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COVER SHEET FOR THE SAFETY DATA SHEET

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Trade name: Ethanol absolute denatured with 5% isopropanol

Supplier:
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Emergency number:
24-hour emergency number: 145
Help with poisoning. Tox Info Suisse provides free medical advice round the clock in cases of poisoning or suspected poisoning.

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Freiestrasse 16
8032 Zürich
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Safety data sheet

according ChemR 2015 – SR 813.11 (corresponds to Regulation (EC) No 1907/2006, Article 31, in accordance with (EU) 2020/878)

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SECTION 1: Identification of the product and of the company

· **1.1 Product identity**

· **Trade name: F25-A® Ethanol from agricultural raw material denaturated with 5% Isopropanol**

· **Article number:** 107011013

· **REACH Registration number** 01-2119457610-43-0098

· **UFI:** K0C0-K02D-W008-JF8Q

· **1.2 Relevant uses of the product and uses advised against**

Denatured ethanol is used in a wide variety of applications, both chemical and technical.
Uses being advised against: no specific uses known.
For the identified uses according to regulation (EC) No 1907/2006 see Annex 1 "Identified uses of ethanol"

· **1.3 Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**

Alcosuisse AG
Industriestrasse 10
CH-3295 Rüti bei Büren
+41 (0)31 309 17 00
quality@alcosuisse.ch

· **1.4 Emergency telephone number:**

Toxicological information Swiss center (available 24h/7d): emergency call 145
or +41 (0) 44 251 51 51

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SECTION 2: Hazard(s) identification

· **2.1 Classification of the substance or mixture**

· **Classification according to Regulation (EC) No 1272/2008**



GHS02 flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.



GHS07

Eye Irrit. 2 H319 Causes serious eye irritation.

· **2.2 Label elements**

· **Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labeled according to the CLP regulation.

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· ***Hazard pictograms***



GHS02 GHS07

· ***Signal word*** Danger
· ***Hazard statements***
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.
P241	Use explosion-proof electrical/ventilating/lighting/equipment.
P243	Take precautionary measures against static discharge.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

· ***Additional information:***
EUH018 In use may form flammable/explosive vapour-air mixture.
· ***2.3 Other hazards***
Ethanol doesn't meet the criteria for vPvB and/or PBT classification according to the regulations (EC) No 1907/2006, Annex XIII.
Ethanol has no endocrine disrupting properties.
· ***Results of PBT and vPvB assessment***
· ***PBT:*** Not applicable.
· ***vPvB:*** Not applicable.

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SECTION 3: Composition/information on ingredients

· ***3.2 Chemical characterization: Mixtures***
· ***Description:*** Mixture of the substances listed below with nonhazardous additions.

· ***Dangerous components:***		
CAS: 64-17-5 EINECS: 200-578-6	Ethanol Flam. Liq. 2, H225 Eye Irrit. 2, H319 EUH018	50-100%
CAS: 67-63-0 EINECS: 200-661-7 Reg.nr.: 01-2119457558-25	Propan-2-ol Flam. Liq. 2, H225 Eye Irrit. 2, H319; STOT SE 3, H336	2.5-10%

· ***Additional information:***
Per cent content ehanol: ca. 89 % m/m
Water content: ca. 5.8 % m/m

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Concentration of denaturant: 4.8% m/m
For the wording of the abbreviations used in sections 2 and 3, refer to section 16.

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SECTION 4: First-aid measures

· **4.1 Description of first aid measures**
· **General information:**
In case of disturbances / health disorders and in all doubt when symptoms persist get medical advice.
· **After inhalation:**
Move affected person to fresh air. In case of irritation of the respiratory tract, seek medical attention.
In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:**
Immediately remove contaminated clothing. Immediately rinse with water.
If skin irritation continues, consult a doctor.
· **After eye contact:**
Rinse cautiously with water for several minutes.
Remove any contact lenses if possible. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
· **After swallowing:**
Immediately wash out mouth with water and drink about 2 glasses of water.
Do not induce vomiting; call for medical help immediately. Never give anything by mouth to an unconscious person.
In case of spontaneous vomiting, be sure that vomit can freely drain because of danger of suffocation.
· **4.2 Most important symptoms and effects, both acute and delayed**
Headache, dizziness, unconsciousness, nausea.
Contact with eyes causes severe irritation.
· **4.3 Indication of any immediate medical attention and special treatment needed**
In case of unconsciousness: call a physician on emergency duty.

