1. Product and Company Identifaction

Product Name	ETHANOL (ABSOLUTE)
Part Number	RXSOL-60-6184-002
Trade name	Ethanol (Industrial, Absolute or Anhydrous, Light Spirits, Extra Neutral Potable, Neutral Potable, Rectified Extra Neutral and High Purity Extra Neutral Potable Alcohol)
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

Company Details:
RX MARINE INTERNATIONAL
105, A wing , BSEL , TECH PARK.
VASHI ,NEW BOMBAY 400703 INDIA

Branch : Kandla, Mumbai, Vizag, Chennai, Kolkata Fujairah UAE and Omans

Phone	+91 22 20871200 - 1400
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Email	123@rxmarine.com
Website	www.rxmarine.com

2. Composition / Information on ingredients

Hazardous components	Ethyl Alcohol (99.50 %v /v)
CAS	64-17-5
EEC classification	200 ? 578 ? 6 30
R Phrases	R11 (Highly Flammable)

3. Hazards Identification

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)	IH225 Highly flammable liquid and vapour. H319 Causes serious eye irritation.
Precautionary statements	P210: Keep away from heat / sparks / open flames / hot surfaces ? No smoking. P233: Keep container tightly closed. P240: Ground/bond container and receiving equipment. P241: Use explosion-proof electrical / ventilating / lighting equipment. P242: Use only non-sparking tools. P243: Take precautionary measures against static discharge. P280: Wear protective gloves / protective clothing /eye protection. 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 and easy to do. Continue rinsing. P337+P313: If eye irritation persists: Get medical advice/attention. P370 + P378: In case of fire: Use powder, alcohol-resistant foam, lots of water, carbon dioxide for extinction. P403 + P235: Store in a well-ventilated place. Keep cool. P501:Disposal: Dispose of contents / container to a specialised waste disposal plant in accordance with local / regional regulations
Main Hazard	Harmful if swallowed or inhaled. Possible aspiration hazard if swallowed (can enter lungs and cause damage). May be irritating to the 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 temperatures. Thus, an aqueous mixture containing 30% ethanol can produce a flammable mixture of vapour and air at 29?C, and even one containing only 5% alcohol can produce a flammable mixture at 62?C.1 Ethanol reacts vigorously with a wide range of oxidizing materials and other chemicals2 .e.g. Disulphuryl Difluoride, Silver Nitrate, Bromine Pentafluoride, Potassium Perchlorate, Nitrosyl Perchlorate, Chromyl Chloride, Chloryl Perchloride, Uranyl Perchlorite, Chromium Trioxide, Fluorine Nitrate, Dioxygen Difluoride, Uranium Hexafluoride, Iodine Heptafluoride, Tetrachlorosilane, Permanganic acid, Nitric acid [the nitric acid fizz reaction used formally for cleaning laboratory glassware should not be used3,5], Hydrogen Peroxide, Peroxodisulphuric acid, Potassium Dioxide, Sodium Peroxide, Potassium Permanganate, Ruthenium (VIII) Oxide, Platinum, Potassium6 , Potassium tert □ Butoxide, Silver Oxide and Sodium7 .
Biological Hazard	Ethanol is rapidly oxidized in the body to acetaldehyde, then to acetate, and finally to carbon dioxide and water; un-oxidized alcohol is excreted in the urine and expired in the air. 8,9
Reproductive hazard	Some evidence of foetotoxicity26-28 and teratogenicity29 has been observed in experimentalanimals 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 cause harm to

