



ALMAGEST AG	SAFETY DATA SHEET	
	according to Regulation (EC) № 1907/2006 (REACH)	
	DENATURED ETHYL ALCOHOL	
<i>Issue Date 19 September 2018</i>		<i>Version 10.00</i>
		<i>Revision Date 30.03.2018</i>
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1. IDENTIFICATION OF THE SUBSTANCE/ MIXTURE AND OF THE COMPANY/UNDERTAKING		
1.1. Product identifier		
Product name	Denatured Ethyl Alcohol	
EC name	Ethanol	
CAS number	64-17-5	
EC number	200-578-6	
Registration number according to Regulation 1907/2006 (REACH)	Ethanol	01-2119457610-43-0311
1.2. Relevant identified uses of the substance or mixture and uses advised against		
Relevant identified uses	<ul style="list-style-type: none"> - Solvents; - Anti-freezing agents; - Heat transfer agents; - Fuels and fuel additives; - Laboratory chemicals; - Intermediates; <p><u>For a full list of intended uses, exposure scenarios are provided as an annex to the safety data sheet:</u></p> <p>Manufacture Use as an intermediate Use as a process chemical Distribution Formulation Use as a solvent in industrial applications Use as a fuel in industrial applications Use as a solvent in professional applications Use as a fuel in professional applications Use as a functional fluid in industrial applications Use as a functional fluid in professional applications Use as a laboratory chemical in industrial Consumer use as an automotive fuel Consumer use as a domestic fuel Consumer use in products <50g per event Consumer use as a functional fluid Consumer use in coatings and paints Consumer use in antifreeze, deicing and screenwash products Consumer use in washing and cleaning products. Consumer use in cosmetics</p>	
Uses advised against	Are not known.	
Reason why uses advised against	It is recommended that uses be limited to those listed in the section Relevant identified uses.	
1.3. Details of the supplier of the safety data sheet		
Company/undertaking identification	Almagest AG, 17 Banat str., 1407 Sofia, Bulgaria tel +359 2 981 21 53; fax +359 2 980 66 82	
Responsible Department/Person	e-mail i.dineva@almagest-bg.eu	
1.4. Emergency telephone	Website of the European Chemicals Agency (ECHA) on poison centers in the European Union. https://poisoncentres.echa.europa.eu/bg/home Bulgaria - National Toxicology Center, Hospital for Active Medical Treatment and Emergency Medicine "N.I.Pirogov" Emergency number/ fax: +359 2 9154 213 E-mail: poison_centre@mail.orbitel.bg http://www.pirogov.bg the European emergency phone number – 112	
2. HAZARDS IDENTIFICATION		

2.1. Classification of the substance or the mixture	
Classification according to Regulation 1272/2008	Flammable Liquid, Hazard Category 2 (Flam. Liq. 2), H 225 Serious eye damage/eye irritation, Hazard Category 2 (Eye Irrit. 2) , H319 <i>For full text of the H-statements mentioned in this section, see section 16.</i>
Adverse physicochemical, human health and environmental effects	Highly flammable liquid and vapour. Causes serious eye irritation.

2.2. Label elements

According to Regulation 1272/2008	
Classification	Flammable Liquid, Hazard Category 2 (Flam. Liq. 2), H 225 Serious eye damage/eye irritation, Hazard Category 2 (Eye Irrit. 2) , H319
GHS Pictograms	 
Signal word	Danger
Hazard statements	H225 Highly flammable liquid and vapour. H319 Causes serious eye irritation.
Precautionary Statements - Prevention	P210 Keep away from heat, sparks, open flames and 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 ... thoroughly after handling. P280 Wear protective gloves/ protective clothing/ eye protection /face protection.
Precautionary Statements - Response	P303 + P361 + P353 IF ON SKIN (or hair): Remove/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. P370 + P378 In case of fire Use carbon dioxide, alcohol –proof foam and powder for extinction.
Precautionary Statements - Storage	P403 + P235 Store in a well-ventilated place. Keep cool.
Precautionary Statements - Disposal	P501 Dispose of contents / container to certified waste disposal contractor.

2.3. Other hazards

Does not meet the criteria for PBT or vPvB according to regulation 1907/2006.