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SECTION 5: Fire-fighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents:**
CO2, powder or water spray.
Fight larger fires with water spray and alcohol-resistant foam.
Unsuitable extinguishing agents for safety reasons: straight stream of water.
· **For safety reasons unsuitable extinguishing agents:** Water with full jet
· **5.2 Special hazards arising from the substance or mixture**
Mixtures of vapours with air which may explode when ignited, may be formed at room temperatures as low as 9 °C.
The vapours are heavier than air and may accumulate in low or confined areas (danger of explosion).
The vapours may spread along the ground and travel a considerable distance to a source of ignition

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and flash back.
Runoff to sewer may create fire or explosion hazard.
Burning will produce black fumes and dangerous gases: carbon monoxide and carbon dioxide.
In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

· ***5.3 Advice for firefighters***
Keep unprotected persons away. Do not inhale smoke, combustion gases an vapours.
For fighting fire, self contained breathing apparatus and full protective clothing must be worn.
Cool endangered containers from a safe distance with a water spray.
Do not allow extinguishing water enter sewers, surface or ground water or the soil.
Wear suitable protective clothing and keep a safe distance in order to prevent skin contact.

· ***Protective equipment:***
Information about the explosion properties of the mixtures of ethanol vapours with air:
Refer to sections 9.1 and 9.2.

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SECTION 6: Accidental release measures

· ***6.1 Personal precautions, protective equipment and emergency procedures***
Wear protective measurements as described in sections 7 and 8. Keep unprotected persons away.
Ensure adequate ventilation. Don't inhale vapours.
In case of unsufficient ventilation, use respiratory protective device.
Improvised equipment for ventilation and illumination must be explosion proof.
Remove sources of ignition. Take precautionary measures against electrostatic discharges. Don't smoke.
Prevent vapours from entering into drainage system, pits or cellars (danger of explosion).
Use personal protective measurements mentioned in sections 7.1.

· ***6.2 Environmental precautions:***
Stop leak if possible without risk.
Prevent contamination of soil, drains and surface water.
If larger quantities are handled, keep preventively available material for containment.
Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

· ***6.3 Methods and material for containment and cleaning up:***
Ensure adequate ventilation. Use only spark-proof tools and explosion-proof equipment.
Do not flush with water or aqueous detergents. Keep material for cleaning up available.
Take-up spillage with absorbent, inert material (sand, diatomite, acid binders, universal binders, sawdust)
and collect in suitable and closable, labelled containers for recovery or disposal.
Attention: Absorbent material and also cleaning rags soaked with ethanol are extremely flammable.
If the dispersed liquid has to be pumped away, use only explosion proof pump or aspirator!
Usually the collected material may be disposed of with the approval of the competent authorities in a waste treatment plant.
Otherwise dispose of according to section 13.

· ***6.4 Reference to other sections***
See Section 7 for information on safe handling.

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See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

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SECTION 7: Handling and storage

· **7.1 Precautions for safe handling**
Warning: Uncleaned "empty" container may contain a vapour-air mixture, being highly explosive.
Never drill, cut, grind, solder, braze, and weld etc. near to or at an "empty" container.
Never give away "empty" drums to an employee or other private person.

Critical properties of ethanol:
Ethanol is highly flammable! Explosive vapour-air mixtures may be formed already at room temperature.
The vapours are heavier than air and may accumulate in low or confined areas (danger of explosion).
Ethanol tends to get electrostatically charged.

Precautionary measures:
Keep containers always closed. Avoid inhalation of vapours or aerosols. Eliminate all sources of ignition.
Provide adequate general and local exhaust ventilation at the work place. Use only non-sparking tools.
Ensure adequate ventilation/exhaust ventilation also at ground level (vapours are heavier than air).
Take all safety measures being standard for the handling of highly flammable solvents, e.g.:
ATEX conform mobile electrical equipment and installations for lightning, ventilation and handling.
Ground and bond containers and transfer equipment to eliminate accumulation of static charge.
Wear shoes with conductive soles. Ensure adequate conductivity of the floor (no plastic foils or non conductive contamination).
Never transport ethanol with compressed air. For pumping use only explosion proof pumps.
Take the protective measures against chemical exposure according to section 8.2.
Wear safety goggles. At the work place an emergency eye wash station must be available.
Do not eat, drink or smoke in the work place.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:**

Information about fire and explosion prevention:
Explosive vapour-air mixtures may be formed already at room temperature (above 9 °C).
Spillages will create a fire hazard. Explosive vapours are heavier than air.
Prevent vapours from entering into sewage systems, pits or cellars.
Prevent heat/sparks/open flames/hot surfaces. – No smoking.
Take precautionary measures against static discharge. Wear shoes with conductive soles etc.
Use explosion proof equipment/installations and spark proof tools.
Keep away from oxidizing and other incompatible materials as mentioned in section 10.3.

