:	log Kow: > 6,5 (EC A8)
Auto-ignition temperature:	204°C (EC A15)
Decomposition Temperature:	-
Viscosity:	Kinematic viscosity 4.0 mm ² /s @ 20°C 2.6 mm ² /s @ 40°C (OECD 114) Dynamic viscosity ≤ 5 mPa s @ 20°C
Explosive properties:	Not considered to be explosive. (EC A14)
Oxidising properties:	Does not meet the criteria for classification as oxidising.

9.2. Other information:

Other information: Not known

Material Safety Data Sheet HVO100

Item number: 30-038



SECTION 10: Stability and reactivity

- 10.1. Reactivity:** There are no known reactivity hazards associated with this product.
- 10.2. Chemical stability:** Stable at normal ambient temperatures and when used as recommended.
- 10.3. Possibility of hazardous reactions:** No potentially hazardous reactions known.
- 10.4. Conditions to avoid:** Keep away from heat, sparks and open flame.
- 10.5. Incompatible materials:** Oxidising agents.
- 10.6. Hazardous decomposition products:** Does not decompose when used and stored as recommended.

SECTION 11: Toxicological information

11.1. Information on toxicological effects:

- Toxicological effects:** Based on available data the classification criteria are not met.
- Skin corrosion / irritation:** Based on available data the classification criteria are not met, (EC B4). Repeated exposure may cause skin dryness or cracking. The product irritates mucous membranes and may cause abdominal discomfort if swallowed. May cause respiratory system irritation.
- Serious eye damage / irritation:** Based on available data the classification criteria are not met. (EC B5)
- Skin sensitisation:** Based on available data the classification criteria are not met. (EC B6)
- Germ cell mutagenicity:** Based on available data the classification criteria are not met. (EC B10, B13/14 & B17)
- Carcinogenicity:** Based on available data the classification criteria are not met.
- Reproductive toxicity:** Based on available data the classification criteria are not met. (OECD 416)
- Specific target organ toxicity - single exposure:** Not classified as a specific target organ toxicant after a single exposure.
- Specific target organ toxicity - repeated exposure:** Based on available data the classification criteria are not met. (OECD 408)
- Aspiration hazard:** May be fatal if swallowed and enters airways. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.

Material Safety Data Sheet HVO100

Item number: 30-038



Acute toxicity – oral

Notes (oral LD₅₀): LD₅₀ > 2000 mg/kg, Oral, Rat (EC B1 tris)

Acute toxicity – dermal

Notes (dermal LD₅₀): LD₅₀ > 2000 mg/kg, Dermal, Rat (EC B3)

SECTION 12: Ecological Information

12.1. Toxicity: Based on available data the classification criteria are not met.

Acute toxicity

Fish: LL₅₀, 96 hours: > 1000 mg/l, WAF (OECD 203)
Aquatic invertebrates: EL₅₀, 48 hours: > 100 mg/l, WAF (OECD 202)
Aquatic plants: EL₅₀, 72 hours: > 100 mg/l, Algae, WAF (OECD 201)
Microorganisms: EC₅₀, 30-180 minutes: > 1000 mg/l, Micro-organisms (wastewater sludge), (OECD 209)

Chronic toxicity

Aquatic invertebrates: NOEC, 21 days: 1 mg/l,
LOEC, 21 days: 3,2 mg/l,
WAF (OECD 211)
Sediment organisms: NOEC, 10 days: 373 mg/kg,
LOEC, 10 days: 1165 mg/kg,
LC₅₀, 10 days: 1200 mg/kg,
(OSPAR Protocols, Part A: Sediment Bioassay, 2005)

12.2. Persistence and degradability:

Stability (hydrolysis): No significant reaction in water
Biodegradation: Rapidly degradable (OECD 301B)

12.3. Bioaccumulative potential:

Bioaccumulative potential: Possibly bioaccumulative
Partition coefficient: log *k*_{ow} > 6,5 (EC A8)

12.4. Mobility in soil:

Evaporates slowly. The product has poor water-solubility. The product contains substances which are bound to particulate matter and are retained in soil. Log *k*_{oc} > 5.6 (EC C19).

Material Safety Data Sheet HVO100

Item number: 30-038



12.5. Results of PBT and vPvB assessment:

Results of

PBT and vPvB assessment: This product does not contain any substances classified as PBT or vPvB.

12.6. Other adverse effects: Not known.

13. SECTION 13: Disposal considerations

13.1. Waste treatment methods:

Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Product residues retained in emptied containers can be hazardous. Waste packaging should be collected for reuse or recycling.

SECTION 14: Transport information

Sea transport notes: This cargo is considered an Energy-rich fuel and effective 1 January 2019 should be carried subject to Annex I of MARPOL, see Annex 12 of MEPC.2/Circ.24. Please also refer to MEPC.1/Circ.879 - GUIDELINES FOR THE CARRIAGE OF ENERGY-RICH FUELS AND THEIR BLENDS

14.1. UN number:

RID/ADR UN-No: 1202

IMDG UN-Nr.: Not classified under IMDG.

