

## 1. Product and Company Identification

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Product Name	Ethanol
Part Number	RXSOL-19-1211-210
Trade name	Ethanol (Industrial, Absolute or Anhydrous, Light Rectified Extra Neutral and High Purity Extra Ne
Chemical family	Aliphatic Alcohol
Chemical name	Ethanol
Synonyms	Ethyl Alcohol, See Trade name
Chemical abstract No	64-17-5
Molecular Mass	46,08
NIOSH No	KQ 6300000
Hazchem code	2(S) E; 3(S) E
UN No	1170

### Company Details:

**RX MARINE INTERNATIONAL**  
**105, A wing , BSEL , TECH PARK.**  
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## 2. Composition / Information on ingredients

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Hazardous components	Ethyl Alcohol (75.0 -99.9%v/v)
EEC classification	200 ☐ 578 ☐ 6 30
R Phrases	R11 (Highly Flammable)

## 3. Hazards Identification

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Classification of the substance	EU-GHS / CLP Flammable liquid Flam. Flam. Liq. 2 Hazard Class and Category Code(s) Liq. 2 Serious eye Irritation Eye Irrit. 2 EU-DSD / DPD Highly flammable R11 Indication(s) of danger and R phrase(s)
Label elements EU-GHS / CLP	
Signal word	Danger
Hazard statement(s)	<b>H225</b> Highly flammable liquid and vapour. <b>H319</b> Causes serious eye irritation.
Precautionary statements	<b>P210:</b> Keep away from heat / sparks / open flames / hot surfaces ? No smoking. <b>P233:</b> Keep container tightly closed. <b>P240:</b> Ground/bond container and receiving equipment.

**P241:** Use explosion-proof electrical / ventilating / lighting equipment.

**P242:** Use only non-sparking tools.

**P243:** Take precautionary measures against static discharge.

**P280:** Wear protective gloves / protective clothing / eye protection.

**P264:** Wash skin thoroughly after handling.

**P303+ P361+P353:** If on skin or hair remove/ take off immediately all contaminated clothing. Rinse skin with water.

**P305+P351+P338:** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present. Continue rinsing.

**P337+P313:** If eye irritation persists: Get medical advice/attention.

**P370 + P378:** In case of fire: Use powder, alcohol-resistant foam, lots of water, carbon dioxide for extinction.

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

**P501:** Disposal: Dispose of contents / container to a specialised waste disposal plant in accordance with local / regional

Main Hazard

Harmful if swallowed or inhaled. Possible aspiration hazard if swallowed (can enter lungs and cause damage). May be harmful to skin, eyes and respiratory tract. Over exposure may cause CNS depression. Possible reproductive hazard.

Flammability

Flash Point 12°C. Extremely flammable liquid (R11). Ignition temperature 425°C.

Chemical Hazard

Ethanol is a flammable liquid whose vapours can form ignitable and explosive mixtures with air at normal room temperature. An aqueous mixture containing 30% ethanol can produce a flammable mixture of vapour and air at 29°C, and even one containing 5% alcohol can produce a flammable mixture at 62°C. Ethanol reacts vigorously with a wide range of oxidizing materials, e.g. Disulphuryl Difluoride, Silver Nitrate, Bromine Pentafluoride, Potassium Perchlorate, Nitrosyl Perchlorate, Chloryl Perchloride, Uranyl Perchlorate, Chromium Trioxide, Fluorine Nitrate, Dioxygen Difluoride, Uranium Hexafluoride, Iodine Heptafluoride, Tetrachlorosilane, Permanganic acid, Nitric acid [the nitric acid fizz reaction used formally in laboratory glassware should not be used], Hydrogen Peroxide, Peroxodisulphuric acid, Potassium Dioxide, Sodium Peroxide, Potassium Permanganate, Ruthenium (VIII) Oxide, Platinum, Potassium hexafluoroantimonate, Potassium tert-butoxide, Silver Oxide and Silver Nitrate.