Information about the storage conditions:

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Use only spark proof tools and explosion proof electrical equipment/installations for handling, illumination, ventilation etc.
Store above a collecting tray at 5-30 °C in securely closed original containers (ethanol is hygroscopic), outdoors or in a dry, well ventilated, explosion proof room with solvent resistant, tight floor without outlet. Protect from heat and sunlight.
Store only in original containers or receptacles specifically permitted for ethanol (ethanol corrodes aluminium!).
Prevent access of unauthorised persons.

· ***Information about storage in one common storage facility:***
Storage class of VCI (Germany): 3A (Flammable liquids)
Keep away from food, beverages and animal feed.
Do not store together with oxidizing, acidic or other materials not being compatible with substances of storage class 3A

· ***Further information about storage conditions:***
Stored quantity limits:
In Switzerland quantity limits in function of the kind of building/storage rooms and the flash point are given by the
Vereinigung Kantonaler Feuerversicherungen VKF, 3001 Bern: "Brandschutzrichtlinie/Gefährliche Stoffe" (26-15de)
The quantity limit for the submission under the Swiss Major Accidents Ordinance is 20 000 kg.

· ***7.3 Specific end use(s)*** Wide range of applications, see Annex 1 "Identified uses".

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SECTION 8: Exposure controls/personal protection

· ***8.1 Control parameters***

· ***Components with limit values that require monitoring at the workplace:***	
CAS: 64-17-5 Ethanol	
MAK (Switzerland)	Short-term value: 1920 mg/m³, 1000 ppm Long-term value: 960 mg/m³, 500 ppm SSc;

· ***DNELs***
DNEL and PNEC values of ETHANOL
DNEL = Derived no effect level (concentration or dose, below which no effects on humans is to be expected)
PNEC = Predicted no effect concentration (concentration, below which no effects on the environment is to be expected)
Exp-F = Extrapolation factor

Systemic toxicity effects, acute inhalation	no hazard identified
Systemic toxicity effects, chronic, dermal	DNEL = 343 mg/kg per day
Systemic toxicity effects, chronic, inhalation	DNEL = 950 mg/m3

· ***PNECs***

PNEC-Values (ethanol)	Effects on the environment:
Freshwater organisms, continuous liberation	PNEC = 0.96 mg/l; (Exp-F = 10)
Seawater organisms, continuous liberation	PNEC = 0.79 mg/l; (Exp-F = 100)

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Freshwater sediment microorganisms	PNEC = 3.6 mg/kg sediment; (no Exp-F)
Seawater sediment microorganisms	PNEC = 2.9 mg/kg sediment; (no Exp-F)
Land microorganisms	PNEC = 0.63 mg/kg soil; (Exp-F = 1000)
Freshwater organisms, intermittent release	PNEC = 2.75 mg/l
Sewage treatment plant microorganisms	PNEC = 580 mg/l; (Exp-F = 10)

· ***Additional information:***
C: pregnancy group C (no effect on foetus if exposure limits are not exceeded)

· ***8.2 Exposure controls***
For an approximate assay of ethanol in air, test tubes of the type of Drager tubes are suitable, e.g. Compur (549 210 type 104 SA), Drager (81 01631 type Alcohol 25/a), Auer (5085-818 type Ethanol 100)
or passive samplers:
e.g. 3M Organic Vapour Monitor 3500B or the Drager Orsa5.

· ***Appropriate engineering controls***
Handle ethanol only with adequate ventilation, specially in closed rooms.
Take technical measures e.g. ventilation and local exhaust ventilation in order to avoid that a limit value is exceeded.
These measures, especially the exhaust ventilation near the ground, are also needed for avoiding the accumulation of
explosive vapour-air mixtures.
Use only explosion proof ventilation equipment.

· ***Personal protective equipment:***

· ***General protective and hygienic measures:***
The personal protective equipment should be selected selectively for the work place, depending of the quantity and the concentration of the substances.
The compliance with the EN international standards EN 482 and EN 689 on personal protective equipment should be checked (according to directive (EU) 2016/425).

· ***Breathing equipment:***
Respiratory protection is not necessary if the room has adequate ventilation / local exhaust ventilation.
In special situations (e.g. accidental release) use full face mask with filter of type A (brown) or ABEK (EN 14387) in addition to the technical measures, (e.g. explosion-proof mobile ventilation equipment).
Filters of type A1 are suitable up to 1000 ppm, filters of type A2 up to 5000 ppm and filters of type A3 up to 10000 ppm .
If needed as a result of the risk evaluation, use self-contained breathing apparatus with full face mask.

