HVO

Material safety data sheet according to (EC) No 1907/2006

Section 1: Identification of the substance/mixture and of the company

1.1 Product identifier

Product name:	HVO (Hydrotreated Vegetable Oils)

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

Relevant identified uses:	Fuel for diesel engines; Diesel mixed component
Uses advised against:	Other uses are not supported.

1.3 Details of the supplier of the safety data sheet

Supplier:	MB Energy GmbH Am Strandkai 1 20457 Hamburg GERMANY
Tel.:	+49 (0)40 37004 0
Fax:	+49 (0)40 37004 7173
Information provided to technical issues by:	Kevin Tatzki Kevin.Tatzki@gma-qm.de +49 (0)40 37004 7642

1.4 Emergency telephone number

Giftinformationszentrum-Nord:	+49 (0)551 192 40

Section 2: Hazards identification

2.1 Classification of the substance or mixture

2.1.1 Classification according to (EC) No 1272/2008

This mixture is classified as hazardous according to (EC) No 1272/2008.

Aspiration toxicity, Category 1; H304

For the full text of hazard statement mentioned in this section, see section 16.

2.2 Label elements

2.2.1 Labelling according to regulation (EC) No 1272/2008

Hazard pictogram

GHS08

Signal Word: DANGER

Hazard statements

H304	– May be fatal if swallowed and enters airways.
EUH066	- Repeated exposure may cause skin dryness or cracking.

Precautionary statements

P301 + P310	– If swallowed: Immediately call a poison center or doctor/physician.
P331	– Do not induce vomiting.
P501	– Dispose of contents/container in accordance with national regulations.

2.3 Other hazards

Flammable substance

Section 3: Composition/information on ingredients

3.1 Substance

Component	Product identifier	%[1)]	Classification according to Regulation (EC) No 1272/2008	Specific concentration limits, M-factors and ATEs
Renewable hydrocarbons (diesel type fraction)	(EG No) 700-571-2 (CAS No) - (REACH registration no.) 01-2120043692-58-0017	> 99	Asp. Tox., Cat. 1; H304	

[1)] Concentration is indicated in vol.-%.

For the full text of hazard statements see section 16.

3.2 Mixtures

Not applicable.

Section 4: First aid measures

4.1 Description of first aid-measures

Inhalation: If breathing problems or other symptoms of exposure occur, remove affected person from source of exposure and put into a comfortable position in the fresh air. If symptoms persist, seek medical attention immediately. If person is not breathing, initiate artificial respiration immediately. If person has respiratory problems oxygen should be supplied by qualified personnel. Seek medical help immediately.

Skin contact: Remove contaminated shoes and clothing and rinse affected area with water. If the skin surface is damaged, apply sterile cover and seek medical help. If the skin surface is not damaged, clean affected area thoroughly by washing with mild soap and water or a waterless hand cleanser. If irritation or redness develops, seek medical help. Clean contaminated clothing before reuse. If the product is injected into or under the skin or any body part, the person should be immediately examined by a physician, regardless of appearance and size of the wound.

Eye contact: Flush eyes with clean water if irritation occurs. If symptoms persist, consult a doctor.

Chocking: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause lung damage. If victim is drowsy or unconscious put person in safety position. If possible, do not leave the person unattended and continuously monitor breathing. Seek medical help.

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. 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

Acute: At high vapor concentrations, respiratory irritation, dizziness, nausea, fatigue, headache and other CNS effects are possible.

Delayed: Dry skin and possible irritation with repeated or prolonged exposure.

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

Symptomatic treatment. Oral ingestion of the product can be identified by the characteristic odor. When ingested, give no milk, alcohol or other degreasing agents. If necessary start oxygen breathing. On vomiting, danger of entering the lungs. Monitor circulatory system.

Section 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing agents: Dry chemical, carbon dioxide or foam is recommended. Spray is recommended to cool exposed materials or structures or to protect them. Carbon dioxide can displace oxygen. Caution in the use of carbon dioxide in confined spaces.

Inappropriate extinguishing agents: Do not use water jet in order to prevent scatter and the spread of the fire. Do not use water and foam on the same surface, as water dissolves the foam.

