Ethanol

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

1.1 Product identifier

Product name:	Ethanol
CAS Number:	64-17-5
EC Number:	200-578-6

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

Recommended use: Reagent for analysis, chemical production

1.3 Details of the supplier of the safety data sheet

Company name:	East Harbour Group Ltd Miranda House, The Quay Harwich, Essex, CO12 3HH United Kingdom
Telephone:	+44 (0) 333 242 0100
Email:	info@eastharbourgroup.com

1.4 Emergency telephone number

Emergency telephone:	0800 246 1274

Section 2: Hazardous identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008
Flammable liquids (Category 2), H225
Eye irritation (Category 2), H319

For the full text of the H-Statements mentioned in this Section, see Section 16

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008
Pictogram

Signal word Danger

Hazard statement(s)

H225	Highly flammable liquid and vapor.
H319	Causes serious eye irritation.

Precautionary statement(s)

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use non-sparking tools.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Supplemental Hazard Statements	none

Reduced Labelling (<= 125 ml)

Pictogram

Signal word	Danger
Hazard statement(s)	none
Precautionary statement(s)	none
Supplemental Hazard Statements	none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Section 3: Composition/information on ingredients

3.1 Substances

Formula:	C2H6O
Molecular weight:	46.07 g/mol
CAS-No.:	64-17-5
EC-No.:	200-578-6
Index-No.:	603-002-00-5

Component		Classification	Concentration
Ethanol			
CAS No. EC No. Index No.	64-17-5 200-578-6 603-002-00-5	Flam. Liq. 2; Eye Irrit. 2; H225, H319 Concentration limits: >= 50 %: Eye Irrit. 2A, H319;	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

Section 4: First aid measures

4.1 Description of first aid measures
General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air.
In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.
In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.
If swallowed
After swallowing, immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
2 Most important symptoms and effects, both acute and delayed The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

Section 5: Fire-fighting measures

5.1 Fire Fighting Media and Instructions:
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Pay attention to flashback.
Vapours are heavier than air and may spread along floors.
Development of hazardous combustion gases or vapours possible in the event of fire.
Forms explosive mixtures with air at ambient temperatures.

5.3 Advice for firefighters
In the event of fire, wear self-contained breathing apparatus.

5.4 Further information
Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains. Risk of explosion

6.3 Methods and material for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections
For disposal see section 13.

Section 7: Handling and storage

7.1 Precautions for safe handling
Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures
Change contaminated clothing. Wash hands after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Storage conditions
Keep container tightly closed in a dry and well-ventilated place.
Keep away from heat and sources of ignition.

Recommended storage temperature see product label.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

Ethanol

Section 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No	Value	Control Parameters	Basis
Ethanol	64-17-5	TWA	1,000 ppm 1,920 mg/m3	UK. EH40 WEL – Workplace exposure limits

8.2 Exposure controls

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact

Material: butyl-rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested: Butoject® (KCL 898) This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact

Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 120 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Body Protection

Flame retardant antistatic protective clothing.

Respiratory protection

Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Control of environmental exposure

Do not let product enter drains. Risk of explosion.

Ethanol

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Form: liquid Colour: colourless
Odor	Pungent
Odor Threshold	0.1 ppm
pH	7.0 at 10 g/l at 20 °C
Melting Point/freezing point	-144.0 °C at 1,013.25 hPa
Initial Boiling Point and Boiling Range	78.29 °C at 1,013 hPa
Flash Point	13 °C - closed cup
Evaporation Rate	No data available
Flammability (solid, gas)	No data available
Upper/Lower Flammability or Explosion Limits	Upper explosion limit: 13.5 %(V) Lower explosion limit: 2.5 %(V)
Vapor Pressure	0.57 hPa at 19.6 °C
Vapor Density	1.6
Relative Density	No data available
Water Solubility	1,000 g/l at 20 °C - completely miscible
Partition Coefficient: n-octanol/water	log Pow: -0.35 at 24 °C - Bioaccumulation is not expected.
Auto-ignition temperature	455 °C at 1,013 hPa - DIN 51794
Decomposition temperature	Distillable in an undecomposed state at normal pressure.
Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: 1.2 mPa.s at 20 °C0.54 - 0.59 mPa.s at 25 °C
Explosive properties	No data available
Oxidizing properties	No data available