3. COMPOSITION/INFORMATION ON INGREDIENTS**3.1. Substances****3.2.* Mixtures****According to Regulation 1272/2008**

Constituent (EC name)	EO № EINECS- № ELINCS №	CAS №	REACH registration number	Classification		Specific Conc. Limits, M-factors	Concentration [m/m %]
				Hazard Class and Category Code(s)	Hazard Statement Code(s)		
Ethanol	200-578-6	64-17-5	01-2119457610-43-0311	Flammable liquids, Hazard Category 2 (Flam. Liq. 2)	H225	Eye Irrit. 2; H319 C ≥ 50%	≥ 88,29
				Serious eye damage/eye irritation, Hazard Category 2 (Eye Irrit. 2)	H319		
Isopropyl alcohol	200-661-7	67-63-0	01-2119457558-25-XXXX	Flammable liquids, Hazard Category 2 (Flam. Liq. 2)	H225	no data available	0,99

				Serious eye damage/eye irritation, Hazard Category 2 (Eye Irrit. 2)	H319		
				Specific target organ toxicity — Single exposure, Hazard Category 3, Narcosis (STOT SE 3)	H336		
Methylethylketone	201-159-0	78-93-3	01-2119457290-43-XXXX	Flammable liquids, Hazard Category 2 (Flam. Liq. 2)	H225	no data available	1,02
				Serious eye damage/eye irritation, Hazard Category 2 (Eye Irrit. 2)	H319		
				Specific target organ toxicity — Single exposure, Hazard Category 3, Narcosis (STOT SE 3)	H336		
Denatoniumbenzoate; Bitrex	223-095-2	3734-33-6	01-2120102843-65-XXXX	Acute toxicity (oral), Hazard Category 4 (Acute Tox. 4)	H302	no data available	0,001
				Skin corrosion/irritation, Hazard Category 2, (Skin Irrit. 2)	H315		
				Serious eye damage/eye irritation, Hazard Category 1 (Eye Dam. 1)	H318		
				Hazardous to the aquatic environment — Chronic Hazard, Category 3 (Aquatic Chronic 3)	H412		

Additional advice: For full text of the H-statements mentioned in this section, see section 16.

The safety data sheet should not contain blank subsections. When the information is not available the relevant subsection is necessary to include "no data available".

4. FIRST AID MEASURES

4.1 Description of first aid measures

After inhalation	Remove from exposure, taking care to avoid inhaling vapours. Keep warm rest. Obtain medical attention if symptoms appear.
After skin contact	Wash skin with water. Remove contaminated clothing. Obtain medical attention if soreness or redness persists.
After eye contact	Immediately flood the eye with plenty of water for at least 15 minutes, holding the eye open. Remove contact lenses if possible. Obtain medical attention.
After swallowing	Do not induce vomiting. Obtain medical attention if symptoms appear or if large quantities have been ingested. Accidental ingestion at a level high enough to be dangerous to health is unlikely.

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

Eyes	Liquid or vapour may cause eye irritation.
Skin	Material may cause slight irritation on prolonged or repeated contact.
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.

