

# Ethanol

## SECTION 1: Identification of the substance / mixture and of the company / undertaking

### 1.1 Product identifier

<b>Chemical name</b>	Ethanol		
<b>Synonyms</b>	Ethyl alcohol, Alcohol, Anhydrol, Methyl carbinol, Ethyl hydrate, Ethyl hydroxide, Hydroxy ethane.		
<b>Formula</b>	C <sub>2</sub> H <sub>6</sub> O		
<b>Molecular mass</b>	46,08	<b>FL-No.</b>	02.078
<b>CAS-No.</b>	64-17-5	<b>FEMA-No.</b>	2419
<b>EC-No.</b>	200-578-6	<b>Annex VI-No.</b>	603-002-00-5
<b>Registration number</b>	01-2119457610-43-0184		

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

Relevant identified uses of the substance or mixture	User group	Exposure scenario
Use as an intermediate	Industrial	ES1
Use as a process chemical or extraction solvent	Industrial	ES2
Distribution of substance	Industrial	ES3
Formulation & (re)packing of substances and mixtures	Industrial	ES4
Use as a solvent	Industrial	ES5
Use as a fuel	Industrial	ES6
Use as a solvent	Professional	ES7
Use as a fuel	Professional	ES8
Functional Fluids	Industrial	ES9
Functional Fluids	Professional	ES10
Use in laboratories	Professional	ES11
Use as a fuel (automotive)	Consumer	ES12
Use as a fuel (non-automotive)	Consumer	ES13
Use in products containing small quantities (up to 50g)	Consumer	ES14
Functional Fluids	Consumer	ES15
Use in Coatings	Consumer	ES16
De-icing and anti-icing application. Use in screenwash products	Consumer	ES17
Use in Cleaning Agents	Consumer	ES18
Other Consumer Uses	Consumer	ES19
Use in Pharmaceuticals	Consumer	ES19
Disposal of wastes-Hazardous waste incineration	Industrial	ES20
Disposal of wastes-Approved landfill	Professional	ES21
Disposal of wastes-Redistillation	Industrial	ES22
<b>Uses of the substance or mixture advised against</b>	None.	

### 1.3 Emergency telephone number

<b>Emergency</b>		
– <b>Local South Africa</b>	0800 17 27 43	Rapid Spill Response
– <b>International</b>	+27 82 775 33 05	
<b>Medical information</b>		
– <b>South Africa</b>	+27 824 910 160	Bloemfontein Poison Control and Medicine Information Centre
– <b>South Africa</b>	+27 861 555 777	Poisons Information Helpline of the Western Cape
– <b>United Kingdom</b>	844 892 0111	National Poisons Information Service

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## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

According to Regulation (EC) No. 1272/2008 (EU-GHS / CLP)

Hazard Classes / Hazard Class-, Category- and -Statement Codes	Flammable liquid	Flam. Liq. 2, H225
	Eye irritation	Eye Irrit. 2, H319

For full text of Hazard statements: see subsection 2.2.

### 2.2 Label elements

Hazard pictograms



Signal word Danger

Hazard statement(s)

H225 Highly flammable liquid and vapour.

H319 Causes serious eye irritation.

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233 Keep container tightly closed.

P240 Ground / bond container and receiving equipment.

P241 Use explosion-proof electrical ventilating- / lighting- / process equipment.

P242 Use only non-sparking tools.

P243 Take precautionary measures against static discharge.

P280 Wear protective gloves / protective clothing / eye protection.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water / shower.

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.

P403 + P235 Store in a well-ventilated place. Keep cool.

P501 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.

## SECTION 3: Composition / information on ingredients

### 3.1 Substances

Main constituent	Identity	Percentage
Ethanol	CAS-No. 64-17-5	96 and 99.9 vol%
	EC-No. 200-578-6	

Classified impurities or stabilizers  
None

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

**Inhalation** Fresh air, rest, half upright position. Get medical advice / attention if you feel unwell.

**Skin contact** Remove contaminated clothes, rinse skin with 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. Drink plenty of water and call a doctor / physician if you feel unwell.