· ***Protection of hands:***



Protective gloves

Use chemical protection gloves of category III, according to standard EN 374 (with the "CE" mark).
The following glove materials are suitable for direct contact with ethanol:
Butyl rubber (0.5 mm, penetration time >8 h)
Fluorocarbon rubber (0.4 mm, penetration time >8 h)

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Polychloroprene (Neoprene; 0.5 mm, penetration time ca. 2 h)
The following glove materials are not suitable for direct contact with the product:
Natural rubber/Latex (NR), nitrile rubber (NBR), PVC, (but nitrile rubber may be used for splash protection).

· ***Material of gloves*** see above
· ***Penetration time of glove material***
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· ***Eye protection:***



Tightly sealed goggles

Use chemical safety goggles with side protection according to EN 166:2001.
If needed as a result of the risk evaluation, use face shield or a full face respiratory mask.
At the work place an emergency eye wash station must be available.
· ***Body protection:***
Use solvent resistant antistatic protective clothing of flame retardant fabric.
Use footwear with conductive sole (and keep the floor of exposed rooms conductive).
· ***Limitation and supervision of exposure into the environment***
According to the Swiss ordinance on the protection of the air, ethanol is classified as an organic substance of class 3. This means that the emission concentration must not be higher than 150 mg/m3 if the mass flow is equal to or above 3.0 kg/h.

Exposure scenarios:
For this product no exposure scenarios are available.
Exposure scenarios for non denatured ethanol are available on request.

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SECTION 9: Physical and chemical properties

· ***9.1 Information on basic physical and chemical properties***
· ***General Information***

· ***Physical state***	Liquid
· ***Color:***	Colorless
· ***Odor:***	Alcohol-like
· ***Odor threshold:***	93 ppm (49 - 716 ppm) ; 178 mg/m3
· ***Melting point/Melting range:***	-114 °C
· ***Boiling point/Boiling range:***	36 °C
· ***Flammability:***	Highly flammable.
· ***Explosion limits:***	
· ***Lower:***	3.1 Vol %
· ***Upper:***	27.7 Vol %
· ***Flash point:***	12 °C
· ***Auto igniting:***	400 °C

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· **Decomposition temperature:**	Not determined.
· **pH-value:**	ca. 7
· **Viscosity:**	
· **Kinematic:**	Kinematic viscosity (20 °C): 1.52 mm2/s (ethanol)
· **Dynamic:**	Dynamic viscosity (20 °C): 1.2 mPa s (ethanol)
· **Solubility in / Miscibility with**	
· **Water at 20 °C:**	1.000 g/l
· **Partition coefficient (n-octanol/water):**	log Kow = -0.3 (Ethanol)
· **Vapor pressure at 20 °C:**	58 hPa
· **Vapor pressure at 50 °C:**	293 hPa
· **Density and/or relative density**	
· **Density at 20 °C:**	0.805 g/cm³
Not determined.	
· **Relative density**	Not determined.
· **Vapor density**	Not determined.

· **9.2 Other information**	
· **Appearance:**	
· **Form:**	Fluid Percent content of water: ca. 5.8 % m/m
· **Important information on protection of health and environment, and on safety.**	
· **Ignition temperature:**	Product is not selfigniting.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· **Solvent content:**	
· **Organic solvents:**	94 %
· **Solids content:**	0.0 %
· **Change in condition**	
· **Evaporation rate**	Not determined.

· **Information with regard to physical hazard classes**	
· **Explosives**	Void
· **Flammable gases**	Void
· **Aerosols**	Void
· **Oxidising gases**	Void
· **Gases under pressure**	Void
· **Flammable liquids**	Highly flammable liquid and vapour.
· **Flammable solids**	Void
· **Self-reactive substances and mixtures**	Void
· **Pyrophoric liquids**	Void
· **Pyrophoric solids**	Void
· **Self-heating substances and mixtures**	Void
· **Substances and mixtures, which emit flammable gases in contact with water**	Void

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· **Oxidising liquids**	Void
· **Oxidising solids**	Void
· **Organic peroxides**	Void
· **Corrosive to metals**	Void
· **Desensitised explosives**	Void

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SECTION 10: Stability and reactivity