4.3. Indication of immediate medical attention and special treatment needed

If breathing stops	Mouth to mouth respiration or mechanical ventilation. Oxygen mask if necessary!
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	Immediately call a doctor.
If skin irritation occurs	Get medical advice.
If eye irritation persists	Immediately call a physician.
Caution if victim vomits	Risk of aspiration! Immediately call in physician. Keep airways free.
5. FIRE-FIGHTING MEASURES	
5.1. Extinguishing media	
Suitable extinguishing	Dry chemical, alcohol resistant foam, carbon dioxide, water spray
Unsuitable extinguishing	Water jet
5.2. Special hazards arising from the substance or mixture	
Hazardous combustion products	Flammable liquid and vapour. Oxides of carbon
Additional information	Be aware of possibility of re-ignition. This product gives off flammable vapours which may form explosive mixtures with air. Vapours with a source of ignition can create a flash fire, not a UVCE (Unconfined Vapour Cloud Explosion). Run off to sewer may cause fire or explosion hazard. Containers may explode in heat of fire. Use water spray to cool fire-exposed containers and to disperse vapour.
5.3. Advice for firefighters	
Special protective equipment for fire-fighters	Self-contained breathing apparatus with full-face mask and full protective clothing (standard wear).
6. ACCIDENTAL RELEASE MEASURES	
6.1. Personal precautions, protective equipment and emergency procedures	
Advice for non-emergency personnel	Avoid substance contact. Do not breathe vapours, aerosols. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe the emergency procedures, consult an expert.
Advice for emergency personnel	Eliminate all sources of ignition. Wear appropriate protective clothing. Avoid breathing vapours. Keep unnecessary people away; isolate hazard area and deny entry. Consider need for evacuation. Stay up wind and keep out of low areas where vapour may accumulate and ignite. Stop leak if this can be achieved without risk. For advice on personal protection clothing, see chapter 8.
6.2. Environmental precautions	Try to prevent the material from entering drains or water courses. Advise Authorities if spillage has entered water course or sewer or has contaminated soil or vegetation.
6.3. Methods and materials 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. Ventilate contaminated area thoroughly. Use non-sparking tools. Do not use electrical equipment unless it is intrinsically safe
Large spills	Dike or dam to contain for later disposal. Cover drains. Contact emergency authorities
6.4. Reference to other sections	Section 8 contains more detailed advice on personal protective equipment and section 13 on waste disposal.
7. HANDLING AND STORAGE	
7.1. Precautions for safe handling	Avoid inhaling vapour. Avoid contact with eyes, skin and clothing. Suitable equipment for dealing with fires, spills and leaks must be readily available. Earth all equipment. Use explosion protected electrical equipment and lighting. Use closed-system transfers wherever possible. Earth (ground) lines and equipment used. Do not smoke eat or drink in areas of use and storage.
7.2. Conditions for safe storage, including any incompatibilities	Storage area should be cool, dry, well ventilated, out of direct sunlight and separated from oxidants and strong mineral acids. Store in original containers. Keep containers tightly closed. Store in a bunded area. Store away from sources of heat or ignition. Storage tanks should have equipotential electrical bonding and be earthed.
Incompatible materials	Natural rubber, PVC, methyl-methacrylate plastics, polyamides, zinc, brass, aluminium under certain conditions

Compatible materials

Stainless steel, titanium, cast bronze, cast iron, carbon steel, polypropylene, neoprene, nylon, Viton, ceramic, carbon, glass.

7.3. Specific end uses

Please refer to exposure scenarios attached to this safety data sheet.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1. Control parameters****Components with workplace control parameters**

According to Bulgarian Decree № 13/30.12.2003 on the protection of workers against the risks of exposure to chemical agents at work.

Components	CAS №	Threshold limits, mg/m ³	Specific effects
Ethanol	64-17-5	1000 mg/m ³ (duration – 8h)	no data available
Isopropyl alcohol	67-63-0	980 mg/m ³ (duration – 8h) 1225 mg/m ³ (duration – 15 min)	no data available
Methylethylketone	78-93-3	590 mg/m ³ (duration – 8h) 885 mg/m ³ (duration – 15 min)	no data available
Denatoniumbenzoate; Bitrex	3734 – 33 – 6	no data available	no data available

Additional advice: The safety data sheet should not contain blank subsections. When the information is not available the relevant subsection is necessary to include "no data available".

*Ethanol (64-17-5)*Inhalation DNEL (long term, systemic) :950mg/m³ (500ppm) (ethanol)

Dermal DNEL (long term, systemic): 343mg/kgbw/day (ethanol)

PNEC aqua (freshwater): 0.96mg/l (ethanol)

PNEC aqua (marine water): 0.79mg/l (ethanol)

PNEC aqua (intermittent release): 2.75mg/l (ethanol)

PNEC STP: 580mg/l (ethanol)

PNEC sediment (freshwater): 3.6mg/kgdw (ethanol)

PNEC sediment (marine water): 2.9mg/kgdw (ethanol)

PNEC soil: 0.63 mg/kgdw (ethanol)

PNEC oral: 0.38g/kg food (ethanol)

Isopropyl alcohol (67-63-0)

DNEL propan-2-ol:

End use: Workers

Exposure routes: Skin contact

Potential health effects: Long-term systemic effects

Value: 888 mg / kg

End use: End Users

Exposure routes: Ingestion

Potential health effects: Long-term systemic effects

Value: 500 mg / m³

End Use: Consumers

Exposure routes: Skin contact

Potential health effects: Long-term systemic effects

Value: 319 mg / kg

End Use: Consumers

Exposure routes: Inhalation

Potential health effects: Long-term systemic effects

Value: 89 mg / m³

End Use: Workers

Exposure routes: Inhalation

Potential health effects: Long-term systemic effects

Value: 26 mg /kg

PNEC propan-2-ol:
 freshwaters
 Value: 140,9 mg / l
 Sea water
 Value: 140,9 mg / l
 freshwater sediments
 Value: 552 mg / kg
 marine sediment
 Value: 552 mg / kg
 soil
 Value: 28 mg / kg