5.2 Special hazards arising from the substance

Unusual exposure risks: This material may ignite by heat, sparks, flames or other sources of ignition (e.g. static electricity, lights or mechanical / electrical equipment and electronic devices such as mobile phones, computers, calculators, and pagers which have not been certified as safe). Fumes can bridge considerable distances to a source of ignition, ignite there, explode or cause a flash back. Has the potential to form explosive atmosphere within enclosed buildings, in tight spaces, outside or in sewers. Vapors are heavier than air and can accumulate near the ground. If container is not properly cooled, it can explode due to the heat of the fire.

Dangerous decomposition products: Combustion may form smoke, carbon monoxide and other products of incomplete combustion. The formation of nitrogen oxides and sulfur oxides is also possible.

5.3 Advice for fire-fighting

In case of a large fire or in confined or poorly ventilated spaces, wear full fire resistant protective clothing and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Cool down any tanks and surfaces exposed to fire by spraying abundantly with water. Use water to cool tanks and parts exposed to the thermal flux not caught up in the flames. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Isolate fire immediately, advice unauthorized people to leave the area. Remove undamaged container from the danger zone if this can be done safely. Water spray may be useful to restrict the formation of vapor and to disperse it, and to protect persons. Avoid spreading burning liquid with cold water. Cool any equipment exposed to fire with water, if this can be done safely. See Section 9 for inflammatory properties, including flash point and flame (explosion)-limits.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Spilled product constitutes a fire hazard and can form an explosive atmosphere. Keep away all sources of ignition and hot metal surfaces from spilled product. The use of explosion-proof electrical equipment is recommended. Keep upwind and away from the spilled product. Avoid direct contact with the product. Additionally, wear other appropriate protective equipment, as required (refer to section 8). See Sections 2 and 7 for further information on hazards and precautions. In case of accidental release notify the authority responsible in accordance with all applicable regulations.

6.2 Environmental precautions

Stop overflow / release, if this can be done safely. Prevent spilled material from entering into drains, other unofficial drainage systems and natural waterways. Use water sparingly to avoid contamination, especially of the environment. If spilled product contaminates water, notify the authorities responsible and inform them of the hazardous materials.

6.3 Methods and materials for containment and cleaning up

Inform authorities responsible in accordance with applicable regulations. Immediate purification of spillages is recommended. Absorb spilled material with inert material (e. g. sand), then place in an appropriate waste container. If spilled product contaminates water use appropriate methods for decontamination (e. g. skimming, barrier, absorbent). In case of soil contamination refer to local regulations for remediation or disposal.

6.4 Reference to other sections

Protection measures in section 7, 8 and 13.

Section 7: Handling and storage

7.1 Precautions for safe handling

Keep away from ignition sources such as heat / sparks / open flames. No smoking. Take precautionary measures against static discharges. Do not use any sparking tools. Do not handle until all safety precautions have been read and understood. Do not breathe vapors and mists. Use only outside or in well ventilated areas. Wear protective gloves / protective clothing and eye / face protection. Wash hands after handling this product thoroughly. Wear appropriate personal protective equipment. Flammable. Open container slowly to release pressure. Electrostatic charge may accumulate and create a hazardous situation when handling or processing this product. To prevent a fire or explosion, the static electricity must be grounded before the transfer of the product. The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes for specific requirements regarding potential equalization / ground). Do not enter confined spaces such as tanks or pits, without having made appropriate arrangements. Do not wear contaminated clothing or shoes. Keep contaminated clothing away from ignition sources such as sparks or open flames. Product can easily evaporate at ambient temperature. Vapors are heavier than air and may form an explosive mixture. Caution! Accumulation of the explosive mixture in confined spaces and low-lying areas. Only for use as fuel. Due to its flammability and its potentially toxic properties do not use as solvent. Siphoning by mouth can cause a dangerous or fatal pulmonary aspiration. The use of hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of combustion products (e. g., carbon monoxide, sulfur and nitrogen oxides, benzene and other hydrocarbons) and / or dangerously low oxygen concentrations. Emissions from Diesel Oil combustion containing hazardous combustion products and are classified as potentially carcinogenic to humans.

