

Ethanol

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: Ethanol, ethanol up to 99.9 % vol., bioethanol (EN 15376)

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

Relevant identified uses: Only for use as fuel for gasoline engines, and in engines that are approved for this fuel.

Uses advised against: Other uses are not supported.

1.3 Details of the supplier of the safety data sheet

1.4 Emergency telephone number

Supplier: Mabanft Deutschland GmbH Am
Strandkai 1 20457 Hamburg
GERMANY

Tel.: +49 (0)40 37004 0

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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.

Flammable liquids, Category 2; H225

Eye irritation; Category 2; H319

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 [CLP]

Hazard pictogram



GHS02

GHS07

Signal Word: DANGER

Hazard statements

H – Highly flammable liquid and vapour.
H – Causes serious eye irritation.

Precautionary statements

Ethanol

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

P101	– If medical advice is needed, have product container or label at hand.
P102	– Keep out of reach of children.
P210	– Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P264	– Wash ... thoroughly after handling.
P280	– Wear protective gloves/protective clothing/eye protection/face protection.
P303 + P361 + P353	– IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].– If swallowed: Immediately call a poison center or doctor/physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P403 + P233	– Store in a well ventilated place. Keep container tightly closed.
P501	– Dispose of contents/container according to local/regional/national/international regulations.

2.3 Other hazards

Does not meet the criteria for persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB) substances.

The material can accumulate static charge, followed by combustion. This can be prevented by the use of suitable additives, or by avoiding large flow rates.

Liquid evaporates quickly and can ignite and cause a burst of flame.

Section 3: Composition/information on ingredients

3.1 Substance

Component	Product identifier	% ¹⁾	Classification according to Regulation (EC) No. 1272/2008
Ethanol	(EGNr.) 2005786 (CASNr.) 64175 (REACH RegistrierungsNr.) 01211945761043	≥ 98	Flam. Liq., Cat. 2; H225 Eye Irrit., Cat. 2; H319

¹⁾ Concentration is indicated in vol. %.

For the full text of the Rphrases and 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 person has respiratory problems oxygen should be supplied by qualified person. If symptoms persist, seek medical attention immediately.

Skin contact: Remove contaminated shoes and clothing and rinse affected area with water. If irritation persists, consult a doctor.

Eye contact: Rinse immediately with plenty of water for at least 15 minutes, also under the eyelids. Remove any contact lenses if possible. Do not use neutralising agents. If eye irritation persists, consult a doctor.

Chocking: Rinse mouth with water. Do not induce vomiting. Drink water in small sips (dilution effect). Consult a doctor if symptoms persist.

Ethanol

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

Protection of firstaiders: 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 selfcontained breathing apparatus. It may be dangerous to the person providing aid to give mouthtomouth resuscitation

4.2 Most important symptoms and effects, both acute and delayed

Acute: Headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue.

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

4.3 Indication of any immediate medical attention and special treatment needed

Note to physician: Possible symptoms: respiratory disorder, fainting, headache, nausea, drowsiness, dizziness.

Risks: Risk of circulatory collapse, Risk of respiratory disorders.

Treatment: Symptomatic treatment, if necessary provide oxygen. On vomiting, danger of entering the lungs. Monitor circulatory system.

Section 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing agents: Alcoholresistant foam, carbon dioxide, dry chemical

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 or mixture

Unusual exposure risks: Ethanol easily evaporates at ambient temperature. Evaporated product is heavier than air and therefore it can accumulate near the ground. Even distant ignition sources can be dangerous.

Fire an explosion protection: Keep away from sources of ignition, do not smoke and avoid open fire. Take precautionary measures against static discharges.

5.3 Advice for firefighters

In case of a large fire with open flames wear full fire resistant protective clothing and selfcontained breathing apparatus (SCBA) with a full facepiece operated in positive pressure mode.

Isolate fire immediately, advice unauthorized people to leave the area. Stop the release of the product, if this can be done safely. 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.

Ethanol

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

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Highly flammable. 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 explosionproof 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

When product contaminates drains, other unofficial drainage systems and natural waterways inform the authority. Prevent spilled material from entering into drains, other unofficial drainage systems and natural waterways. Use water sparingly to avoid contamination, especially of the environment.

6.3 Methods and materials for containment and cleaning up

Absorb spillage with suitable liquidbinding material and dispose of impregnated material according to regulations.

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

Information for safe handling: Avoid spills and the formation of aerosols. When using this product do not eat, drink or smoke. Materials, which are used for absorption of the product, represent a fire hazard.

When decanting larger quantities without an extraction system: Respiratory Protection.

Personal protective equipment: Use suitable respirator, eye protection, safety glasses, antistatic boots.

Hand protection: Gloves.

Information about fire and explosion protection: Keep away from ignition sources, do not smoke. Electrostatic charge may accumulate and create a hazardous situation when handling or processing this product. Vapours are heavier than air and may spread and can form explosive mixtures. To prevent a fire or explosion, the static electricity must be grounded before the transfer of the product. The use of explosionproof electrical equipment is recommended and may be required.