· **10.1 Reactivity**
Ethanol reacts violently with strong oxidising agents, strong reducing agents, acids, acid anhydrides, alkali metals, peroxides, producing extreme heat.
· **10.2 Chemical stability**
· **Information on the shelf life**
Under normal conditions (ambient temperature) ethanol is chemically stable.
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
· **10.3 Possibility of hazardous reactions**
Explosion danger by contact with alkali metals, alkali oxides, calcium hypochlorite, acidic anhydride, sulphur fluoride, mercury nitrate, silver/nitric acid, silver nitrate, silver nitrate/ammonia, silver oxide/ammonia, nitrogen dioxide, hydrogen peroxide.
Ethanol may react dangerously with acetyl bromide, acetyl chloride, bromine trifluoride, chromium trioxide, chromyl chloride; ethylene oxide, fluorine, potassium-tert-butoxide, lithium hydride, phosphorous trioxide, platinum black, uranium hexafluoride, zirconium(IV)-chloride, zirconium(IV)-iodide.
Vapours form explosive mixture with air. Temperatures above 9° C favour the evaporation of ethanol which may form an
explosive atmosphere with air.
Emptied, non cleaned containers may contain inflammable mixtures of vapours with air, presenting an explosion risk!
· **10.4 Conditions to avoid**
Do not heat - no flames, no sparks or other sources of ignition or conditions favouring static discharge. No smoking.
Do not drill, cut, grind, solder, braze, and weld etc. in the Ex-zone.
Prevent vapours from entering into drainage system, pits or cellars (danger of explosion).
· **10.5 Incompatible materials:** See sections 10.1 and 10.3.
· **10.6 Hazardous decomposition products:**
Flammable gases (e.g. hydrogen) may form by contact with strong oxidation agents, acids or with alkali metals.

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SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**
Abbreviations being used in this section:
LD50 = Lethal dose 50 %

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DNEL = Derived no effect level
LC50 = Lethal concentration 50 %
NOAEL = No observed adverse effect level
CMR = Carcinogenicity, Mutagenicity, Reproductive toxicity
NOAEC = No observed adverse effect conc.
Exp-F = Extrapolation factor
ATE = Acute Toxicity Estimate
SIEF = Substance Information Exchange Forum

· ***Acute toxicity:*** Based on available data, the classification criteria are not met.

· ***LD/LC50 values that are relevant for classification:***		
CAS: 64-17-5 Ethanol		
Oral	LD50	7,060 mg/kg (rat)
Inhalative	LC50/4 h	20,000 mg/l (rat)

· ***Primary irritant effect:***
· ***on the skin:***

Skin:	not irritant
Eyes:	irritant
Respiratory tract:	depends on the concentration
Corrosion:	Ethanol is not corrosive
Sensitization of the skin:	Ethanol is not sensitising
Sensitization of the respiratory tract:	Ethanol is not sensitising

Toxicity effect Data for the work place:

Local toxicity effects, acute, inhalative	no hazard identified
Local toxicity effects, acute, dermal	no hazard identified
Local toxicity effects, chronic, inhalative	no hazard identified
Local toxicity effects, chronic, dermal	no hazard identified
Systemic toxicity effects, acute, dermal	no hazard identified
Systemic toxicity effects, acute, inhalative	no hazard identified
Systemic toxicity effects, chronic, dermal	DNEL = 343 mg/kg per day (Exp-F = 24)
Systemic toxicity effects, chronic, dermal	NOAEL = 8232 mg/kg per day
Systemic toxicity effects, chronic, inhalative	DNEL = 950 mg/m3 (Exp-F = 1)

Toxicity effect data for the general population:

Local toxicity effects, acute, inhalative	DNEL = 950 mg/m3 (Exp-F = 1)
Local toxicity effects, acute, dermal	no hazard identified
Local toxicity effects, chronic, inhalative	no hazard identified
Local toxicity effects, chronic, dermal	no hazard identified
Systemic toxicity effects, acute, oral	no hazard identified
Systemic toxicity effects, acute, dermal	no hazard identified
Systemic toxicity effects, acute, inhalative	no hazard identified
Systemic toxicity effects, chronic, oral	DNEL = 87 mg/kg per day (Exp-F = 20)
Systemic toxicity effects, repeated dose, oral	NOAEL = 1730 mg/kg per day
Systemic toxicity effects, chronic, dermal	DNEL = 206 mg/kg per day (Exp-F = 40)
Systemic toxicity effects, chronic, dermal	NOAEL = 8238 mg/kg per day
Systemic toxicity effects, chronic, inhalative	DNEL = 114 mg/m3 (Carcinogenicity)

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· ***on the eye:*** Causes serious eye irritation.
· ***Germ cell mutagenicity*** Mutagenicity (bacteria): Tests negative
· ***Carcinogenicity***
Carcinogenicity (rat) NOEL >3000 mg/kg
Carcinogenicity (mouse) female: NOAEL > 44000 mg/kg
Carcinogenicity (mouse) male: NOAEL > 4250 mg/kg
· ***Reproductive toxicity***
Effects on fertility (oral) NOAEL = 13800 mg/kg per day
Effects on fertility (dermal) no data available
Effects on fertility (inhalative) NOAEC = 30400 mg/m3
Development toxicity(oral) NOAEL = 5200 mg/kg per day
Development toxicity (dermal) no data available
Development toxicity (inhalative) NOAEC = 39 000 mg/m3
· ***Aspiration hazard*** ethanol is not classified Asp. Tox. 1
· ***Additional toxicological information:***
The German Forschungsgemeinschaft DFG classified the CMR properties of ethanol as follows:
Genotoxicity: DFG group 2 of mutagenic substances
Carcinogenicity: DFG category 5 of carcinogenic substances
Foetotoxicity: DFG group C of foetotoxic substances
These classifications of the DFG are not legally enforceable.