14.2. UN proper shipping name:

RID/ADR

proper shipping name: UN 1202 DIESEL FUEL / DIESELKRAFTSTOFF

14.3. Transport hazard class(es):

RID/ADR class: 3

ADN subsidiary risk: F (floater)

14.4. Packing group:

RID/ADR packing group: III

14.5. Environmental hazards:

Environmentally hazardous

substance / marine pollutant: no.

Material Safety Data Sheet HVO100

Item number: 30-038



14.6. Special precautions for user:

Hazard Identification Number

(ADR/RID): 30

Tunnel restriction code: (D/E)

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code:

Transport in bulk according to

Annex II of MARPOL 73/78 and

the IBC Code: Not applicable.

SECTION 15: Regulatory information

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

EU legislation:

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).

Commission Regulation (EU) No 2015/830 of 28 May 2015.

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

15.2. Chemical safety assessment:

A chemical safety assessment has been carried out.

SECTION 16: Other information:

Key literature and references:

Regulation (EC) No. 1907/2006 (Reach)

Regulation (EC) No. 1272/ 2008 (CLP-Regulation)

Commission Regulation (EU) No. 2015/830 of 28 May 2015

Material Safety Data Sheet HVO100

Item number: 30-038



Supersedes date:	31.03.2020
Revision comments:	Aligning of translation, corrections.
DSD-DPD labels:	Xn – Health hazard
R-phrases:	R65 Harmful: may cause lung damage if swallowed R66 Repeated exposure may cause skin dryness or cracking.
S-phrases:	S62 If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label where possible.

Material Safety Data Sheet HVO100

Item number: 30-038



Exposure scenario

Distribution of Substance – Industrial

1. Title of exposure scenario

Main title	Distribution of substance – Industrial
Main sector	SU3: Industrial uses
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.

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.

Material Safety Data Sheet HVO100

Item number: 30-038



2. Conditions of use affecting exposure (Industrial - Environment 1)

Amounts used

Fraction of EU tonnage used in region: 1
Daily amount per site: ≤ 5000 t
Annual amount per site: $\leq 1\,500\,000$ t

Frequency and duration of use

Emission days: 300 days / year

Other given operational conditions affecting environmental exposure

Emission factor – air	0,001%
Emission factor – 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
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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.
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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.
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2. Conditions of use affecting exposure (Workers- Health 1)

Product characteristics

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

Material Safety Data Sheet HVO100

Item number: 30-038



Frequency and duration of use

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

Human factors not influenced by risk management

Potentially exposed body parts

PROC 3, PROC 15: Covers skin contact area up to 240 cm². Palm of one hand.

PROC 2, PROC 9: Covers skin contact area up to 480 cm². Palm of both hands.

PROC 8a, 8b: Covers skin contact area up to 960 cm². 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.

Material Safety Data Sheet HVO100

Item number: 30-038



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.

3. Exposure estimation (Health 1)

Assessment method: Used CHESAR model.

Material Safety Data Sheet HVO100

Item number: 30-038



Exposure scenario

Formulation & (re)packing – Industrial

1. Title of exposure scenario

Main title	Formulation & (re)packing - Industrial
Main sector	SU3: Industrial uses
Process scope	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

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

Material Safety Data Sheet HVO100

Item number: 30-038



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 affecting exposure (Industrial - Environment 1)

Amounts used

Fraction of EU tonnage used in region: 1
Daily amount per site: ≤ 100 t
Annual amount per site: $\leq 1\,500\,000$ t

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor – air	0,25%
Emission factor – 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
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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.
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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.
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Material Safety Data Sheet HVO100

Item number: 30-038



2. Conditions of use affecting 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

Potentially exposed body parts	PROC1, 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.
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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.

Material Safety Data Sheet HVO100

Item number: 30-038



	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.

3. Exposure estimation (Health 1)

Assessment method: Used CHESAR model.

Material Safety Data Sheet HVO100

Item number: 30-038



Exposure scenario

Use as a fuel – Industrial

1. Title of exposure scenario

Main title	Use as a fuel - Industrial
Main sector	SU3: Industrial uses
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.
<u>Environment</u>	
Environmental release category	ERC7 Use of functional fluid at industrial site
SPERC	ESVOC SPERC 7.12a.v1
<u>Worker</u>	
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

Material Safety Data Sheet HVO100

Item number: 30-038



2. Conditions of use affecting 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 factor - 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
(m³/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 affecting 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).