Ethyl methyl ketone (78-93-3)

Butanone DNEL:
 End use: Workers
 Exposure routes: Skin contact
 Potential health effects: Long-term systemic effects
 Value: 1161 mg / kg
 End use: Workers
 Exposure routes: Inhalation
 Potential health effects: Long-term systemic effects
 Value: 600 mg / m³
 End use: End Users
 Exposure routes: Skin contact
 Potential health effects: Long-term systemic effects
 Value: 412 mg / kg
 End use: End Users
 Exposure routes: Inhalation
 Potential health effects: Long-term systemic effects
 Value: 106 mg / m³
 End use: End Users
 Exposure routes: Ingestion
 Potential health effects: Long-term systemic effects
 Value: 31 mg / kg

Butanone PNEC:
 Freshwaters
 Value: 55,8 mg / l
 Sea water
 Value: 55,8 mg / l
 freshwater sediments
 Value: 284,74 mg / kg
 marine sediment
 Value: 287,7 mg / kg
 Soil
 Value: 22,5 mg / kg

Bitrex (3734 – 33 – 6)

no data available

8.2. Exposure controls

Use of the basic principles of Industrial Hygiene will enable this material to be used safely. Exposure to this material may be controlled in a number of ways. The measures appropriate for a particular worksite depend on how the material is used and on the potential for exposure. If engineering controls and work practices are not effective in preventing or controlling exposure, then suitable personal equipment, which is known to perform satisfactorily, should be used.

8.2.1. Appropriate engineering control

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.
 See section 7.1

8.2.2 Personal protection equipment

Protective clothing needs to be selected specifically for the workers, depending on concentrations and quantities of the hazard substances handled.
 The chemical resistance of the protective equipment should be enquired at the respective supplier.

Hygiene measures

Do not inhale substance.

	Immediately changed contaminated clothing and clean and dry before re-use it. Danger because of wicking-effect. Preventive skin protection recommended. Wash gloves and hands after working with substance Do not eat, drink or smoke when using this product.								
Eye protection	Wear sealed eye protection and protect face against splashing.								
* Skin protection	The protective gloves to be used must comply with specifications of Regulation 425/2016 and the related standard EN 16523-1. Wear gloves with breakthrough times >480 minutes: Nitrile rubber gloves. Butyl rubber gloves. (complying to EN 16523-1, typically >0.5mm thick). The exact choice of glove type depends on the type of work being undertaken. Gloves should be chosen in consultation with a glove manufacturer and after a full assessment of the working conditions. Gloves should be replaced regularly. <table border="1"> <tr> <td>Hand protection</td> <td>In full contact</td> </tr> <tr> <td>Glove material</td> <td>Nitrile rubber, Butyl rubber</td> </tr> <tr> <td>Layer thickness</td> <td>>0.5 mm</td> </tr> <tr> <td>Breakthrough time</td> <td>>480Min.</td> </tr> </table>	Hand protection	In full contact	Glove material	Nitrile rubber, Butyl rubber	Layer thickness	>0.5 mm	Breakthrough time	>480Min.
Hand protection	In full contact								
Glove material	Nitrile rubber, Butyl rubber								
Layer thickness	>0.5 mm								
Breakthrough time	>480Min.								
Respiratory protection	Respiratory protection required when vapour/aerosols are generated. Use with adequate ventilation. In case of insufficient local exhaust ventilation and/or handling with open equipment: Respiratory air fed breathing apparatus if there is a risk of exposure to high vapour concentrations. If using a half mask: organic vapour cartridge Ax type.								
Other	Body Protection: Flame retardant antistatic protective clothing.								

8.2.3. Environmental exposure controls: Do not empty into drain. Risk of explosion.

Ethanol is classed as a VOC under Solvent Emissions Directive 2010/75. Abatement control measures such as incineration or solvent recovery should be used in combination with fugitive emission controls to ensure compliance with this directive.

Components with workplace control parameters

According to Bulgarian Decree № 14/23.09.1997 for rules to limit concentrations of harmful substances in ambient air of populated.