### 4.2 Most important symptoms and effects, both acute and delayed

Acute symptoms and effects from exposure

Liquid or vapour may cause eye irritation.

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Inhalation of high vapour concentrations may cause transient irritation of the respiratory tract, headache, nausea.

Swallowing may have the following effects: central nervous system depression, nausea/vomiting, symptoms similar to alcoholic beverage intoxication.

#### **Delayed symptoms and effects from exposure**

Repeated and prolonged contact may cause skin dryness or cracking.

#### **4.3 Indication of any immediate medical attention and special treatment needed**

##### **Information on medical attendance**

No special measures required. Treat symptomatically.

##### **Special means to provide treatment at the workplace**

No special measures required. Treat symptomatically.

### **SECTION 5: Firefighting measures**

#### **5.1 Extinguishing media**

##### **Suitable extinguishing media**

Alcohol resistant foam, all purpose AFFF, powder, carbon dioxide, water spray.

##### **Unsuitable extinguishing media**

Water jet, alcohol unstable foam.

#### **5.2 Special hazards arising from the substance or mixture**

##### **Hazardous combustion products**

Carbon monoxide and carbon dioxide containing combustion gases.

##### **Additional hazards**

The vapour is heavier than air, spreads along the ground and distant ignition is possible. Run off to sewer may cause fire or explosion hazard. Containers may explode in heat of fire.

#### **5.3 Advice for fire-fighters**

##### **Protective actions**

Use water spray to cool exposed containers in the environment.

Retain contaminated extinguishing water; do not allow entering drains, water courses or soil.

In the case of larger fires: Cordon affected area.

##### **Special protective equipment**

Self-contained respiratory protective device, fully protective suit.

### **SECTION 6: Accidental release measures**

#### **6.1 Personal precautions, protective equipment and emergency procedures**

##### **Information for non-emergency personnel**

Vapour may form an explosive mixture with air. Therefore, eliminate all sources of ignition. Use personal protective equipment to avoid any contamination of skin and eyes. Avoid breathing vapours.

Indoor spills: Assure sufficient ventilation.

Outdoor spills: Stay up wind and keep out of low areas where vapour may accumulate and ignite.

Stop leak if this can be achieved without risk.

In the case of large quantities: Consider need for evacuation.

##### **Information for emergency responders**

For advice on personal protection clothing, see chapter 8.

#### **6.2 Environmental precautions**

Try to prevent the material from entering drains, water courses or soil.

Advise authorities if spillage has entered water course or sewer or has contaminated soil.

#### **6.3 Methods and material for containment and cleaning up**

Small spills: Allow to evaporate if it is safe to do so or contain and absorb using earth, sand or other inert material then transfer into suitable containers for recovery or disposal.

Large spills: Ventilate contaminated area thoroughly. Cover drains. Dike or dam in and vacuum up carefully. Wash away remainder with water.

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## 6.4 Reference to other sections

See Section 8 for more detailed advice on personal protective equipment and section 13 on waste disposal.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

#### Recommendations for safe handling

Use only in well ventilated areas and in a closed system.  
Keep away from heat, sparks, open flames, hot surfaces and do not smoke.  
Avoid inhaling vapour. Avoid contact with eyes, skin and clothing.  
Take measures to prevent electrostatic charges, e.g. grounding when transferring/ filing.  
Containers have to be properly labelled.

#### Advice on general occupational hygiene

Do not eat, drink and smoke in work areas.  
Use fatty skin care products after repeated and prolonged contact.

### 7.2 Conditions for safe storage, including any incompatibilities

#### Fire and explosion prevention

Store in a well-ventilated place. Keep containers tightly closed.  
Keep away from oxidants and strong acids.  
Store away from sources of heat or ignition. Storage tanks should have equipotential electrical bonding and be earthed.  
Beware of formation of explosive vapour-air mixtures in empty, uncleaned containers.