	breast fed babies. The reproductive hazards have been determined after repeated excessive consumption of ethanol; these 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, redness, 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 can have a profound effect on work performance and tendency to accidents at work.11-13 The presence of denaturants, e.g. Methanol, pyridines, and benzene in industrial alcohol greatly increase the toxicity on ingestion. Ethanol drinking is also suspected of increasing the toxic effect of other chemicals encountered in the laboratory and the workplace by inhibition of their metabolism or excretion14; e.g. 1, 1, 1 Trichloroethane15, Xylene, Trichloroethylene and Dimethylformamide16, Benzene17 and Lead.18, 19 May cause harmful central nervous system effects. Effects may include excitation, euphoria, headache, dizziness, drowsiness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death. Severe acute intoxication may cause Hypoglycaemia, 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) 1000ppm (1900mg/m3).30May cause respiratory tract irritation.
Carcinogenicity	Long-term consumption of alcoholic beverages demonstrates an increase in the occurrence of breast cancer and colorectal cancer. Malignant tumours of the oral cavity, Pharynx, Larynx, Oesophagus and Liver is also causally related to the consumption of alcoholic beverages.31 Some studies20, 21 have shown an excess incidence of laryngeal cancer over the expected from exposure to synthetic alcohol, with Diethyl Sulphate probably being the causative agent
Mutagenicity	Ethanol has been found to be non- mutagenic in the Salmonella microsome test, 22 but some transient mutagenic changes have been observed in male, but not female, mice treated with rather large doses.23-25 Ethanol is mutagenic in man via its first metabolite, Acetaldehyde. Acetaldehyde induces chromosomal aberrations, sister-chromatid exchanges and cross-links between DNA strands.32
Neurotoxicity	Over exposure may cause Central Nervous System (CNS) depression

4. First Aid Measures

Product in eye	Flush immediately with water or neutral saline solution for at least 15 minutes. Seek medical attention.
Product on skin	Remove contaminated clothing and rinse contaminated area with soap and water. If skin irritation persists, seek medical attention.
Product ingested	If victim is conscious, give 1-3 glasses of water or milk to dilute stomach contents. If spontaneous vomiting occurs, or when vomiting is induced, monitor for breathing difficulty. Do not make an unconscious or semi conscious person vomit. Keep affected person warm at rest. Get medical attention for substantial ingestions and/or gastrointestinal symptoms.
Product inhaled	Remove the victim to fresh air. If not breathing, ensure open airway and institute cardiopulmonary resuscitation (CPR). If breathing is weak, irregular or has stopped apply artificial respiration. Oxygen may be

	beneficial. Keep affected person warm and at rest. Get immediate medical attention.

5. Fire-fighting Measures

Extinguishing media	Use dry chemical, alcohol foam or carbon dioxide to extinguish fire. Water may be ineffective but should be used to cool fire- exposed containers, structures and to protect personnel. If leak or spill has not ignited, ventilate area and use water spray to disperse gas or vapour and to protect personnel attempting to stop a leak. Use water to dilute spills and to flush them away from sources of ignition. Do not flush down public sewers or other drainage systems.
Special Hazards	Flammable Flash point : 12?C - 17?C Flammability/explosion limits : 3, 3 ? 20%v/ Dangerous when exposed to heat or flame. Vapours form flammable or explosive mixtures with air at room temperature. Vapour or gas may spread to distant ignition sources and flash back. Run ? off to sewer may cause fire or explosion hazard. Containers may explode in heat of fire. Vapours may concentrate in confined areas. Irritating or toxic substances may be emitted upon thermal decomposition. Hazardous composition products such as carbon oxides may form.
Protective clothing	Exposed fire fighters should wear approved self-contained breathing apparatus with full face mask and full protective equipment.

6. Accidental Release Measures

Personal precautions	Exposed fire fighters should wear approved self-contained breathing apparatus with full face mask and full protective equipment.
Enviromental Precautions	Prevent liquid entering sewers. Do not allow to enter surface waters, storm drains, etc.
Small spills	Take immediate steps to stop and contain the spill. Caution should be excised regarding personnel safety and exposure to be spilled material. Eliminate all sources of ignition and wear protective clothing. Absorb small spills onto paper towels and evaporate in a safe place e.g. in a fume hood. Flush the contaminated area with plenty of water.
Large spills	Stop leak if you can do it without risk. Contact your local fire department. Eliminate all sources of ignition and static; restrict access to area until completion of clean-up procedure. Wear adequate protective equipment, use self-contained breathing apparatus in confined poorly-ventilated areas. Large quantities should be absorbed on to sand, vermiculite or an equivalent absorbent material and removed to a safe area for disposal. Flush the contaminated area with plenty of water. Incineration is the recommended method of disposal

7. Handling and Storage

Suitable material	Ethanol is not corrosive to metals and may be stored in stainless steel, mild steel or aluminiumcontainers. Ethanol may also be stored in HDPE containers.

