



ILLOVO SUGAR (SOUTH AFRICA) LIMITED

Ethanol

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

1.1 Product identifier

Chemical name	Ethanol	FL-No.	02.078
Synonyms	Ethyl alcohol, Alcohol, Hydroxyethane.	FEMA-No.	2419
Formula	C ₂ H ₆ O	Annex-1 No.	603-002-00-5
Molecular mass	46,08		
CAS-No.	64-17-5		
EC-No.	200-578-6		
Registration number	01-2119457610-43-0184		

1.2 Relevant identified uses of the substance and uses advised against

Stimulant in alcoholic beverages, disinfectants, solvents, cleansing agents, pharmaceuticals, perfumes and flavourings, organic synthesis, anti-freezing agents, heat transfer agents, laboratory chemicals, intermediates.

1.3 Details of the supplier of the safety data sheet

Manufacturer	Illovo Sugar (South Africa) Limited
Address	72 Ballantrae Road Merebank, Durban, 4052 South Africa
Telephone number	+27 31 450 77 00
Telefax number	+27 31 462 91 14
E-mail address	sramsunder@illovo.co.za

1.4 Emergency telephone number

- Local South Africa	0800 17 27 43	
- International	+27 82 775 33 05	+31 622 94 63 83

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance

EU-GHS / CLP

Hazard Class and Category Code(s)	Flammable liquid	Flam. Liq. 2
	Serious eye irritation	Eye Irrit. 2

EU-DSD / DPD

Indication(s) of danger and R phrase(s)	Highly flammable	R11
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2.2 Label elements

EU-GHS / CLP

Hazard pictogram(s)



Signal word

Danger

Hazard statement(s)

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

Precautionary statements

P210 Keep away from heat / sparks / open flames / hot surfaces – No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical / ventilating / lighting equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P280 Wear protective gloves / protective clothing / eye protection protection.
P303 + P361 + P353 IF ON SKIN (or hair): Remove / Take off immediately all contaminated clothing. Rinse skin with water/shower.



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P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 If eye irritation persists: Get medical advice/attention.
P370 + P378 In case of fire: Use powder, alcohol-resistant foam, lots of water, carbon dioxide for extinction.
P403 + P235 Store in a well-ventilated place. Keep cool.
P501 Disposal: Dispose of contents / container to a specialised waste disposal plant in accordance with local / regional regulations.

2.3 Other hazards Ethanol does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006.

3. Composition / information on ingredients

Main constituent	Identity	Percentage
Ethanol	CAS-No. 64-17-5 EC No. 200-578-6	96 and 99,9 vol%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation Fresh air, rest and call a doctor, if necessary.
Skin contact Remove contaminated clothes, rinse skin with plenty of water or shower.
Eye contact First rinse with plenty of water (remove lenses if possible). If eye irritation persists: Get medical advice / attention.
Ingestion Rinse mouth, and call a doctor, if necessary.

4.2 Most important symptoms and effects, both acute and delayed

Acute symptoms and effects

Irritating to eyes.
Inhalation of high concentrations or ingestion may cause agitation, lack of coordination and/or narcosis.

Delayed symptoms and effects

Upon prolonged or frequent contact liver injury may occur.
May impair fertility. May cause harm to the unborn child. May cause harm to breastfed babies.
The reprotoxic effects have been determined after repeated excessive consumption of ethanol; these effects are not likely to occur through exposure below Occupational Exposure Limits in the working environment.
Long-term consumption of alcoholic beverages demonstrates an increase in the occurrence of breast cancer and colorectal cancer.

4.3 Indication of any immediate medical attention and special treatment needed

Not applicable.

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Powder, alcohol-resistant foam, lots of water, carbon dioxide; in case of fire in immediate surroundings all extinguishing agents permissible.

5.2 Special hazards arising from the substance

In case of fire toxic gases are formed (carbon monoxide and/or carbon dioxide)

5.3 Advice for firefighters

Keep containers cool with water spray.
Breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Removal of ignition sources.
Additional ventilation.



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Breathing protection with a filter for organic vapours.
Gloves, boots, protective clothing.

6.2 Environmental precautions

Prevent entry large amounts into surface waters, sewers or soil.

6.3 Methods and material for containment and cleaning up

Remove all sources of ignition or flammables that may come into contact with a spill.
Dam in large amounts spilled substance and carefully remove with explosion protected vacuum cleaner; recycle if possible. Wash away remainder with water; flush water into sewage.
Take up small amounts spilled product with an inert absorbent. Evaporate in the open air or dispose of as hazardous waste.

6.4 Reference to other sections

See also the sections 8 and 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Use only in well-ventilated areas.
Wear suitable protective clothing and gloves.
Use explosion protected electrical equipment and lighting.
Take precautionary measures against static discharges.
Keep away from sources of ignition – No smoking.

7.2 Conditions for safe storage, including any incompatibilities

Keep container in a well-ventilated place.
Keep container tightly closed.
Fireproof, separated from oxidants.