Harmful substances (pollutants)	Concentration, mg/m ³		
	Average annual	Twenty - four hour average (exposure duration -24h)	Maximum one- off (30-minute short-term exposure)
Ethanol	no data available	5.0	5.0
Isopropyl alcohol	no data available	0.6	0.6
Methylethylketone	no data available	no data available	no data available
Denatoniumbensoate; Bitrex	no data available	no data available	no data available

Additional advice: The safety data sheet should not contain blank subsections. When the information is not available the relevant subsection is necessary to include "no data available".

9. PHYSICAL AND CHEMICAL PROPERTIES**9.1. Information on basic physical and chemical properties**

Appearance	Liquid colourless
Odour	Mild but typical alcoholic odour
Odour Threshold	no data available
pH value at 20 °C	7,0
Melting point (at 101325 Pa)	-114 °C (at 101325 Pa)
Boiling point (at 101325 Pa)	78 °C (at 101325 Pa)
Flash point	13 °C
Evaporation rate	No data
Flammability (solid/gas)	not applicable
Upper/lower flammability or explosive limits	
Lower explosive limits (LEL)	2,5 %
Upper explosive limits (UEL)	13,5 %
Vapour pressure	5726 Pa at 20 °C
Vapour density	no data available
Relative density	0,7844 at 25 °C
Solubility (ies)	Fully miscible with water
Log Pow (Partition co-efficient: n-octanol/water)	- 0,35 at 20 °C
Auto-ignition temperature	363 °C at 101325 Pa
Decomposition temperature	no data available

Viscosity	1,2 mPas at 20 °C
Explosive properties	Not explosive
Oxidizing properties	Not oxidising
Other information	None

Additional advice: The safety data sheet should not contain blank subsections. When the information is not available the relevant subsection is necessary to include "no data available".

9.2. Other data	No data available
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10. STABILITY AND REACTIVITY

10.1. Reactivity	May react violently with very strong oxidising agents (eg perchlorates).
10.2. Chemical stability	Stable under normal conditions.
10.3. Possibility of hazardous reactions	No hazardous reactions anticipated
10.4. Conditions to avoid	High temperatures. Proximity to sources of ignition
10.5. Incompatible material	Strong mineral acids, oxidising agents. Aluminium at higher temperatures.
10.6. Hazardous decomposition products	Combustion will generate oxides of carbon.

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects	
Acute toxicity	ORAL (OECD401 equivalent): Rat LD50: 6.2 – 15g/kgbw (ethanol) INHALATION (OECD403 equivalent): Rat LC50 (4hr) >50mg/l (ethanol) DERMAL: No data available. Available data indicates that classification criteria are not met.
Skin corrosion/irritation	All available acute 4 hour exposure (ethanol) studies show not irritating in animals (OECD404 or equivalent) and humans. In humans, repeated dose (ethanol) studies show no irritation with repeated application over a whole day under occlusive conditions for up to 12 days. Further exposures (ethanol) cause irritation to occur. Available data indicates that classification criteria are not met.
Serious eye damage/irritation	Studies according to OECD guideline 405 generally (ethanol) 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 under regulation 1272/2008.
Respiratory or skin sensitisation	Mouse swelling study: negative (ethanol) Local Lymph Node Assay (OECD429): Negative (ethanol) Guinea Pig maximisation study: (OECD406) Negative (ethanol) Respiration sensitisation: no data available. Available data indicates that classification criteria are not met.
Germ cell mutagenicity	Bacterial reverse mutation studies (OECD471): all negative (ethanol) In vitro cytogenicity studies (eg OECD473): negative without metabolic activation (ethanol). No studies available with metabolic activation. In vitro mammalian cell gene mutation studies (ef OECD476): negative with and without metabolic activation (ethanol). In vivo micronucleus test (OECD474): no convincing evidence that ethanol causes micronuclei in the bone marrow. In vivo chromosome aberration test (OECD475): negative (ethanol). Dominant Lethal assay (OECD478): 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.
Carcinogenicity	Rats: NOAEL > 3000mg/kg (ethanol) Mice: Females NOAEL > 4400mg/kg (ethanol), Males NOAEL > 4250mg/kg (ethanol) based on historic control data, BMDL10 = 1400mg/kg (ethanol) based on concurrent control data. 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.
Reproductive toxicity	<p>FERTILITY:</p> <p>NOAEL (oral, mouse) = 13.8g/kg (OECD416 equiv.) (ethanol)</p> <p>NOAEC (inhalation, rat) >16,000ppm (ethanol)</p> <p>DEVELOPMENTAL TOXICITY (OECD414 equiv) (ethanol):</p> <p>NOAEL (oral) = 5.2g/kgbw/day (ethanol)</p> <p>NOAEC (inhalation) = 39mg/l(ethanol).</p> <p>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. There is no evidence that such effects might be caused by exposures other than direct ingestion of alcoholic drinks. Blood ethanol concentrations resulting from ethanol exposure by any route other than deliberate and repeated oral consumption are unlikely to reach levels associated with reproductive or developmental effects. From the available data, it can be concluded that it is impossible to reach the doses of ethanol required to produce any sort of adverse reproductive response other than by repeated oral consumption of large amounts of ethanol, doses normally only associated with problem drinking, and therefore classification for reproductive or developmental toxicity in the context of a chemical substance is not appropriate or warranted.</p>
STOT – single exposure	No specific target organ effects observed following single exposure.
STOT – repeated exposure	In sub-chronic feeding or drinking water studies in rats, NOAELs ranged from 1.73g/kg to 3.9g/kg (ethanol). 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.
Aspiration hazard	No aspiration hazard expected.
Toxicokinetics	In humans, ethanol is readily absorbed by the oral and inhalation routes, is distributed throughout all tissues and organs and is readily, metabolized and excreted. At exposures relevant to occupational inhalation exposure, the alcohol dehydrogenase metabolic route in the liver dominates and does not become saturated. Ethanol is not accumulated in the body. Dermal uptake of ethanol is very low.
Likely routes of exposure	Inhalation is the most likely route of exposure (ethanol) during normal use. Dermal uptake (ethanol) only likely under extended exposure under occluded conditions. Substance is readily absorbed following ingestion.
Symptoms related to the physical and toxicological characteristics	<p>INGESTION: Swallowing (ethanol) may have the following effects: central nervous system depression, nausea/vomiting, symptoms similar to alcoholic beverage intoxication.</p> <p>INHALATION: Inhalation of high vapour concentrations (ethanol) may cause transient irritation of the respiratory tract, headache, nausea.</p>
Delayed effects	Delayed effects not expected.