High pressure injection of hydrocarbon fuels, hydraulic oils or greases under the skin may have serious consequences even though no symptoms and no visible injury is present.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed and properly labelled. Use this material in cool, dry, well-ventilated area away from heat, direct sunlight, hot metal surfaces, and all ignition sources. Keep only in suitable containers. Mark area with "smoking and open flames not permitted". Keep away from incompatible materials (see section 10). Protect containers against physical damage. "Empty" containers retain residue and can be dangerous. Do not pressurize, cut, weld, drill, grind, or heat, these containers. They may explode and cause injury. "Empty" drums should be completely drained, properly closed, and should be sent immediately to the supplier or other appropriate recyclers. All containers should be disposed of in an environmentally safe manner and in accordance with state regulations. Before working on or in tanks which contain or have contained this material, consult regarding cleaning repair, welding, or other scheduled work in the corresponding instructions. Separate storage or outside storage is recommended. Storage in buildings must meet the standards of the countries or commission and the relevant fire safety codes.

7.3 Specific end uses

See section 1.2. For further information consult the attached, supplementary exposure scenarios.

Section 8: Exposure controls/personal protection

8.1 Control parameters

Not relevant.

8.2 Limiting and monitoring of the exposure

Respiratory protection: If the exposure to air exceeds the exposure limit wear an approved air-purifying respirator with Type A filter for organic gases and vapors.

Eye/face protection: Eye protection that meets or exceeds EN 166 is recommended to protect against potential eye contact, irritation or injury. Depending on the operating conditions, a tightly seated eye and face protection is necessary.

Skin protection and handguard: Wearing impervious gloves, which are insensitive to the particular product, is recommended to avoid skin contact. Users should check with the manufacturer to verify the tightness of their products. Depending on the exposure and use, an additional protection is required in order to avoid contact with the skin, including chemical resistant boots, aprons, hoods, coveralls, or full body suits. Proposed protective materials: nitrile rubber or viton.

Technical measures: If current ventilation practices are not sufficient to keep concentrations below the established exposure limits, additional engineering controls may be required.

Other protective equipment: A safety shower and an eye shower should be located in the work area. Clean contaminated clothing and shoes before reuse.

Exposure controls: see section 6, 7, 12 and 13.

The proposals outlined in this section in terms of exposure control and specific types of protective equipment are based on readily available information. Users should confirm the performance of their protective equipment by contacting the specific manufacturer. Special circumstances may make it necessary to contact a specialist for good hygiene and safety.

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Data represents typical values and is not intended for specification purposes.

Physical state:	Liquid
Colour:	Clear colourless to light yellow
Odour:	Typical petroleum
Melting point/freezing point:	- 20 at 101.325 kPa
Boiling point and boiling range:	N/A
Flammability:	Yes
Lower and upper explosion limit:	N/A
Flash point:	> 61 °C at 101.325 kPa
Auto-ignition temperature:	204 °C
Decomposition temperature:	N/D

pH:	N/A
Kinematic viscosity:	4 mm^2/s at 20 °C
Solubility:	Soluble in organic solvents. Insoluble in water.
Partition coefficient n-octanol/water (log value):	> 6.5
Vapour pressure:	< 1 kPa at 25 °C
Relative density:	0.77 – 0.79 kg/L at 15 °C
Relative vapour density:	> 1 (Air = 1)
Particle characteristics:	N/A

9.2 Other information

Vapors are heavier than air.

Section 10: Stability and reactivity

10.1 Reactivity

Chemically unreactive.

10.2 Chemical stability

Stable under normal temperature and intended use.

10.3 Possibility of hazardous reactions

No dangerous reactions are expected.

10.4 Conditions to avoid

Prevent high temperatures and sources of ignition. Prevent vapor accumulation.

10.5 Incompatible materials

Prevent contact with strong oxidizing agents and strong reducing agents.