Handling/ storage precautions	Ground lines and equipment used during transfer to reduce the possibility of static spark-initiated fire or explosion. Store in approved flammable liquid storage containers. Keep containers tightly closed as this material readily absorbs moisture. Store away from incompatible materials. Store in a cool, dry well- ventilated area away from sparks, flames and other sources of ignition. Eliminate all sources of static electricity. Use non sparking electrical and ventilation systems. Storage criteria: Flammable Liquid store

8. Exposure controls and personal protection

Engineering Control	Engineering control methods to reduce hazardous exposures are preferred. General methods include mechanical ventilation (dilution and local exhaust), process or personnel enclosure, control of process conditions and process modification (e.g. substitution of a less hazardous material). Administrative controls and personal protective equipment may also be required. Use a non-sparking, grounded ventilation system separate from other exhaust ventilation systems. Exhaust directly to the outside. Supply sufficient replacement air to make up for air removed by exhaust system.
Personal Protection Respiratory	If exposure limits are exceeded or if irritation is experienced, an approved respirator for organic vapours is generally acceptable. For high concentrations and for oxygen-deficient atmospheres, use approved air-supplied respirator. Full respiratory protection should be readily available in case ofspillage.

Exposure Limits:

Country	8 Hour TWA Hygiene Limit	STEL
US (OSHA)	1900 mg/m^3 (1000ppm)	None
US (ACGIH)	1900 mg/m^3 (1000ppm)	None
Germany (MAK)*	960 mg/m3 (500ppm)	Peak limit cat. II,1
UK (OES)	1920 mg/m^3 (1000ppm)	None
Slovak Republic	960 mg/m3 (500ppm)	1920 mg/m3 (1000ppm) (30 min, 4x per shift)
Czech Republic	1000 mg/m^3	3000 mg/m^3

Personal protection hand	Rubber (Butyl) or neoprene gloves are recommended.
Personal protection eye	Prevent eye contact with this material. Wear chemical tight safety goggles where eye exposure is reasonably probable. Provide an eyewash station immediately accessible to the work area. Contact lenses should not be worn when working with this chemical.
Personal protection skin	Avoid skin contact. When working with this substance, wear appropriate chemical protective gloves. Wear protective suit/ overalls. Depending upon conditions of use, additional protection may be necessary such as face shield, apron, etc.
Other protection	Provide a safety shower immediately accessible to the work area.

9. Physical and chemical properties

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 ? 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/m3 ? 809 kg/m3 at 25?C
Solubility ? water	Miscible with water in all proportions
Solubility ? solvent	Miscible with ether, methanol, chloroform and acetone
Solubility ? coefficient	1100 @ 37?C33

10. Stability and reactivity

Recativity	Stable at normal ambient temperature and pressure.
Chemical Stability	No decomposition if stoned 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. Keep away from heat and sources of ignition.

11. Toxicological information

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

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 (Ceriodaphnia dubia)
Aquatic toxicity algae	Toxic threshold concentration: Pseudomonas putida upwards of 6.500mg/l, Scenedesmus quadricauda upwards of 5.000mg/l, Microsystis aeruginosa upwards of 1.450ml/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 as it is both a metabolite of and nutrient for microbes. There are no persistent.
Bio accumulation	This product in not expected to bio accumulate through the food chains in the environment. The very low log KOW of 0.31 is indicative of a low bioaccumulation potentia.
Mobility	This product is likely to volatize rapidly into the air because of its high vapour pressure. The product is poorly absorbed onto soils or sediments. Adsorption coefficient (KOC) solid phase/liquid phase = 1 (highly mobile)
German wgk	1 (low hazard to water)

13. Disposal considerations

Disposal methods	Only under conditions approved by local authorization. See also Section 6.
Disposal of packaging	Empty containers may contain flammable and hazardous residues. Always obey hazard warnings.

14. Transport information

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 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

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 Regulations Occupational Health and Safety Act 85 of 1993 (Hazardous Chemical Substances Regulations)
International Legislation	IATA Dangerous Goods Regulation (DGR) 59th Edition 2018 IMDG Code, International Maritime Dangerous Goods Code, 2008 Edition, Volume 1 and 2

16. Other information

Other Information	The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Rx Marine International has been advised of the possibility of such damages. DISCLAIMER OF LIABILITY :The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This MSDS was prepared and is to be used only for this product. If the product is used as a component in another product, this MSDS information may not be applicable.