Section 10: Stability and Reactivity

10.1 Reactivity	Vapours may form explosive mixture with air
10.2 Chemical Stability	The product is chemically stable under standard ambient conditions (room temperature).
10.3 Possibility of hazardous reactions	Risk of explosion/exothermic reaction with: hydrogen peroxide perchlorates perchloric acid Nitric acid mercury(II) nitrate permanganic acid Nitriles peroxi compounds

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	Strong oxidizing agents nitrosyl compounds Peroxides sodium Potassium Halogen oxides calcium hypochlorite nitrogen dioxide metallic oxides uranium hexafluoride iodides Chlorine Alkali metals Alkaline earth metals alkali oxides Ethylene oxide silver with Nitric acid silver compounds with Ammonia potassium permanganate with conc. sulfuric acid Risk of ignition or formation of inflammable gases or vapours with: halogen-halogen compounds chromium (VI) oxide chromyl chloride Fluorine hydrides Oxides of phosphorus platinum Nitric acid with potassium permanganate
10.4 Conditions to avoid	Warming
10.5 Incompatible materials	rubber, various plastics
10.6 Hazardous decomposition products	In the event of fire: see section 5

Section 11: Toxicological Information

11.1 Toxicological effects:

Acute toxicity

LD50 Oral - Rat - male and female - 10,470 mg/kg
(OECD Test Guideline 401)
LC50 Inhalation - Rat - male and female - 4 h - 124.7 mg/l
(OECD Test Guideline 403)
Dermal: No data available

Skin corrosion/irritation

Skin - Rabbit
Result: No skin irritation - 24 h
(OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit
Result: Causes serious eye irritation.
(OECD Test Guideline 405)

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative
(OECD Test Guideline 406)
Remarks: (in analogy to similar products)
The value is given in analogy to the following substances: Methanol

Germ cell mutagenicity
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: dominant lethal test
Species: Mouse
Application Route: Oral
Method: OECD Test Guideline 478
Result: Positive results were obtained in some in vivo tests.

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2. Acute Toxicity:
Repeated dose toxicity - Rat - male - Oral - NOAEL (No observed adverse effect level) - 1,730 mg/kg - LOAEL (Lowest observed adverse effect level) - 3,200 mg/kg irritant effects, respiratory paralysis, Dizziness, narcosis, inebriation, euphoria, Nausea, Vomiting
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Section 12: Ecological Information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Pimephales promelas (fathead minnow) - 15,300 mg/l - 96 h (US-EPA)
Toxicity to daphnia and other aquatic invertebrates	static test LC50 - Ceriodaphnia dubia (water flea) - 5,012 mg/l - 48 h Remarks: (ECHA)
Toxicity to algae	static test ErC50 - Chlorella vulgaris (Fresh water algae) - 275 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	static test IC50 - activated sludge - > 1,000 mg/l - 3 h (OECD Test Guideline 209)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 15 d Result: ca.95 % - Readily biodegradable. (OECD Test Guideline 301E)
Biochemical Oxygen Demand (BOD)	930 - 1,670 mg/g Remarks: (Lit.)
Theoretical oxygen demand	2,100 mg/g Remarks: (Lit.)

12.3 Bioaccumulative potential

Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

No interference with wastewater treatment plants are to be expected when used properly. Discharge into the environment must be avoided.

Section 13: Disposal considerations

13.1 Waste treatment methods

Waste disposal of substance:

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

Container disposal:

Dispose of as unused product.

Ethanol

Section 14: Transport Information

14.1 UN number

ADR/RID: 1170	IMDG: 1170	IATA: 1170

14.2 UN proper shipping name

ADR/RID: ETHANOL	IMDG: ETHANOL	IATA: Ethanol

14.3 Transport hazard class(es)

ADR/RID: 3	IMDG: 3	IATA: 3

14.4 Packaging group

ADR/RID: II	IMDG: II	IATA: II

14.5 Environmental hazards

ADR/RID: no	IMDG Marine pollutant: no	IATA: no

14.6 Special precautions for user
No data available

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

Section 15: Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

National legislation
Seveso III: Directive 2012/18/EU of the European FLAMMABLE LIQUIDS Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

Other regulations
Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical Safety Assessment
A Chemical Safety Assessment has been carried out for this substance.

Section 16: Other Information

Full text of H-Statements referred to under sections 2 and 3.

H225	Highly flammable liquid and vapor.
H319	Causes serious eye irritation.

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

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