Experience about the toxic effects on humans
Effects of acute exposure:
Effects on eyes/severe eye irritation: Pain/irritation, watering, redness.
Effects of inhalation: May cause respiratory irritation, drowsiness or dizziness/central nervous system depression.
Effects on the skin: No known significant acute effects or critical hazards.
Effects of ingestion: Irritating to mouth, throat and stomach, nauesa, possibly central nerve system depression.
Effects of subacute exposure:
The acute inhalative toxicity by inhalation to humans and animals is low.
Single exposures up to 5000 ml/m3 have no local or systemic effects on humans.
Only at much higher concentrations, effects on the central nervous system, e.g. narcotic effects, occur.
Effects of chronic exposure:
Repeated inhalative exposures at the occupational exposure limit results in blood ethanol concentrations far below
the threshold values for effects on the central nervous system.
Long-term consumption of high alcohol quantities results in toxic effects in nearly all organ systems.

Toxicological properties of denaturants with concentration ≥0.5 %
Information source: Dossier of the REACH registration (from the ECHA website).
ISOPROPYL ALCOHOL: CAS No: 67-63-0
Concentration: 5% m/m
Acute toxicity, oral: LD50 rat = 5840 mg/kg
Acute toxicity, dermal: LD50 (rabbit) = 12800 mg/kg
Acute toxicity inhalation: LC50 (6 h) rat > 10000 ppm / 25 mg/L

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Repeated dose toxicity, oral: no data available
Repeated dose toxicity, dermal: no data available
Repeated dose toxicity inhalation: NOAEC rat = 5000 ppm
Skin corrosion/irritation: rabbit: not irritating
Eye damage/irritation: rabbit: irritating (category 2)
Skin sensitization: guinea pig: not sensitising
Respiratory sensitization: no data available
Local effects, acute, inhalation, worker: no data available
Local effects, long term exposure, inhalation, worker: no data available
Systemic effects, long term exposure, inhalation, worker: DNEL = 500 mg/m3
Systemic effects, long term exposure, dermal, worker: DNEL = 888 mg/kg /day
Carcinogenicity/mutagenicity/toxicity to reproduction: not classified

· ***OSHA-Ca (Occupational Safety & Health Administration)***

None of the ingredients is listed.

· ***11.2 Information on other hazards***

· ***Endocrine disrupting properties***

None of the ingredients is listed.

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SECTION 12: Ecological information

· ***12.1 Toxicity***
· ***Aquatic toxicity:***
The information in this section is valid for normal non-denatured ethanol. Most of it is contained in the Chemical Safety Report
of the REACH registration dossier of ethanol or found in the GESTIS database on hazardous substances.

Abbreviations being used in this section:
LC50 = Lethal concentration 50 %
EC50 = Effect concentration 50 % (Effect: e.g. immobilization of invertebrates)
EC10 = Effect concentration 10 % (effect being observed on 10 % of the laboratory animals)
PNEC = Predicted no effect concentration (for environmental toxicity)
Exp-F = Extrapolation factor
PBT = Persistent, bioaccumulative, toxic
vPvB = very persistent, very bioaccumulative

Environmental toxicity

LC50 acute, for freshwater fish	11200 mg/l
LC50 long-term, for freshwater fish	no data available
EC50/LC50 acute, for freshwater invertebrates	5012 mg/l
EC50/LC50 acute, for seawater invertebrates	857 mg/l
EC10/LC10 or NOEC long-term, for freshwater invertebrates	9.6 mg/l
EC10/LC10 or NOEC long-term, for seawater invertebrates	79 mg/l
EC50/LC50 acute, for freshwater algae	275 mg/l
EC50/LC50 acute, for seawater algae	1970 mg/l

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EC10/LC10 or NOEC long-term, for freshwater algae	11.5 mg/l
EC10/LC10 or NOEC long-term, for seawater algae	1580 mg/l
LC50 for sediment organisms	8200 -10000 mg/l
EC50/LC50 for land plants	633 mg/kg soil
EC50/LC50 for water microorganisms	5800 mg/l

PNEC-Values (Predicted No Effect Concentration)