#### Protection against ambient influences

Protect against heat and solar radiation. Recommended storage temperature: 20 °C.  
Incompatible materials: natural rubber, PVC, methyl-methacrylate plastics, polyamides, zinc, brass, aluminium under certain conditions.  
Compatible materials are: stainless steel, titanium, cast bronze, cast iron, carbon steel, polypropylene, neoprene, nylon, Viton, ceramic, carbon, glass.

### 7.3 Specific end use(s)

If used as food or beverage, compliance with food safety regulations. See also the exposure scenarios.

## SECTION 8: Exposure controls / personal protection

### 8.1 Control parameters

Country	Limit values				Remark
	8 hours (TWA)		Short term (15 min)		
	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	ppm	
Germany	960	500	1 920	1 000	
France	1 900	1 000	9 500	5 000	
United Kingdom	1 920	1 000			

#### DNEL- / DMEL-values

##### Workers short term exposition

DNEL worker (acute, inhalation - systemic)	No data required
DNEL worker (acute, inhalation - local)	1 900 mg/m <sup>3</sup>
DNEL worker (acute, dermal - systemic)	No data required
DNEL worker (acute, dermal - local)	No data required

##### Workers long term exposition

DNEL worker (long-term, inhalation - systemic)	950 mg/m <sup>3</sup>
DNEL worker (long-term, inhalation - local)	No data required
DNEL worker (long-term, dermal - systemic)	343 mg/kg bw/day
DNEL worker (long-term, dermal - local)	No data required

##### Consumers short term exposition

DNEL general population (acute, inhalation - systemic)	No data required
DNEL general population (acute, inhalation - local)	950 mg/m <sup>3</sup>
DNEL general population (acute, dermal - systemic)	No data required

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<b>Consumers long term exposition</b>	DNEL general population (acute, dermal - local)	No data required
	DNEL general population (long-term, inhalation - systemic)	114 mg/m <sup>3</sup>
	DNEL general population (long-term, inhalation - local)	No data required
	DNEL general population (long-term, oral - local):	87 mg/kg bw/day
	DNEL general population (long-term, dermal - systemic)	206 mg/kg bw/day
	DNEL general population (long-term, dermal - local)	No data required
<b>PNEC values</b>		
<b>Aquatic organism</b>		
– <i>fresh water</i>	PNEC aquatic (freshwater)	0.96 mg/L
– <i>marine water</i>	PNEC aquatic (marine water)	0.79 mg/L
– <i>intermittent release</i>	PNEC aquatic (intermittent release)	2.75 mg/L
– <i>sewage treatment plants (STP)</i>		
	PNEC STP	580 mg/L
– <i>fresh water sediment</i>		
	PNEC sediment	3.6 mg/kg sediment dw
– <i>marine water sediment</i>		
	PNEC marine-sediment	2.9 mg/kg sediment dw
<b>Terrestrial organismen</b>		
– <i>soil</i>	PNEC soil	0.63 mg/kg soil dw
<b>Predators</b>		
– <i>secondary poisoning</i>	PNEC oral	0.72 mg/kg food

## 8.2 Exposure controls

### 8.2.1 Appropriate engineering controls

Ventilation and local exhaust.

### 8.2.2 Individual protection measures, such as personal protective

#### a) Eye/face protection

Safety goggles (EN 166).

#### b) Skin protection

##### Hand protection

Gloves butyl rubber 0.7 mm

Breakthrough time > 8 hours (EN 374)

Gloves nitrile rubber (NBR)

Breakthrough time > 2 hours (EN 374)

Gloves polyethylene (LLDPE) 0.75 mm

Breakthrough time > 8 hours (EN 374)

##### Other

Protective clothing (EN 14605).

#### c) Respiratory protection

In case of insufficient local exhaust: filter respirator with filtertype A for organic vapours (EN 14387).

#### d) Thermal hazards

Not applicable.

