

ETHANOL

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION OF AND THE COMPANY UNDERTAKING

Commerical description
ETHANOL

Supplier
Greenergy Fuels Limited
198 High Holborn
London WC1V 7BD
United Kingdom

Telephone 020 7404 7700

2. COMPOSITION OF/ INFORMATION ON COMPONENTS

Usual chemical name	ETHANOL
Synoymys	ETHYL ALCOHOL – METHYL CARBINOL
C.A.S. number	64-17-5 (Ethanol)
EINECS number	200-578-6 (Ethanol)
Basic Formula	CH ₃ -CH ₂ -OH
Classificaiton	F;R11

3. HAZARDS IDENTIFICATION

Risks and effects on health

Presents no danger under normal conditions of industrial hygiene. Consumption of industrial ethanol has the same effects as alcoholic drinks: headaches, vertigo, drowsiness, unconsciousness/coma, with irritation of digestive mucous membranes (aggravated in the case of pure alcohol which is a dehydrant).

Irritation of respiratory tracts with headaches, vertigo, nausea, drowsiness in case of prolonged exposure by inhaling vapours.

Skin irritation through repeated contact.

Risks and effects on the environment

No appreciable risk to aquatic flora or fauna – non-bioaccumulative, rapidly biodegradable and volatilized.

Specific risks

Highly inflammable liquid.

Dangerous reaction with certain strong oxidants/oxidizing agents

4. FIRST AID MEASURES

Eye contact

Flush immediately with water for 15 minutes. Get medical attention if irritation occurs.

Skin contact

Soak immediately in water.

Remove contaminated clothing

Inhalation

If inhaled remove to fresh air. Get medical attention if symptoms appear.

Ingestion

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately.

5. FIRE FIGHTING MEASURES

Flammability:

Flammable liquid and vapour

Autoignition temperature

The lowest known value is 398.9°C.

Flashpoints

Closed cup: 11 to 14°C

Flammable limits

Lower >1.3%

Products of combustion

Carbon oxides

Unusual fire/explosion hazards

Highly flammable in presence of open flames, sparks and static discharge.

Vapour may cause flash fire. Vapours may accumulate in low or confined areas, travel considerable distance to source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Fire fighting media

Small fire: Use dry chemical powder.

Large fire: Do not fight fire when it reaches material. Withdraw from area and let the fire burn. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. First move people out of line-of-sight of the scene and away from windows. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion,

Particular means of intervention

Gentle application of foam (indirect spray)

Protection of firefighters

Wear equipment for tackling fire (thermal protection), including a positive pressure self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Individual precautions

No smoking – Remove any source of fire – Wear gloves and safety glasses – Avoid clothing that generates static electricity – Keep personnel out of range.

Precautions to safeguard the surrounding area

Pipe, pump or absorb using inert material (sand, earth, vermiculite).

Method of cleaning

Wash copiously with water.

Regenerate or burn off.

Environmental precautions

Prevent spills from entering storm sewers or drains and contact with soil.

7. HANDLING AND STORAGE

Handling

Persons with liver disorders and alcoholics must be isolated from tasks using alcohol.

Avoid contact with skin and eyes.

Wear gloves and safety glasses.

Avoid inhaling vapour – Breathing undispersed vapours – Do not handle near oxidizing products.

Do not use compressed air or oxygen when decanting.

Storage

Store in well ventilated areas.
Protect from any source of ignition, heat and oxidizing product.
Flooring should be water and fire proof – and reinforced.
Electrical equipment, including lighting, must be flame proofed.
A nitrogen blanket is recommended.

Packaging material to avoid
Aluminium

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Occupational exposure limites for ethanol
OEL: 5000 ppm (9,500 mg/m³).
OES: 1000 ppm (1,9000 mg/m³).

Respiratory protection

Wear appropriate mask in case of prolonged exposure at high concentrations.

Protection of hands

Wear appropriate gloves to prevent cutaneous irritation through repeated contact.