Biological Hazard

Ethanol is rapidly oxidized in the body to acetaldehyde, then to acetate, and finally to carbon dioxide and water; unoxidized ethanol is excreted in the urine and expired in the air. 8,9

Reproductive hazard

Some evidence of foetotoxicity<sup>26-28</sup> and teratogenicity<sup>29</sup> has been observed in experimental animals treated with high doses of ethanol during gestation. Alcohol may induce spontaneous abortions, may impair fertility, may cause harm to the unborn child and may be harmful to breast fed babies. The reproductive hazards have been determined after repeated excessive consumption of alcohol. Such effects are not likely to occur through exposure below the Occupational Exposure Limits in the working environment.

Health effects ☞ eyes

Moderately irritating. Exposure to liquid, vapours, fumes or mist may cause irritation. Direct contact may cause irritation, pain, corneal inflammation and possible corneal damage.

Health effects ☞ skin

Repeated or prolonged contact may result in defatting, redness, pain, itching, inflammation, cracking and possible secondary infection. Repeated skin contact may result in allergic skin reaction in a very small proportion of individuals.

Health effects ☞ ingestion

Large doses lead to alcohol poisoning while repeated ingestion can lead to alcoholism. Alcohol abuse and dependence have a profound effect on work performance and tendency to accidents at work.<sup>11-13</sup> The presence of denaturants, e.g. Methanol and benzene in industrial alcohol greatly increase the toxicity on ingestion. Ethanol drinking is also suspected of increasing the effect of other chemicals encountered in the laboratory and the workplace by inhibition of their metabolism or excretion.

☞ Trichloroethane<sup>15</sup>, Xylene, Trichloroethylene and Dimethylformamide<sup>16</sup>, Benzene<sup>17</sup> and Lead.<sup>18, 19</sup> May cause central nervous system effects. Effects may include excitation, euphoria, headache, dizziness, drowsiness, blurred vision, fainting, convulsions, loss of consciousness, coma, respiratory arrest and death. Severe acute intoxication may cause Hypothermia and extensor rigidity. Prolonged or frequent contact may result in liver injury.

Health effects ☞ inhalation

Intoxicating if continuously inhaled for a long period of time. Occupational Exposure Limits (8-hour reference period) (1900mg/m<sup>3</sup>).<sup>30</sup> May cause respiratory tract irritation.

Carcinogenicity

Long-term consumption of alcoholic beverages demonstrates an increase in the occurrence of breast cancer and colon cancer. Malignant tumours of the oral cavity, Pharynx, Larynx, Oesophagus and Liver is also causally related to the consumption of alcoholic beverages.<sup>31</sup> Some studies<sup>20, 21</sup> have shown an excess incidence of laryngeal cancer over the expected from exposure to alcohol, with Diethyl Sulphate probably being the causative agent.

Mutagenicity

Ethanol has been found to be non-mutagenic in the Salmonella microsome test,<sup>22</sup> but some transient mutagenic changes have been observed in male, but not female, mice treated with rather large doses.<sup>23-25</sup> Ethanol is mutagenic in man via its first metabolite, Acetaldehyde. Acetaldehyde induces chromosomal aberrations, sister-chromatid exchanges and cross-links between DNA strands.

Neurotoxicity

Over exposure may cause Central Nervous System (CNS) depression

## 4. First Aid Measures

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Product in eye  
Product on skin  
Product ingested  
Product inhaled

Flush immediately with water or neutral saline solution.  
Remove contaminated clothing and rinse contaminated skin. Seek medical attention.  
If victim is conscious, give 1-3 glasses of water or milk. If vomiting occurs, or when vomiting is induced, more water or milk should be given. Do not force an unconscious or semi-conscious person to vomit. Keep victim warm. Seek medical attention for substantial ingestions and/or gastrointestinal symptoms.  
Remove the victim to fresh air. If not breathing, begin resuscitation (CPR). If breathing is weak, irregular or absent, artificial respiration may be beneficial. Keep affected person warm and at rest.