7.2 Conditions for safe storage, including any incompatibilities

Portable containers: Static electricity can ignite ethanol vapors when filling portable containers. For the storage of ethanol use only approved container. Place the container before filling it to the ground. Do not fill a portable container on a vehicle or ship. Keep container tightly closed and properly labelled. Store this material in cool, dry, wellventilated areas away from heat, direct sunlight, hot metal surfaces and all kinds of ignition sources. Mark storage area with "no smoking and open flames". Keep away from incompatible materials (see section 10). Protect container against physical damage.

"Empty" containers retain residues 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.

Ethanol

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

7.3 Specific end uses(s)

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

Section 8: Exposure controls/personal protection

8.1 Control parameters

Ethanol (CAS Nr. 64-17-5)

ACGIH:

STEL: 1000 ppm

TRGS:

AGW: 200 ppm

AGW: 380 mg/m³

DNEL Worker

Chemical name	Acute, systemic effects	Acute, local effects	Long term, systemic effects	Long term, local effects
Ethanol 64175		1900 mg/ ³ /15min (inhalation)	343 mg/kg/8h (dermal) 950 mg/kg/8h (inhalation)	

DNEL Customer

Chemical name	Acute, systemic effects	Acute, local effects	Long term, systemic effects	Long term, local effects
Ethanol 64-17-5		950 mg/ ³ /15min (inhalation)	206 mg/kg/24h (dermal) 114 mg/kg/24h (inhalation) 87 mg/m ³ /24h (oral)	

Predicted no effect concentration (PNEC)

Chemical name	Water	Sediment	Soil	Air	STP	Oral
Ethanol 64175	0,96 mg/l aqua-freshwater(fw) 0,79 mg/l aquamarine water(mw) 2,75 mg/l aquantermittent releases(or)	3,6 mg/kg d.w.				0,72 g/kg food

8.2 Exposure controls

Respiratory protection: If the exposure to air exceeds the exposure limit wear an approved airpurifying respirator with Type A filter for organic gases and vapours. A respiratory program that complies with the recommendations in EN 529:2005, must always be followed when the use of an respirator in the workplace is required. Airpurifying respirators are providing limited protection and should not be used in atmospheres that exceed a maximum concentration (according to the regulations or instructions of the manufacture).

Skin protection and hand protection: 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 re-quired to avoid

Ethanol

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

contact with the skin, including chemical resistant boots, aprons, hoods, coveralls, or full body suits. Proposed protective materials: nitrile rubber.

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 sealed eye and face protection is necessary.

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:	Colourless
Odour:	Like alcohol
Melting point/freezing point:	< - 114 °C at 101.325 kPa
Boiling point and boiling range:	78 °C °C at 101.325 kPa
Flammability:	Yes
Lower and upper explosion limit:	≥ 3,1 Vol.% in air, ≥ 27,7 Vol. % in air
Flash point:	13 °C at 101.325 kPa
Autoignition temperature:	363 °C - 425 °C at 101.325 kPa
Decomposition temperature:	N/B
pH:	ca. 7,0 (bei 20 °C)
Kinematic viscosity:	1,2 cSt at 40 °C
Solubility:	Soluble in water.
Partition coefficient octanol/water (log value):	Log (K _{ow}) ca. 0,320
Vapour pressure:	59 kPa at 37.8 °C
Relative density:	ca. 0,806 kg/m ³ at 0 °C ca. 0,789 kg/m ³ at 20 °C
Relative vapour density:	1,6
Particle characteristics:	N/A

9.2 Other information

None.

Ethanol

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

Section 10: Stability and reactivity

10.1 Reactivity

Vapours can form an explosive mixture with air. Soaked materials (e.g. clothing, cleaning cloths) present an increased risk of ignition.

10.2 Chemical stability

Stable under normal temperature and intended use.

10.3 Possibility of hazardous reactions

Reacts violently with many compounds, e.g.: with (strong) oxidising agents: (increased) risk of fire/explosion. Reacts violently to explosively with (some) acids

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

CO, CO₂ and formaldehyde are formed during combustion.

Section 11: Toxicological information

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

11.1.1 Information on relevant hazard classes

Acute toxicity:	The mixture is not classified as acutely toxic (based on available data, the classification criteria are not met). LC ₅₀ > 124,7 mg/l, 4 h, rat, intake by inhalation. LD ₅₀ > 10470 mg/kg, rat, ingestion.
Skin corrosion/irritation:	Substance is irritating to the skin. Repeated exposure may cause skin dryness or cracking.
Serious eye damage/eye irritation:	Moderately irritating to eyes.
Sensitization:	There are no test results or other study results showing that the substance potentially causes sensitization to skin or respiratory tract.
Germ cell mutagenicity:	In vivo tests (mouse) showed no mutagenic effects Method: OECD 478
Carcinogenicity:	Based on dermal studies, ethanol is not expected to have carcinogenic properties.
Reproductive toxicity:	Based on inhalation studies, ethanol is not expected to be toxic to reproduction.
Risk of aspiration:	There is a risk of absorption after inhalation.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Contains no substances with known endocrinedisrupting properties for human health.