### 8.2.3 Environmental exposure controls

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

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

– form

Highly mobile liquid

– colour

Colourless

#### Odour

Typical alcoholic

Odour threshold (mg/m<sup>3</sup>)

178

pH value (100 g/L at 20 °C)

5.3

Melting point / freezing point (°C)

– 114

Boiling point (°C) at 1013 hPa

78.2

Flash point (°C)

96%: 15 (closed cup)

99.9%: 13 (closed cup)

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Evaporation rate (butyl acetate=1)	Ethanol 95%	1.4		
	Water	0.3		
Flammability (solid, gas)	Not applicable.			
Lower/upper explosive limits (vol%)	2.5 - 13.5			
Vapour pressure (hPa) at 20 °C	57.3			
	at 25 °C			79
Vapour density (kg/m <sup>3</sup> )	1.8			
Relative vapour density (air = 1)	1.6			
Relative density at 20 °C	96%:	0.809	99,9%: 0.789	
	at 25 °C	96%: 0.806	99,9%: 0.785	
Solubility				
– water solubility (g/l)	Unlimited miscible with water			
– fat solubility	Soluble			
Partition coefficient (log K <sub>Octanol/Water</sub> ) at 20 °C	– 0.35			
Auto-ignition temperature (°C)	363			
Decomposition temperature	> 700 (secondary literature)			
	Thermal stable, no self-reactive substance			
Viscosity (dynamic) at 20 °C (mPa·s)	1.2			
Viscosity (kinematic) at 20 °C (µm <sup>2</sup> /s)	1.52			
Explosive properties	No explosive properties.			
Oxidising properties	No oxidising properties.			
<b>9.2 Other information</b>				
Miscibility	Unlimited miscible with diethyl ether, chloroform, petrol and benzene.			
Conductivity (pS/m)	130 000			
Self-heating properties	No self-heating substance.			
Dissociation constant at 20 °C (pK <sub>a</sub> )	15.8			
Heat of combustion (kJ/kg)	29 685			

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Exothermic, partially violent reactions with alkali and alkaline earth metals, strong acids and strong oxidising agents possible.

### 10.2 Chemical stability

Stable at usual storage conditions. No stabilizers required.

### 10.3 Possibility of hazardous reactions

Excessive heat generation or splashes of hazardous substances with strong acids and strong oxidising agents.  
Fire or explosion may occur in reactions with alkali and alkaline earth metals (formation of hydrogen-/ethanol-/air-mixtures).

### 10.4 Conditions to avoid

Storage temperatures > 40 °C should be avoided (increase in pressure, deformation of the containers).  
Avoid static discharge and sources of ignition (open flames, warm surfaces, sparks).

### 10.5 Incompatible materials

Strong oxidising agents, strong acids and alkali metals.  
Aluminium at higher temperatures. See also section 7.2.

### 10.6 Hazardous decomposition products

Does not decompose when used for intended uses.

## SECTION 11 Toxicological information

### 11.1 Information on toxicological effects

#### a) Acute Toxicity

– Oral	LD50 (rat)	10 470 mg/kg
– Dermal	LD50 (rabbit)	> 15 800 mg/kg
– Inhalative	LC50 (rat, 4 hours)	> 50 mg/L

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## b) Skin corrosion/irritation

All available acute 4 hour exposure studies show not irritating in animals (OECD 404 or equivalent) and humans. In humans, repeated dose studies show no irritation with repeated application over a whole day under occlusive conditions for up to 12 days. Further exposures cause irritation to occur.  
Available data indicates that classification criteria are not met.

## c) Serious eye damage/irritation

Studies according to OECD guideline 405 generally cause moderate eye irritation. All effects disappear within 8-14 days. The level of response is sufficient in terms of conjunctival response to require classification as a category 2 irritant.  
Specific concentration limit:  $\geq 50.0\%$ .

## d) Respiratory or skin sensitisation

Mouse swelling study: negative.  
Local Lymph Node Assay (OECD 429): Negative.  
Guinea Pig maximisation study: (OECD 406) Negative.  
Respiration sensitisation: no data available.  
Available data indicates that classification criteria are not met.