10.6 Hazardous decomposition products

No hazardous decomposition products when properly stored / handled / transported. Un-complete combustion / thermal decomposition of lead, among other things will generate smoke, carbon dioxide, carbon monoxide, sulfur oxide and nitrogen oxide (NO_x).

Section 11: Toxicological information

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

11.1.1 Substance information

Acute toxicity:	The mixture is classified as not toxic LC_{50} = 2000 mg/m^3, 4 h, rat, oral LD_{50} > 2000 mg/kg, rat, dermal absorption. Low toxic. Based on test data from structurally similar materials (test equivalent or similar to OECD guidelines 434). Test results or other study results do not meet the criteria for classification.
Irritation:	Substance is no irritating to the skin.
Sensitization:	Substance is no sensitizing.

Repeated dose toxicity:	Test results and other study results show no evidence of acute systemic toxic effects.
Carcinogenicity:	This product does not meet the criteria for classification as a carcinogenic.
Germ cell mutagenicity:	This product does not meet the criteria for classification as a germ cell mutagen.
Reproductive toxicity:	This product does not meet the criteria for classification as toxic for reproduction.

11.1.2 Mixture information

Skin and eye contact are the main routes of exposure. Exposure may also be possible by inhalation or accidental ingestion.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Contains no substances with known endocrine-disrupting properties for human health.

Section 12: Ecological information

12.1. Toxicity

Based on available data, the classification criteria are not met

	Acute:	**Chronic:**
Fish toxicity:	$LL_{50} \geq 1000$ mg/l (96 h)	EL 10 (28 days, QSAR Petrotix): 5.497 mg/l
Daphnia toxicity:	$EL_{50} \geq 100$ mg/l (48 h)	NOEL (21 days, QSAR Petrotox): 1 mg/l
Toxicity to algae:	$E_rL_{50} \geq 100$ mg/l (72 h)	-

12.2 Persistence and degradability

Product is considered inherently biodegradable. Some hydrocarbon components of the mixture may meet the criteria for persistence. Other ingredients can be easily degraded by microorganisms under aerobic conditions.

12.3 Bioaccumulative potential

The majority of the components have a high potential for bioaccumulation. Compounds having lower molecular weights can be degraded easily. The bioaccumulation potential of compounds of higher molecular weight is due to the low water solubility and the size of molecules not of high importance.

12.4 Mobility in soil

Release in the water result in a hydrocarbon film that floats on the surface and spreads. For the lighter components, evaporating is an important loss process that reduces the risk to aquatic organisms. The photo-oxidation on the surface of water is a significant positive process, especially for polycyclic aromatic compounds. In water, the majority of the components will be absorbed in the sediment. The adsorption is the predominant physical process of the release into the soil. Adsorbed hydrocarbons are degraded in the water and in the soil slowly.

12.5 Results of vPvB assessment

The mixture is neither a PBT nor a vPvB substance, according to the result of the review.

12.6 Endocrine disrupting properties

This substance has no relevant endocrine disrupting properties for non-target organisms because it does not meet the criteria set out in Section B of Regulation (EU) No 2017/2100.

12.7 Other adverse effects

German water hazard class: hazardous (class 2).

Section 13: Disposal considerations

13.1 Waste treatment methods

This material - if discarded as produced - is in accordance with directive 2008/98/EG hazardous waste.

Product disposal: Send to a licensed waste contractor. If possible the product should be recycled. The contact of spilled material with soil, waterways, drains and sewers must be avoided. Empty containers represent a fire hazard as they may contain flammable product residues and vapor. Never weld or braze empty containers.

EWC Waste Disposal No.: 13 07 01 "fuel oil and diesel". The listed waste code represents only a recommendation. The waste producer is responsible for the concrete specification of the waste. However, deviation from the intended use and / or contaminants may require an alternative waste disposal key number by the end user.

Legislation for waste treatment

Disposal:	Directive 2008/98/EC
Incineration:	Directive 2010/75/EC
Landfilling:	Directive 1999/31/EC

In addition, other national and regional rules apply.