12. ECOLOGICAL INFORMATION

12.1. Toxicity:	<p>FISH:</p> <p>LC50 (96hr) Salmo gairdneri: 13g/l (ethanol);</p> <p>Pimephales promelas: 13.5, 14.2 and 15.3g/l (ethanol).</p> <p>INVERTEBRATES FRESHWATER:</p> <p>EC50 (48hr) Daphnia Magna: 12.34g/l (ethanol);</p> <p>NOEC (reproduction, 21 days): >10mg/l (ethanol).</p> <p>Ceriodaphnia dubia: EC50 (48hrs): 5.012g/l (ethanol);</p> <p>NOEC (reproduction, 10 days): 9.6mg/l (ethanol).</p> <p>Palaemonetes pugio NOEC (developmental, 10 days): 79mg/l (ethanol).</p> <p>INVERTEBRATES SALTWATER:</p> <p>EC50 (24hr) Artemia salina 23.9, >10g/l (ethanol);</p> <p>EC50 (48hr) Artemia salina nauplii: 857mg/l (ethanol)</p> <p>AQUATIC ALGAE FRESHWATER:</p> <p>Chlorella vulgaris, 72hr: EC50 275mg/l, EC10 11.5mg/l (ethanol);</p> <p>Selenastrum capricornutum, 72hr, EC50: 12.9g/l, EC10=0.44g/l (ethanol);</p> <p>Chlamydomonas eugametos, 48hr, EC50: 18g/l, NOEC=7.9g/l (ethanol)</p>
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	AQUATIC ALGAE SALTWATER: Skeletonema costatum, NOEC (5 days): 3.24g/l (ethanol).	
12.2. Persistence and degradability		
Biologic degradation	The ethanol is readily biodegradable. BOD ₂₀ =84%. Substance is expected to degrade readily in sewage treatment plants.	
12.3. Bioaccumulative potential	Based on the partition coefficient, the substance has a low bioaccumulation potential	
12.4. Mobility in soil	If (ethanol) released to air or water the product will disperse rapidly. If released to soil it will evaporate at a rapid rate. The product is volatile and water soluble. If released to the environment it will partition to air and water. The product is poorly absorbed on to soil or sediments.	
12.5. Results of PBT and vPvB assessment	Persistence Assessment: Substance is readily biodegradable and is therefore neither P nor vP. Bioaccumulation Assessment: Substance logKow<4.5 and is therefore it is neither B nor vB. Toxicity Assessment: Acute aquatic toxicity (LC50 and EC50) >0.1mg/l (ethanol). Substance is neither carcinogenic, mutagenic nor teratogenic. Substance is not T.	
12.6. Other adverse effects		
Further ecological information	No other adverse effects known.	
13. DISPOSAL CONSIDERATIONS		
13.1. Waste treatment methods		
Substance disposal	Dispose of in accordance with the Directive on waste 2008/98/EC as well as all applicable local and national regulations. Use recovery/recycling where feasible, otherwise incineration is the recommended method of disposal. If correctly incinerated this material will decompose to carbon dioxide and water only.	
Container disposal	Empty containers may contain hazardous residues. Do not cut, puncture or weld on or near to the container. Labels should not be removed from containers until they have been cleaned. Contaminated containers must not be treated as household waste. Containers should be cleaned by appropriate methods and then re-used or disposed of by landfill or incineration as appropriate. Do not incinerate closed containers.	
Key number according to Regulation № 2150/2002	02 07 02 – waste from alcohol distillation	
14 TRANSPORT INFORMATION		
Land transport (ADR/RID)		
14.1.	UN-Number	1170
14.2.	Proper shipping name	ETHANOL
14.3.	Class	3
14.4.	Packing group	II
14.5.	Environmentally hazardous	No special hazard
14.6.	Special precautions for user	no
	Tunnel restriction code	D/E
Inland waterway transport (ADN)	Not relevant	
Air transport (IATA)		
14.1.	UN-Number	1170
14.2.	Proper shipping name	ETHANOL
14.3.	Class	3
14.4.	Packing group	II
14.5.	Environmentally hazardous	No special hazard