## e) Germ cell mutagenicity

Bacterial reverse mutation studies (OECD 471): all negative  
In vitro cytogenicity studies (eg OECD 473): negative without metabolic activation. No studies available with metabolic activation.  
In vitro mammalian cell gene mutation studies (ef OECD476): negative with and without metabolic activation.  
In vivo micronucleus test (OECD 474): no convincing evidence that ethanol causes micronuclei in the bone marrow.  
In vivo chromosome aberration test (OECD 475): negative.  
Dominant Lethal assay (OECD 478): Ethanol is unlikely to produce an effect up to the maximum tolerated dose.  
There is some evidence from in vitro studies that ethanol can cause genotoxic or clastogenic effects. However, the effects seen are weak and only occur at very high doses. The balance of evidence is that ethanol is not genotoxic.  
Available data indicates that classification criteria are not met.

## f) Carcinogenicity

NOAEL (carcinogenicity, rat, 24 mon)	> 3 000 mg/kg bw/day
NOAEL (carcinogenicity, mouse, female, 24 mon)	> 4 400 mg/kg bw/day
NOAEL (carcinogenicity, mouse, male, 24 mon)	> 4 250 mg/kg bw/day
BMDL10 (carcinogenicity, mouse, male, 24 mon)	1 400 mg/kg bw/day

In humans, the consumption of alcoholic beverages is associated with an increased incidence of certain tumours. There is no evidence that the exposure of humans to ethanol other than by repeated consumption of alcoholic beverages may result in an increase in cancer incidence.  
From the available data, the classification criteria are not met.

## g) Reproductive toxicity

### – Fertility

NOAEL (oral, mouse)	13.8 g/kg
NOAEC (inhalation, rat)	> 30.4 mg/L

Ethanol in drinking water at concentrations up to 15% (equivalent to 20.7 g/kg/day) had no demonstrable effect on fertility in this two-generation study.  
Ethanol did not affect fertility or induce toxicity in female and male rats at a concentration of 30.4 mg/L.

### – Developmental toxicity

NOAEL (oral)	5.2 g/kg bw/day
NOAEC (inhalation)	39 mg/L

In humans excessive consumption of alcoholic beverages during pregnancy is associated with the induction of Foetal Alcohol Syndrome in the offspring causing reduced birth weight and physical and mental defect to occur.

### – Teratogenicity

NOAEC (inhalation, rat)	38.0 mg/L
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### – Maternal toxicity

NOAEC (inhalation, rat)	30.4 mg/L
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No definite evidence of malformations due to ethanol exposure were seen although the incidence of abnormal changes at the highest concentration was of borderline statistical significance. There was clear maternal toxicity at this concentration however.  
From the available data, the classification criteria are not met.

## h) Specific target organ toxicity – single exposure

No specific target organ effects observed following single exposure.

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**i) Specific target organ toxicity – repeated exposure**

In sub-chronic feeding or drinking water studies in rats, NOAELs ranged from 1.73 g/kg to 3.9 g/kg. The most sensitive affect above these doses appeared to be to the kidney in males. Effects are only seen at doses well above the levels that would require classification.

Based on available data, the classification criteria for one of the categories of this hazard class are not met.

**j) Aspiration hazard**

No aspiration hazard expected.

**Toxicokinetics / routes of exposure**

– **Absorption**

Ethanol has a low molar mass, and is readily soluble as well in water as in fat. So it can be easily absorbed in the whole gastro-intestinal tract, in the lungs and from the skin. After ingestion ca. 90 % is incorporated via the gastro-intestinal tract. In the case of inhalative exposure, this value amounts to 61 %. Due to the rapid evaporation an intake through the skin is quite limited; theoretically 21 % can be absorbed, however, the absorption rate in the case of uncovered skin only amounts between 1 and 2 %. After exposure to the skin for the rate of absorption through the skin, a value of 0.7 mg per cm<sup>2</sup> of skin for 1 hour can be used.