## 5. Fire-fighting Measures

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Extinguishing media  
Special Hazards

Use dry chemical, alcohol foam or carbon dioxide. Water may be used to cool fire-exposed containers, structures and equipment. Ventilate area and use water spray to disperse gas. Do not use water to clean up leaks. Use water to dilute spills and to flush them into sewers or other drainage systems.

Flammable

Flash point : 12°C - 17°C

Flammability/explosion limits : 3, 3 - 20%v/l

Dangerous when exposed to heat or flame. Vapour may be present at room temperature. Vapour or gas may spread to other containers. Vapour or gas may cause fire or explosion hazard. Concentrate in confined areas. Irritating or toxic substances. Hazardous composition products such as carbon oxides.  
Exposed fire fighters should wear approved self-contained full protective equipment.

Protective clothing

## 6. Accidental Release Measures

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Personal precautions  
Environmental Precautions  
Small spills  
Large spills

Exposed fire fighters should wear approved self-contained full protective equipment.

Prevent liquid entering sewers. Do not allow to enter drains.  
Take immediate steps to stop and contain the spill and exposure to be spilled material. Eliminate all small spills onto paper towels and evaporate in a well-ventilated area with plenty of water.

Stop leak if you can do it without risk. Contact your supplier and static; restrict access to area until completely safe. Use self-contained breathing apparatus. Spill should be absorbed on to sand, vermiculite or an equivalent material for disposal. Flush the contaminated area with plenty of water for disposal.

## 7. Handling and Storage

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Suitable material  
Handling/ storage precautions

Ethanol is not corrosive to metals and may be stored in metal containers. Ethanol may also be stored in HDPE containers.  
Ground lines and equipment used during transfer

explosion. Store in approved flammable liquid storage cabinet. This material readily absorbs moisture. Store away from heat and in a well-ventilated area away from sparks, flames and other sources of ignition. Use non-sparking electrical and ventilation equipment.

## 8. Exposure controls and personal protection

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Engineering Control

Engineering control methods to reduce hazardous exposure include mechanical ventilation (dilution and local exhaust ventilation), work conditions and process modification (e.g. substitution), administrative controls and personal protective equipment measures. If a local exhaust ventilation system separate from other exhaust ventilation is used, sufficient replacement air to make up for air removed must be provided.

Personal Protection Respiratory

If exposure limits are exceeded or if irritation is experienced, respiratory protection is generally acceptable. For high concentrations and long duration, a supplied respirator. Full respiratory protection should be used.

Exposure Limits:

Country
US (OSHA)
US (ACGIH)
Germany (MAK)*
UK (OES)
Slovak Republic
Czech Republic

Personal protection  hand

Rubber (Butyl) or neoprene gloves are recommended.

Personal protection  eye

Prevent eye contact with this material. Wear eye protection if eye contact is reasonably probable. Provide an eyewash station if eye contact is likely. Eye protection should not be worn when working with this chemical.

Personal protection  skin

Avoid skin contact. When working with this substance, wear a full protective suit/ overalls. Depending upon conditions, also wear a face shield, apron, etc.

Other protection

Provide a safety shower immediately accessible to the work area.

## 9. Physical and chemical properties

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Appearance	Colourless, volatile liquid
Odour	Characteristic pleasant odour
pH	Neutral
Boiling point	74°C - 80°C
Melting point	- 130°C to - 112°C
Flash point	12°C - 17°C
Flammability	3, 3 <input type="checkbox"/> 19% v/v
Auto-flammability	363°C
Explosive properties	Vapours can form explosive mixtures with air. All sources of ignition or static must be excluded.
Oxidizing properties	None
Vapour pressure	59 mm Hg at 20°C
Density	785.3 kg/m <sup>3</sup> <input type="checkbox"/> 809 kg/m <sup>3</sup> at 25°C
Solubility <input type="checkbox"/> water	Miscible with water in all proportions
Solubility <input type="checkbox"/> solvent	Miscible with ether, methanol, chloroform and acetone
Solubility <input type="checkbox"/> coefficient	1100 @ 37°C

## 10. Stability and reactivity

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Reactivity Stable at normal ambient temperature and pressure.