7.3 Specific end use(s)

If used as consumption alcohol: comply with food safety regulation (HACCP).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Country	Limit values				Notation
	8 hours (TWA)		Short term (15 min.)		
	mg/m ³	ppm	mg/m ³	ppm	
United Kingdom	1920	1000			
France	1900	1000	9500	5000	
Germany	960	500			
DNEL for workers					
Inhalation DNEL (short term, local)		1900 mg/m ³			(irritation respiratory tract)
Inhalation DNEL (long term, systemic)		950 mg/m ³			(carcinogenicity)
Dermal DNEL (long term, systemic)		343 mg/kg bw/day			(repeated dose toxicity)
DNEL for the general population					
Inhalation DNEL (short term, local)		950 mg/m ³			(irritation respiratory tract)
Inhalation DNEL (long-term, systemic)		114 mg/m ³			(carcinogenicity)
Dermal DNEL (long-term, systemic)		206 mg/kg bw/day			(repeated dose toxicity)
Oral DNEL (long-term, systemic)		87 mg/kg bw/day			(repeated dose toxicity)
PNEC					
PNEC aqua (freshwater)		0,96 mg/L			
PNEC aqua (marine water)		0,79 mg/L			
PNEC aqua (intermittent releases):		2,75 mg/L			
PNEC sediment (freshwater):		3,6 mg/kg sediment dw			
PNEC sediment (marine water):		2,9 mg/kg sediment dw			
PNEC soil		0,63 mg/kg soil dw			
PNEC STP (Sewage Treatment Plant)		580 mg/L			
PNEC oral (food chain)		0,72 g/kg food			



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8.2 Exposure controls

8.2.1 Appropriate engineering controls

Closed equipment.
Ventilation and local exhaust.

8.2.2 Individual protection measures, such as personal protective

a) Eye/face protection

Safety goggles.

b) Skin protection

Hand protection

Gloves butyl rubber 0,7 mm

Breakthrough time > 8 hours

Gloves neoprene 0,75 mm

Breakthrough time 2 – 3 hours

Other

Protective clothing.

c) Respiratory protection

In case of insufficient local exhaust and/or handling with open equipment: breathing protection with a filter for organic vapours (filter type A).

d) Thermal hazards

Not applicable.

8.2.2 Environmental exposure controls

Direct polluted air of the local exhaust ventilation out of the plant in a manner in accordance with environmental regulations.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Colourless liquid
Odour	Typical
Odour threshold (mg/m ³)	160
pH	Not applicable.
Melting point / freezing point (°C)	- 114
Initial boiling point and boiling range (°C)	78
Flash point (°C)	13 (96%) / 12 (99,9%)
Evaporation rate (butyl acetate=1)	2
Flammability (solid, gas)	Not applicable.
Upper/lower explosive limits (vol%)	2,5 – 13,5
Vapour pressure at 20 °C (mbar)	58,5
Vapour density (air=1)	1,6
Relative density (water=1) at 25 °C	0,803 (96%) / 0,785 (99,9%)
Solubility(ies)	
– Water solubility at 20 °C (g/l)	Miscible
– Fat solubility	Good
Partition coefficient (Log P) n-octanol/water	- 0,35
Auto-ignition temperature (°C)	363
Decomposition temperature	Not applicable.
Viscosity at 20 °C (mPa.s)	1,2
Explosive properties	Not applicable.
Oxidising properties	None

9.3 Other information

Miscibility with	Solvents
Conductivity (pS/m)	130.000
Heat of combustion: (kJ/kg)	29.685

10. STABILITY AND REACTIVITY

10.1 Reactivity

Not reactive.

10.2 Chemical stability

Stable.

10.3 Possibility of hazardous reactions

May react violently with very strong oxidising agents and strong mineral acids.



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10.4 Conditions to avoid

Avoid contact with open flames and warm surfaces.
Avoid contact with oxidants and strong mineral acids .

10.5 Incompatible materials

Aluminium at higher temperatures.

10.6 Hazardous decomposition products

Upon decomposition emits carbon monoxide and carbon dioxide.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Short-term hazards human

LD ₅₀ (oral, human) (mg/kg)	1.400
LD ₅₀ (oral, child) (mg/kg)	2.000

Short-term hazards animals

LD ₅₀ (oral, rat) (mg/kg)	10470 (OECD 401)
LD ₅₀ (dermal, rabbit) (mg/kg)	>15800 (OECD 402)
LC ₅₀ (inhalation, rat, 4 hours) (mg/l)	51 (OECD 403)

Information on likely routes of exposure

The substance may be absorbed into the body by inhalation and after ingestion.

Effects from short-term exposure

Irritating to eyes.

Inhalation of high concentrations or ingestion may cause agitation, lack of coordination and/or narcosis.