Freshwater organisms, continuous liberation	
Seawater organisms, continuous liberation	PNEC = 0.79 mg/l (Exp-F = 100)
Freshwater sediment microorganisms	PNEC = 3.6 mg/kg sediment (distrib.-coeff.)
Seawater sediment microorganisms	PNEC = 2.9 mg/kg sediment (no F-indication)
Soil microorganisms	PNEC = 0.63 mg/kg soil (Exp-F = 1000)
Freshwater organisms, intermittent release	PNEC = 2.75 mg/l (Exp-F = 100)
Sewage microorganisms	PNEC = 580 mg/l (Exp-F = 10)
Predators oral (secondary poisoning)	PNEC = 0.38 g/kg food

· ***12.2 Persistence and degradability***

Biological degradability in the modified OECD Screening Test	0.94
Biological oxygen demand BOB5	0.93 - 1.67 g/g

· ***12.3 Bioaccumulative potential***

Biological degradability in the modified OECD Screening Test	0.94
Biological oxygen demand BOB5	0.93 - 1.67 g/g

· ***12.4 Mobility in soil*** Ethanol is very volatile and evaporates easily from the soil surface.
· ***12.5 Results of PBT and vPvB assessment***
· ***PBT:*** Not applicable.
· ***vPvB:*** Not applicable.
· ***12.6 Endocrine disrupting properties***
The product does not contain substances with endocrine disrupting properties.
· ***12.7 Other adverse effects***
· ***Additional ecological information:***
· ***General notes:***
Because of the low distribution coefficient and the good biodegradability, bioaccumulation in organisms is not expected.

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SECTION 13: Disposal considerations

· ***13.1 Waste treatment methods***
Recycling by distillation. If recovery is not feasible, wastes have to be eliminated in accordance with local requirements,
i.e. by an approved waste disposal company.
Swiss VeVA waste code: S 20 01 13 Solvents
European waste code: 20 01 13* Solvents
For mixtures containing ethanol, other waste codes may be applicable.
Waste code for contaminated adsorbents, wiping cloths, protective clothing:
S 15 02 02 (CH), resp. 15 02 02* (EU)

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· ***Recommendation:***
Do not dispose of ethanol waste through the drains.

Cleaned receptacles
Cleaned receptacles may be reused.
Recommended cleaning agent: water.

· ***Uncleaned packagings:***
· ***Recommendation:***
Disposal must be made according to official regulations.

Non cleaned receptacles
Vapours in emptied but not dried receptacles present an extreme danger of explosion. These receptacles should be cleaned.
Never give away "empty" drums for solvents to a private person. Never drill, cut, grind, sold, braze or weld on such a drum.
The waste code for "Packaging materials containing residues of hazardous residues or contaminated by hazardous substances" is:
S 15 01 10, (CH), resp. 15 01 10* (EU)

SECTION 14: Transport information

· ***14.1 UN-Number***	
· ***ADR, IMDG, IATA***	UN1170
· ***14.2 UN proper shipping name***	
· ***DOT***	Ethanol
· ***ADR***	1170 ETHANOL
· ***IMDG, IATA***	ETHANOL
· ***14.3 Transport hazard class(es)***	
· ***ADR, IMDG, IATA***	
· ***Class***	3 Flammable liquids
· ***Label***	3
· ***14.4 Packing group***	
· ***ADR, IMDG, IATA***	II
· ***14.5 Environmental hazards:***	Not applicable.
· ***14.6 Special precautions for user***	Warning: Flammable liquids
· ***Hazard identification number (Kemler code):***	33

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· **EMS Number:**	F-E,S-D
· **Stowage Category**	B
· **14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	
· **Transport/Additional information:**	
· **ADR**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **Transport category**	2
· **Tunnel restriction code**	D/E
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **UN "Model Regulation":**	UN 1170 ETHANOL, 3, II

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SECTION 15: Regulatory information

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

Specific EU legislation
Regulation (EC) No 2037/2000 (substances that deplete the ozone layer): Not applicable
Regulation (EC) No 850/2004 (persistent organic pollutants): Not applicable
Regulation (EC) No 689/2008 (exportation and importation of dangerous chemicals): Not applicable
Directive 2002/95/EC (RoHS directive, substances in the RoHS list): Not applicable
Regulation (EU) 528/2012 (on biocidal products). Status of ethanol as active substance is "in discussion"
Authorisation according to title VII of the REACH regulation (EC) No 1907/2006: Not concerned
Restrictions according to title VIII of the REACH regulation (EC) No 1907/2006: None

National legislation of Germany:
VOC percent content according to the solvent regulation (31. BImSchV): ca. 94 % m/m
Class according to AwSV Annex 1 of endangering the aquatic environment: WGK = 1 (slightly hazardous)
If the ethanol is intended for food, the WGK classification is not applicable.