Material Safety Data Sheet HVO100

Item number: 30-038



Human factors not influenced by risk management

Potentially exposed body parts	<p>PROC1, PROC 3, PROC 15, PROC16: Covers skin contact area up to 240 cm². Palm of one hand.</p> <p>PROC 2, PROC 4 Covers skin contact area up to 480 cm². Palm of both hands.</p> <p>PROC 8a, 8b: Covers skin contact area up to 960 cm². Both hands.</p>
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Other given operational conditions affecting workers exposure

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

Risk management measures

Bulk transfers (PROC 4)	Recommendation: Wear suitable gloves tested to EN374.
Drum/batch transfers (PROC 8b)	<p>Provide adequate general and local exhaust ventilation.</p> <p>Recommendation: Use drum pumps or carefully pour from container. Wear suitable gloves tested to EN374.</p>
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.

Material Safety Data Sheet HVO100

Item number: 30-038



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.

3. Exposure estimation (Health 1)

Assessment method:

Used CHESAR model.

Material Safety Data Sheet HVO100

Item number: 30-038



Exposure scenario

Use as a fuel – Professional

1. Title of exposure scenario

Main title	Use as a fuel - Professional
Main sector	SU22: Professional uses
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.
<u>Environment</u>	
Environmental release category	ERC9a Widespread use of functional fluid (indoor) ERC9b Widespread use of functional fluid (outdoor)
SPERC	ESVOC SPERC 9.12b.v1
<u>Worker</u>	
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

Material Safety Data Sheet HVO100

Item number: 30-038



PROC8b Transfer of substance or mixture
(charging and discharging) at dedicated facilities

PROC16 Use of fuels

2. Conditions of use affecting 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
(m³/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 affecting exposure (Workers- Health 1)

Product characteristics

Physical state Liquid

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

Material Safety Data Sheet HVO100

Item number: 30-038



Frequency and duration of use

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

Human factors not influenced by risk management

Potentially exposed body parts

PROC1, PROC 3, PROC16: Covers skin contact area up to 240 cm². Palm of one hand.

PROC 2: Covers skin contact area up to 480 cm². Palm of both hands.

PROC 8a, 8b: Covers skin contact area up to 960 cm². 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.

Material Safety Data Sheet HVO100

Item number: 30-038



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.

3. Exposure estimation (Health 1)

Assessment method: Used CHESAR model.

Material Safety Data Sheet HVO100

Item number: 30-038



Exposure scenario

Use as a fuel – Consumer

1. Title of exposure scenario

Main title	Use as a fuel - Consumer
Main sector	SU21: Consumer uses
Product category	PC13 Fuels
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.

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
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2. Conditions of use affecting exposure (Non-industrial - Environment 1)

<u>Amounts used</u>	Fraction of EU tonnage used in region: 0,1 Daily amount per site: ≤ 550 t
<u>Frequency and duration of use</u>	Emission days: 365 days/year

Material Safety Data Sheet HVO100

Item number: 30-038



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
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Risk management measures

Technical measures	Indoor/outdoor use
STP type	Aerobic biological treatment
STP details	Assumed domestic sewage treatment plant flow (m³/day): 2000.

Conditions and measures related to external treatment of waste for disposal

Disposal method	Dispose of waste in accordance with environmental legislation.
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2. Conditions of use affecting exposure (Non-industrial - Health 1)

Product characteristics

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

Material Safety Data Sheet HVO100

Item number: 30-038



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 156,0 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 2,00 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

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.

Material Safety Data Sheet HVO100

Item number: 30-038



3. Exposure estimation (Environment 1)

Assessment method: Used Petrorisk model.

3. Exposure estimation (Health 1)

Assessment method: Used CHESAR model.

Material Safety Data Sheet HVO100

Item number: 30-038



Exposure scenario

Use as Intermediate – Industrial

1. Title of exposure scenario

Main title	Use as Intermediate - Industrial
Main sector	SU3: Industrial uses
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).

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

Material Safety Data Sheet HVO100

Item number: 30-038



PROC8b Transfer of substance or mixture
(charging and discharging) at dedicated facilities

PROC15 Use as laboratory reagent.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Amounts used

Fraction of EU tonnage used in region: 1
Daily amount per site: ≤ 50 t
Annual amount per site: $\leq 15\,000$ t

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor – air	0,002%
Emission factor – 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
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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.
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Conditions and measures related to external recovery of waste

Recovery method	Retain drain-downs in sealed storage pending disposal or for subsequent recycle.
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Material Safety Data Sheet HVO100

Item number: 30-038



2. Conditions of use affecting 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

Potentially exposed body parts

PROC1, PROC 3, PROC 15: Covers skin contact area up to 240 cm². Palm of one hand.
PROC 2, PROC 4: Covers skin contact area up to 480 cm². Palm of both hands.
PROC 8a, 8b: Covers skin contact area up to 960 cm². 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.

Material Safety Data Sheet HVO100

Item number: 30-038



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.

3. Exposure estimation (Health 1)

Assessment method: Used CHESAR model.