Chemical Stability	No decomposition if stored and applied as directed.
Incompatible materials	See section 3 (chemical hazards).
Hazardous decomposition products	Incomplete combustion can generate carbon monoxide and carbon dioxide
Condition to Avoid	Overheating, flames, sources of ignition or static electricity. Oxidizing agents. Vapour/ air mixtures are explosive. K heat and sources of ignition.

## 11. Toxicological information

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Acute toxicity	Short-term hazards
	Acute oral toxicity Ethanol : LD50 rat: 7,060 mg/kg; literature value
	Acute inhalation toxicity Ethanol : LC50 rat: 66,000 mg/l; literature value; 4 h
	Acute dermal toxicity Ethanol : LDLo rabbit: 20,000 mg/kg; literature value
	NOAEL - 2400 mg/kg (2%) - for rats
	LOAEL 3600 mg/kg (3%) - for rats
Skin and eye contact	Redness, pain (refer to Section 3 for further information)
Chronic toxicity	Refer to Section 3.
Carcinogenicity	Refer to Section 3
Mutagenicity	Refer to Section 3
Neurotoxicity	Refer to Section 3
Reproductive hazards	Refer to Section 3

## 12. Ecological information

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Aquatic toxicity  fish	In high concentration it harms fish and plankton; LC50 (fish, 96 hours) 15.3 mg/L (Pimephales promelas)
Aquatic toxicity  daphnia	Threshold for deleterious effects in small crustaceans upwards of 7.800 mg/l; EC50 (Daphnia, 48 hours) 5012 mg/L (dubia)
Aquatic toxicity  algae	Toxic threshold concentration: Pseudomonas putida upwards of 6.500mg/l, Scenedesmus quadricauda upwards of 1.450mg/L, Microcystis aeruginosa upwards of 1.450mg/L
Biodegradability	IC50 (algae, 72 hours) 275 mg/L
	This product is readily biodegradable. Ethanol is widely recognized as being readily biodegradable in the environment. It is a metabolite of and nutrient for microbes. There are no persistent.
Bio  accumulation	This product is not expected to bio accumulate through the food chains in the environment. The very low log KO <sub>5</sub> is indicative of a low bioaccumulation potential.
Mobility	This product is likely to volatilize rapidly into the air because of its high vapour pressure. The product is poorly absorbed into sediments. Adsorption coefficient (KOC) solid phase/liquid phase = 1 (highly mobile)
German wgk	1 (low hazard to water)

## 13. Disposal considerations

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Disposal methods	Only under conditions approved by local authorities
Disposal of packaging	Empty containers may contain flammable and hazardous residues

## 14. Transport information

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UN Number	1170
Substance Identity No	UN 1170
ADR/RID class	3
ADR/RID item No	3(b)
ADR/RID hazard identity No	3
IMDG shipping name	Ethanol
IMDG class	3
IMDG packaging group	II
IMDG marine pollutant	Not a marine pollutant
IMDG EMS No	F-E, S-D
IMDG MFAG table No	3074
IATA shipping name	Ethanol Solutions
IATA class	3
IATA subsidiary risk(s)	Flammable liquid
ADNR No. class	UN No.:1170; Class 3, Packaging Group II
UK description	Not available
UK- emergency action class	Not available
UK classification	Not available
Tremcard No	1170

## 15. Regulatory information

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EEC hazard classification	200 578 - 6
Risk phases	R11
Safety phases	S2, S7, S9, S16, S33
National legislation	Hazardous Substances Act 15 of 1973 and Regulation Occupational Health and Safety Act 85 of 1993 (H IATA Dangerous Goods Regulation (DGR) 59th E IMDG Code, International Maritime Dangerous G
International Legislation	

## 16. Other information

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### Other Information

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