– **Distribution**

Independent from the route of exposure, ethanol distributes in the blood circulation of the whole body, comparable with the distribution of water. Internal organs with good circulation (brain, lung and liver) are rapidly flown through. An equilibrium between tissue and blood is adjusted after ca. 1 to 1.5 h.

– **Metabolism**

Already prior to the absorption a small part of the ethanol will be enzymatically metabolized in the stomach (alcohol-dehydrogenase). After absorption, Ethanol will be preferably metabolized in the liver (92 - 95%), partially also in the kidneys and in the lung.

The metabolization takes place in three stages:

1. Oxidation of ethanol to acetaldehyde
2. Oxidation of acetaldehyde to acetate
3. Oxidation of acetate to carbon dioxide and water.

– **Elimination**

Most of the ethanol will be eliminated by the metabolism; less important is the secretion through respiratory air, urine and sweat. The maximum elimination of ethanol is estimated to 127 mg/kgbw/h.

**Symptoms related to the physical, chemical and toxicological characteristics**

– **Ingestion**

Swallowing may have the following effects: central nervous system depression, nausea/vomiting, symptoms similar to alcoholic beverage intoxication.

– **Inhalation**

Inhalation of high vapour concentrations may cause transient irritation of the respiratory tract, headache, nausea.

**Delayed effects and chronic effects from long-term exposure**

Repeated and prolonged contact may cause skin dryness or cracking.

## SECTION 12: Ecological information

### 12.1 Toxicity

**Aquatic toxicity**

– **Fish**

LC50 (96 hr, Pimephales promelas)	14 200 - 15 300 mg/L
NOEC (30 d)	245 mg/L

– **Aquatic invertebrates**

LC50 (48 hr, ceriodaphnia dubia)	5 012 mg/L
NOEC (10 d, reproduction)	9.6 mg/L
NOEC (12 d, developmental, palaemonetes pugio)	79 mg/L

– **Algae and cyanobacteria**

EC50 (72 hr, chlorella vulgaris)	275 mg/L
EC10 (72 hr, chlorella vulgaris)	11.5 mg/L
NOEC (96 hr)	~ 2 370 mg/L

**Sediment toxicity**

LC50 (18 hr, hyallela azteca)	10 100 mg/L
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<b>Terrestrial toxicity</b>		
<i>Terrestrial arthropods</i>		No data available
<i>Other soil macro-organisms</i>		
	LC50 (48 hr, eisenia fetida)	> 1 mg/cm <sup>2</sup>
- <i>Terrestrial plants</i>	EC50 (6 d, allium cepa, growth)	11 800 mg/L
	EC10 (6 d, allium cepa, growth)	~ 790 mg/L
<b>12.2 Persistence and degradability</b>		
<b>Stability</b>		
- <i>Hydrolysis</i>	Half-life (DT50 in water)	3 - 39 days
- <i>Photolysis</i>	Half-life (DT50 in air)	5 days
<b>Biodegradability</b>		
- <i>Biodegradation in water</i>	Readily biodegradable.	
- <i>Biochemical oxygen demand</i>		
	BOD (5 days)	74 % degradation
	BOD (20 days)	84 % degradation
<b>12.3 Bioaccumulation potential</b>		
<b>Aquatic bioaccumulation</b>		
	BCF (estimation based on a calculation method).	3.2
	No remarkable bioaccumulation potential (log K <sub>ow</sub> < 4 and BCF < 500).	
<b>12.4 Mobility in soil</b>		
<b>Adsorption/desorption</b>	K <sub>oc</sub> at 20 °C (calculated)	1,6 - 16
	Very mobile in soil.	
<b>Volatilisation</b>	Henry's Law constant at 20 °C (in Pa m <sup>3</sup> /mole)	0.3
	Not expected to significantly volatilize from the aquatic compartment.	
<b>12.5 Results of PBT and vPvB assessment</b>		
	The substance does not meet the PBT and vPvB criteria according to annex XIII of Regulation (EC) No 1907/2006.	
<b>12.6 Other adverse effects</b>		
	Low hazard to water (Water hazard class 1, WGK Germany)	