Section 14: Transport information

14.1 UN number or ID-number

UN number: 1202

14.2 Proper UN shipping name

ADR/RID/ADN/ADNR: DIESEL FUEL

IMDG-Code/ICAO-TI/IATA-DGR: Diesel fuel

14.3 Transportgefahrenklassen

14.3.1 Land transport (ADR/RID) / Inland water transport (ADN/ADNR) / Sea transport (IMDG-Code) / Air transport (ICAO-TI/IATA-DGR)

Transport hazard class: 3

14.4 Packing Group

Packing Group: III

14.5 Environmental hazard

Environmental hazard: no

14.6 Special precautions for the user

If this material is transported on ships in international waters, MARPOL Annex 1 must be fulfilled.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable.

Section 15: Regulatory information

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

15.1.1 EU rules

Regulation (EC) No. 1907/2006:	Annex XVII, No. 3
Guideline 96/82/EC (Seveso II):	The product is subject to the Seveso directive.
European standard for PPE:	EN 166:2002 Eye protection EN 529:2005 Respirators EN 374-1:2016 Protective gloves against chemicals and microorganisms Directive 89/686/EEC PPE
Risks related to exposure to carcinogens or mutagens at work Directive 2004/37/EC:	The product is subject to the Directive 2004/37/EC.
Measures to encourage improvements in the safety and health at work of pregnant workers and workers who have recently given birth or are breastfeeding RL 92/85/EEC:	The product is subject to the Directive 92/85/EEC.

15.1.2 National regulations (Germany)

Technische Anleitung Luft (TA Luft):	See the sections 5.2.5 in accordace to 5.4.9 TA Luft.
Störfall-Verordnung (12. BImSchV):	The product is subject to the german "Störfall-Verordnung".
German water hazard class:	WGK 1 (AwSV).
Other regulations:	Observe Professional Association Principles for occupational medical examinations, Occupational Exposure Limits, german Water Act and technical codes.

15.2 Chemical safety assessment

For this substance a chemical safety assessment has been carried out.

Section 16: Other information

Date of issue: 02.02.2026

Revision of sheet dated: 20.05.2025

Revised sections: Section 1 – Section 16

Replaces the safety data sheet for HVO from Mabanaft Deutschland GmbH.

Full text of hazard statements

H304 May be fatal if swallowed and enters airways.

Important literature and data sources that was used to compile the safety data sheet

The data comes from several sources (manufacturer, CONCAWE EU IUCLID database, BAuA, ECHA, etc.)

Abbreviations and Acronyms

ACGIH	= American Conference of Industrial Hygienists
BImSchV	= Verordnung zur Durchführung des Bundes-Immissionsschutzgesetzes
DFG	= Deutsche Forschungsgruppe
OECD	= Organisation for Economic Co-operation and Development
IOELV	= Indicative Occupational Exposure Limit Value
N/A	= Not applicable
N/D	= Not determined
NOAEL	= No Observed Adverse Effect Level
NOEC	= No Observed Effect Level Concentration
PSA/PPE	= Persönliche Schutzausrüstung/ Personal Protective Equipment
STEL	= Short Term Exposure Limit (Kurzzeitexpositionsgrenze; 15 Minuten)
TRGS	= Technische Regeln für Gefahrstoffe
TRK	= Technische Richtkonzentration
TWA	= Time Weighted Average (zeitgewichteter Durchschnitt; 8 Stunden)
UVCB	= Stoffe mit unbekannter oder Variabler Zusammensetzung, komplexe Reaktionsprodukte und biologische Materialien
WGK	= Wassergefährdungsklasse
L_{50}	= effective loading rate lethal to 50 % of the test population
E_rL_{50}	= effective loading rate that causes 50 % reduction in algal growth rate
LL_{50}	= Lethal loading rate required to kill 50 % of test population
EL_{50}	= Effect Load for 50 % of the test population
PBT	= Persistent, bioaccumulative, toxic
vPvB	= very persistent, very bioaccumulative

Note: The information in this MSDS is based on our current knowledge and experience. These data is not a guarantee of the properties of the product. The use of the product for other use than intended can be dangerous. Data contained in this MSDS does not release the user from the obligation to inform themselves about current regulations and apply them to his work. He has to bear the sole responsibility for the precautions required when using this product.