National legislation of Switzerland:
Ordinance on biocide products, SR 813.12: Status of ethanol as active substance is "in discussion"
Ordinance on risk reduction, SR 814.81: No restriction
PIC Ordinance, 814.82: No restriction

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Major accidents ordinance, SR 814.012: Refer to section 7.2
Ordinance on the protection of the air, 814.318.142.1: Refer to section 8.2.3
Technical ordinance on wastes, SR 814.600: General provisions about wastes
Ordinance on the transportation of wastes, SR 814.610: Refer to section 13.1
Ordinance on the incentive tax on VOC, SR 814.018; VOC content: ca. 94 % m/m
Mutterschutzverordnung, SR 822.111.52: No employment restrictions due to ethanol
Jugendarbeitsschutzverordnungen , SR 822.115 und SR 822.115.2: No employment restrictions due to ethanol
Swiss water pollutant class: B (is only of relevance for large quantities)

· ***Sara***

· ***Section 355 (extremely hazardous substances):***
None of the ingredients is listed.

· ***Section 313 (Specific toxic chemical listings):***
None of the ingredients is listed.

· ***Proposition 65***

· ***Chemicals known to cause cancer:***
None of the ingredients is listed.

· ***Chemicals known to cause reproductive toxicity for females:***
None of the ingredients is listed.

· ***Chemicals known to cause reproductive toxicity for males:***
None of the ingredients is listed.

· ***Chemicals known to cause developmental toxicity:***

CAS: 64-17-5	Ethanol	95.0%

· ***Carcinogenic categories***

· ***EPA (Environmental Protection Agency)***
None of the ingredients is listed.

· ***TLV (Threshold Limit Value)***

CAS: 64-17-5	Ethanol	A3

· ***NIOSH-Ca (National Institute for Occupational Safety and Health)***
None of the ingredients is listed.

· ***Labelling according to Regulation (EC) No 1272/2008***
The product is classified and labeled according to the CLP regulation.

· ***Hazard pictograms***



GHS02 GHS07

· ***Signal word*** Danger

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· ***Hazard statements***
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.
P241	Use explosion-proof electrical/ventilating/lighting/equipment.
P243	Take precautionary measures against static discharge.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

· ***Directive 2012/18/EU***
· ***Named dangerous substances - ANNEX I*** None of the ingredients is listed.
· ***Seveso category*** P5c FLAMMABLE LIQUIDS
· ***Qualifying quantity (tonnes) for the application of lower-tier requirements*** 5.000 t
· ***Qualifying quantity (tonnes) for the application of upper-tier requirements*** 50.000 t

· ***National regulations:***

· ***Water hazard class:*** Water hazard class 1 (Self-assessment): slightly hazardous for water.

· ***Other regulations, limitations and prohibitive regulations***
· ***Additionnal informations according ChemRRV*** None.
· ***15.2 Chemical safety assessment:***
A chemical safety assessment hasn't been carried out for denatured ethanol. However there is a chemical safety report on non-denatured ethanol.
The data contained in it have been taken into account in this safety data sheet. As the concentration of the denaturing agents is rather low, most results of the chemicals safety report are also valid for this denatured quality.

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SECTION 16: Other information

This information in this data sheet is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.
This product is for professional use only.

Hazard identification statements used in sections 2 an 3
Eye Irrit. 2 = Serious eye damage/eye irritation, category 2
Flam. Liq. 2 = Flammable liquid, category 2
STOT SE 3 = Specific target organ toxicity, category 3

Pictograms
GHS01 = Exploding bomb
GHS02 = Flame
GHS03 = Flame over circle
GHS04 = Gas cylinder
GHS05 = Corrosion

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GHS06 = Skull and crossbones
GHS07 = Exclamation mark
GHS08 = Health hazard
GHS09 = Environment

All precautionary statements of ethanol (according to the chemical safety report):
Remark: The labels should not contain more than 6 P statements.
The use of P-phrases 102 and 501 is mandatory for the labelling of products for the general public.
P102 = Keep out of reach of children
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.
P264 = Wash hands thoroughly after handling.
P280 = Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353 = IF ON SKIN (or hair): Remove/Take of 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.
P370+P378 = In case of fire: Use extinguishing media specified in section 5.1 for extinction.
P403+P235 = Store in a well-ventilated place. Keep cool.
P501 = Dispose of contents/container in accordance with local/regional/national/international regulations.

· ***Relevant phrases***
H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
EUH018 In use may form flammable/explosive vapour-air mixture.

· ***Abbreviations and acronyms:***
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety

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OSHA: Occupational Safety & Health
Flam. Liq. 2: Flammable liquids – Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
· **** Data compared to the previous version altered.***