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

<b>Product disposal</b>	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.
<b>Packaging disposal</b>	Uncleaned empty package have to be treated like the content. The labelling of uncleaned containers must not be removed.
<b>Waste treatment-relevant information</b>	European waste list (EURAL) 07 01 04

## SECTION 14: Transport information

<b>14.1 UN No.</b>	1170
<b>14.2 UN proper shipping name</b>	ETHANOL or ETHYL ALCOHOL
<b>14.3 Transport hazard class</b>	3
<b>14.4 Packing group</b>	II
<b>14.5 Environmental hazards</b>	
<b>Marine pollutant (IMO/IMDG)</b>	No
<b>Hazards for tank vessels (ADN)</b>	3
<b>14.6 Specials precautions for user</b>	
<b>Classification code (ADR/RID/ADN)</b>	F1

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Risk labels (ADR/RID/ADN/IMDG/IATA)	3
Tunnel restriction code (ADR/RID)	(D/E)
Hazard Identification Number (ADR/RID)	33
Limited quantity (ADR/RID/ADN/IMDG/IATA)	1 L
Excepted quantity (ADR/RID/IATA)	E2
ERICard (ADR)	3-09
Emergency Schedules (IMDG)	
– Fire schedule	Alfa (F-E)
– Spillage schedule	Alfa (S-D)

## 14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

Ship type required (IMDG)	Not applicable
Pollution category (IMDG)	Z

## SECTION 15: Regulatory information

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

#### Authorisations (REACH)

Not subject to Title VII of Regulation (EC) No 1907/2006.

#### Restrictions (REACH), SVHC

No restrictions according to Title VIII of Regulation (EC) No 1907/2006.  
SVHC (Substances of Very High Concern) status: negative

#### Control of major-accident hazards (Seveso III)

Subject to Directive 2012/18/EU.

Hazard category:	P5c FLAMMABLE LIQUIDS
Qualifying quantity column 2:	5 000 000 kg
Qualifying quantity column 3:	50 000 000 kg

#### List of flavouring substances

Approved as a flavouring agent (Regulation (EU) No 872/2012).

#### Other EU regulations

Additional national regulations have to be observed.

### 15.2 Chemical safety assessment

#### CSA

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

## SECTION 16: Other information

### 16.1 Changes to the previous version

Previous version	16.2
Changes	Addition of the use in pharmaceuticals in section 1.2.

### 16.2 Abbreviations and acronyms

ADN	Transport of dangerous goods by inland waterways
ADR	Transport of dangerous goods by road
CAS	Chemical Abstracts Service (Division der American Chemical Society)
CLP	Classification, Labelling and Packaging
CSA	Chemical Safety Assessment
CSR	Chemical Safety Report
DNEL	Derived No Effect Level
DMEL	Derived Minimal Effect Level
EC50	Effect Concentration, 50 percent
EC-Number	EINECS-, ELINCS- or CLP-Number
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
ERICard	Emergency Response Intervention Card
GHS / CLP	Globally Harmonised System / Classification, Labelling and Packaging
IATA	Transport of dangerous goods by air
IMDG	Transport of dangerous goods by sea
IC50	Inhibitory Concentration, 50 percent
LC50	Lethal Concentration, 50 percent
LD50	Lethal Dose, 50 percent
NOAEC	No observed adverse effect concentration
NOAEL	No observed adverse effect level
NOEC	No observed adverse effect concentration
NOEL	No observed effect level

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PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No Effect Concentration
ppm	Parts per million
RID	Transport of dangerous goods by rail
TLV	Threshold Limit Value
TWA	Time Weighted Average
vPvB	very persistent and very bioaccumulative

## 16.3 Literature references and sources for data

Chemical Safety Report, Illovo Sugar (South Africa) Limited, Nov. 2010.  
ECHA Database 19-01-2015

## 16.4 Full text of Hazard statements which are not written out in full under Sections 2 to 15

None.

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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