Protection of eyes

Wear safety glasses recommended whenever handling.

9. PHYSICAL AND CHEMICAL PROPERTIES**Appearance**

Physical state at 20°C:	Volatile, hygroscopic, unstable liquid.
Colour:	Colourless
Odour:	Pleasant
pH:	Not applicable in state in which it is delivered.
Temperature:	
Melting point:	-112°C
Boiling point:	> 76°C
Flashpoint:	13°C closed cup
Auto ignition point:	371°C

Expansion limits in % volume in air:	lower limit 3.3%
	Upper limit 19%
Vapour pressure:	at 20°C 5.85 kPa.
	at 34.9° 13.3 kPa.
	at 63.5°C 53.3 kPa.
Vapour density:	1.59 to 1.62 (air=1)
Volumetric mass:	0.789 g/cm ³ at 20°C
Solubility:	Soluble in water in any proportion.
	Soluble in alcohols, in diethyl oxide and most organic solvents.
Separation co-efficient	log Pow= -0.32

10. STABILITY AND REACTIVITY**Stability**

Chemically stable in normal conditions of industrial use.

Reactivity

Strong reaction with powerful oxidizers such as nitro-chromics, sulpho-chromics, nitric acid, perchlorates, peroxides and generally al unstable organic compounds or minerals rich in oxygen.

Reaction with alkaline metals produces a release of hydrogen and can be violent.

In the presence of silver nitrate or mercury nitrate, corresponding fulminates are produced which are explosive compounds.

Combustion produces carbon dioxide. Controlled oxidation leans mainly to aldehyde and acetic acid and, depending on conditions, formic aldehyde.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

By ingestion: Inebriation followed by more or less profound coma. Serious gastric injuries.

By inhalation: Irritation to eyes, coughing. These effects are transitory and disappear when exposure ends.

By splashing liquid in eye(s): Burning pain, weeping. Lasts 1-2 days. Spontaneous, rapid and complete healing.

Chronic toxicity

By chronic ingestion: Alcoholism characterized by behaviour, memory, digestive and cardio-vascular problems. In an industrial environment, risk of accidents due to problems of concentration and possible interaction with the toxic effects of other chemical products, notably chlorinated solvents, amides, oximes and thurames.

Through repeated inhalation: Irritation to eyes, upper respiratory tracts, headaches, fatigue, diminished concentration and awareness.

Locally related cutaneous contact can lead to irritation.

LD50 (oral, rat): 6200 mg/kg
LC 50 (inhalation, rat): > 8000 mg/l/4 h
LD50 (dermal, rabbit): > 20 000 mg/kg

12. ECOLOGICAL INFORMATION

Persistence/degradability

Ethanol dissolves quickly in water.

Bioaccumulation

Ethanol is not bioaccumulative.

Ecotoxicity

Ethanol presents no appreciable risk to aquatic flora or fauna. It is readily biodegradable and evaporates.

13. WASTE DISPOSAL CONSIDERATIONS

Ethanol can be regenerated or destroyed through incineration.

Do not pour residues down drains, treat them in conditions authorized by the current national and local regulations.

14. TRANSPORT INFORMATION

UN Number : 1170

	R.I.D./A.D.R Rail/road	I.M.D.G. Maritime	I.A.T.A. Air
Class	3 "Inflam. Liquid"	3 "Inflam. Liquid"	3 "Inflam. Liquid"
Packing Group	II	II	II

MATERIAL SAFETY DATA SHEET

Label	n°3	n°3	n°3
Danger/material code	33/1170	33/1170	33/1170

15. REGULATORY INFORMATION

Specific risk (classification/symbol)
Highly flammable/F.

Nature of risks
R11/Highly flammable.

Safety warnings

S2 Keep out of reach of children.
S7 Keep receptacle firmly shut.
S16 Keep isolated from any source of ignition – Do not smoke.

16. OTHER INFORMATION

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