Ethanol

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

Section 12: Ecological information

12.1. Toxicity

Ecotoxicological parameter	Value/assessment	Species	Method	Remark
Acute Fish toxicity	LC ₅₀ > 15300 mg/L (96 h)	<i>Pimephales promelas</i>	US EPA	
Acute toxicity Crustaceans	LC ₅₀ > 5012 mg/L (48 h)	<i>Ceriodaphnia dubia</i>	ASTM E72980	
Algae toxicity and other aquatic plants	ER ₅₀ > 275 mg/L (3 d)	<i>Chlorella vulgaris</i>	Equivalent to OECD 201	
Chronic Fish toxicity	ChV > 245 mg/L (30 d)	<i>Pisces</i>	US EPA	
Chronic toxicity of aquatic crustaceans	NOEC > 9,6 mg/L (9 d)	<i>Daphnia magna</i>	Miscellaneous	
Toxicity aquatic organisms	EC ₅₀ > 5800 mg/L (4 h)	<i>Paramecium caudatum</i>	Miscellaneous	

12.2 Persistence and degradability

The hydrocarbons in this material are readily biodegradable because their hydrocarbon components can be degraded by microorganisms. Method: OECD 301 E.

12.3 Bioaccumulative potential

The bioconcentration factor (BCF) is approximately 0.66. Log (KOW) values measured for ethanol are approximately 0.35 (OECD 107), therefore ethanol is not considered to be potentially bioaccumulative.

12.4 Mobility in soil

Very mobile in the ground.

12.5 Results of PBT and vPvB assessment

Ethanol 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 nontarget organisms because it does not meet the criteria set out in Section B of Regulation (EU) No 2017/2100.

12.7 Other adverse effects

If low concentrations are properly discharged into adapted biological sewage treatment plants, interference with the degradation activity of activated sludge is not to be expected. If handled as intended, no environmental damage is known or expected.

German water hazard class for ethanol: WGK 1 (slightly hazardous to water).

Section 13: Disposal considerations

13.1 Waste treatment methods

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

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

Ethanol

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

EWC Waste Disposal No.: The waste code numbers must be assigned in accordance with the European Waste Catalogue (EWC) on an industry and process specific basis. Please contact the local waste disposal company or the supplier/manufacturer.

Legislation for waste treatment

Disposal: Directive 2006/12/EC

Incineration: Directive 2000/76/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 : UN 1170

14.2 UN proper shipping name

ADR/RID/ADN/ADNR: ETHANOL

IMDG Code ETHANOL

ICAO TI/IATA DGR: ETHANOL

14.3 Transport hazard class(es)

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

Transport hazard class: 3



Additional information:

Land transport (ADR/RID)	Hazard number (Kemler number): 33; Classification code (ADR): F1; Tunnel code: D/E
Inland waterway transport (ADN/ADNR)	Hazard number (Kemler number): 33; Classification code (ADN): F1
Sea transport (IMDGCode)	Emergency plans ('EmS'): FE, SD, Congestion category: A
Air transport (ICAO TI/IATA DGR)	-

14.4 Packing group

Packing Group: II

14.5 Environmental hazards

Environmental hazard N/A

14.6 Special precautions for user

N/A

14.7 Maritime transport in bulk according to IMO instruments

Not applicable.

Ethanol

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

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.

Guideline 2000/76/EC:

Concerning waste incineration.

Guideline 1999/31/EC:

Concerning disposal of waste.

European standard for PPE:

EN 166:2002 Eye protection. EN 529:2005 Respirators.
EN 3741:2016 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):

Ethanol is not listed by name. However, the sections
5.2.5 and 5.2.7 must be observed.

Störfallverordnung (12. BImSchV):

The product is subject to the german
"Störfallverordnung".

German water hazard class:

WGK 1, schwach wassergefährdend (Classification
according to AwSV § 6 Absatz 4)

Other regulations:

Observe Professional Association Principles for occu-
pational medical examinations, Occupational Expo-
sure 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: 17.07.2024

Revision of sheet dated:

Revised sections: Section 1 – section 16

Full text of Rphrases and hazard statements

H225 Highly flammable liquid and vapour.

H319 Causes serious eye irritation.

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

N/A = Not applicable

N/B = Nicht bestimmt

PSA = Personal Protective Equipment

STEL = Short Term Exposure Limit (15 Minutes)

Ethanol

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

Abbreviations and Acronyms

TRGS	= Technische Regeln für Gefahrstoffe
TWA	= Time Weighted Average (8 Stunden)
UVCB	= unknown or variable composition, complex reaction products or biological materials
WGK	= Wassergefährdungsklasse
PBT	= persistent, bioaccumulating, toxic
vPvB	= very persistent and very bioaccumulative
LGK	= Lagerklasse gemäß TRGS 510
LC ₅₀	= Median lethal concentration for 50% of the animal test population
LD ₅₀	= Median lethal dose for 50% of the animal test population through exposure via inhalation
DNEL	= Derived No Effect Concentration
PNEC	= Predicted No Effect Concentration
dw	= dry weight
fw	= fresh water
mw	= marine water
or	= occasional release

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.