14.6.	Special precautions for user	no
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Sea transport (IMDG)

14.1.	UN-Number	1170
14.2.	Proper shipping name	ETHANOL
14.3.	Class	3
14.4.	Packing group	II
14.5.	Environmentally hazardous	No special hazard
14.6.	Special precautions for user	no
	EmS	F-E S-D
14.7.	Transport in bulk according to Annex II of MARPOL 73/78 and IBC Code	Not relevant

15. REGULATORY INFORMATION**15.1 Safety, health and environmental regulations/ legislation specific for the substance/ mixture****EU regulation****Major Accident Hazard Legislation**

According to Directive 2012/18/EEC
Flammable liquids
P5c
Quantity 1 5000 t
Quantity 2 50 000 t

Occupational restrictions

Take note of Directive 94/33 on the protection of young people at work.

National legislation**Storage class**

3

15.2 Chemical Safety Assessment

A chemical safety assessment has been carried out for this substance.

16. OTHER INFORMATION

Safety data sheet is prepared in connection with the requirements of Annex II of Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 12.18.2006 on the registration, evaluation, authorization and restriction of chemicals (REACH) and relevant international rules for transport.

The information in this sheet for safety aims to give guidance to the professional users to take the necessary measures for the protection of human health and environment legislation, as well as to ensure that health and safety in the workplace. It should not be interpreted as a guarantee for the quality of the product or appropriate specific annex.

The information contained here is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.

In case of a revised safety data sheet

With the clear indication * of where changes have been made to the previous version of the safety data sheet.

Full text of H-Statements (Hazard phrases acc. to Regulation 1272/2008) referred to under sections 2 and 3

H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.
H315 Skin corrosion/irritation, Hazard Category 2
H318 Serious eye damage/eye irritation, Hazard Category 1
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
H412 Harmful to aquatic life with long lasting effects.

ALMAGEST AG

SAFETY DATA SHEET

according to Regulation (EC) № 1907/2006 (REACH)

DENATURED ETHYL ALCOHOL

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Other information relating to regulation 1272/2008:	Specific concentration limits: According to the available data, a specific concentration limit of 50% can be applied to the classification of mixtures containing this substance for the eye irritancy classification end point
Training advice	Provide adequate information, instruction and training for operators.
Key or legend to abbreviations and acronyms used in the safety data sheet	BMDL10 = Benchmark dose level of 10% EC50 = Concentration having a 50% effect LD50 = Dose causing 50% deaths PBT = Persistent, Bioaccumulative, Toxic vPvB = very persistent, very bioaccumulative. NO(A)EL/C = No (adverse) effect level/concentration OECD = Organisation for economic co-operation and development Used abbreviations and acronyms can be looked up at www.wikipedia.org