Most (95%) of the ethanol will rapidly be absorbed in the body and be converted into carbon dioxide and water via acetaldehyde and acetyl acetic acid. The rest is secreted directly.

- Inhalation	Coughing, headache, dizziness, dullness.
- Skin	Redness.
- Eyes	Redness, pain.
- Ingestion	Headache, dizziness, dullness.

Effects from long-term exposure

Upon prolonged or frequent contact liver injury may occur.

May impair fertility. May cause harm to the unborn child. May cause harm to breastfed babies.

The reprotoxic effects have been determined after repeated excessive consumption of ethanol; these effects are not likely to occur through exposure below Occupational Exposure Limits in the working environment.

Long-term consumption of alcoholic beverages demonstrates an increase in the occurrence of breast cancer and colorectal cancer.

12 ECOLOGICAL INFORMATION

12.1 Toxicity

LC ₅₀ (fish, 96 hours) (mg/l)	11.200
EC ₅₀ (Daphnia, 48 hours) (mg/l)	5012 (Ceriodaphnia dubia)
IC ₅₀ (algae, 72 hours) (mg/l)	275

12.2 Persistence and degradability

Oxygen demand		% of TOD
- biological (5 days) in gO ₂ /g (BOD ₅)	1,32	63
- biological (20 days) in gO ₂ /g (BOD ₂₀)	1,80	84
- chemical in gO ₂ /g (COD)	2,04	97
BOD ₅ : COD	0,65	

Easily degradable (BOD₅ : COD > 0,5).

12.3 Bioaccumulative potential

BCF (Bioconcentration factor) (conc in organisms / conc. in water)	< 10 (calculated). Risk of bio accumulation is low (log P n-octanol/water ≤ 3,0 and BCF ≤ 100).
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12.4	Mobility in soil Adsorption coefficient (Koc) solid phase / liquid phase	1 (highly mobile)
12.5	Results of PBT and vPvB assessment	Ethanol is not considered as PBT or vPvB.
12.6	Other adverse effects Ozone depletion potential (ODP) (CCl ₃ F = 1) Photochemical ozone creation potential (C ₂ H ₄ = 1) Global warming potential (GWP) (CO ₂ = 1) Water hazard class (WGK Germany)	Not applicable 0,268 Not applicable 1 (low hazard to waters)
13	DISPOSAL CONSIDERATIONS Waste treatment methods European waste list (EURAL)	Recycling by distillation. Removal to an authorized waste incinerator for solvents or as chemical waste in accordance with local regulations. Do not discharge wastewater into sewer. 07 01 04
14	TRANSPORT INFORMATION	
14.1	UN No.	1170
14.2	UN proper shipping name	ETHANOL (ETHYL ALCOHOL)
14.3	Transport hazard class(es)	3
14.4	Packinggroup	II
14.5	Environmental hazards Marine pollutant	No
14.6	Specials precautions for user Risk label(s)Gevaarsetiket(ten) Tunnel category Tunnelcategorie Hazard Identification Number (Kemler code) ERIC Emergency Schedules (EmS) – Fire schedule – Spillage schedule	3 (D/E) 33 3-09 Echo (F-E) Delta (S-D)
14.7	Transport in bulk MARPOL 73/78 Annex II IBC Code	Not applicable. Not applicable.
15	REGULATORY INFORMATION	
15.1	Safety, health and environmental regulations/legislation specific for the substance Not available.	
15.2	Chemical safety assessment A Chemical Safety Assessment has been carried out for ethanol.	
16	OVERIGE INFORMATIE Changes to the previous version. Classification according to Regulation (EC) No 453/2010 Abbreviations and acronyms DSD / DPD Dangerous Substances Directive / Dangerous Preparations Directive EC50 Effect Concentration, 50 percent ERIC Emergency Response Intervention Card GHS / CLP Globally Harmonised System / Classification, Labelling and Packaging IC50 Inhibitory Concentration, 50 percent LC50 Lethal Concentration, 50 percent LD50 Lethal Dose, 50 percent PBT Persistent, Bioaccumulative and Toxic	



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TOD	Total Oxygen Demand
TWA	Time Weighted Average
vPvB	very Persistent and very Bioaccumulative

Literature references and sources for data

IUCLID Dataset, European Chemicals Bureau, 18 feb 2000;
Risks of alcohol consumption related to conception, pregnancy and breastfeeding, The Hague: Health Council of the Netherlands, 2005; publication no. 2004/22;
Ethanol (ethyl alcohol); Evaluation of the health effects from occupational exposure, The Hague: Health Council of the Netherlands, 2006; publication no. 2006/06OSH;
EaSi-Pro View Substance Report, Haskoning, Oct. 2007.

Full text of indication(s) of danger, R phrases and safety advise which are not written out in full under Sections 2 to 15

R11 Highly flammable.

This data sheet has been compiled by KWA. Despite the careful attention paid to the setting up of the text, KWA cannot be held responsible for any error appearing in the text and resulting in whatever damage it may cause.
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