

MATERIAL SAFETY DATA SHEET (MSDS)

I. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

1. GHS product identifier : Ethanol
2. Other means of identification : ETHANOL (ANHYDROUS)
3. Supplier's details:
DUY MINH JOINT STOCK COMPANY (DUYMINHJSC)
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4. Emergency phone number: 84-904 247 480

II. HAZARD IDENTIFICATION

1. GHS Classification:
 - 1.1. Flammable liquids: Category 2
 - 1.2. Skin irritation : Not classified
 - 1.3. Eye irritation : Category 2B
 - 1.4. Specific target organ toxicity - single exposure : Category 3
 - 1.5. Acute aquatic toxicity : Category 2
 - 1.6. Specific target organ toxicity - Repeated exposure: Category 1(liver),
2(nervous)
2. GHS Label Elements, including precautionary statements:



- 2.1. Pictogram and Symbol :
- 2.2. Signal word: Danger
- 2.3. Hazard statement: Highly flammable liquid and vapor, causes eye irritation, causes damage to liver through prolonged or repeated exposure, may cause damage to nervous through prolonged or repeated exposure
- 2.4. Precautionary statements:
 - 2.4.1. Obtain special instructions before use.
 - 2.4.2. Keep away from heat/sparks/open flames/hot surfaces. No smoking
 - 2.4.3. Wash hands thoroughly after handling
 - 2.4.4. Wear protective gloves/protective clothing/eye protection/face protection.

III. COMPOSITION/INFORMATION ON INGREDIENTS

1. Synonyms: Ethanol/ ethyl alcohol
2. Chemical formula : C₂H₅OH
3. Other name : ETHANOL (ANHYDROUS ETHANOL), Ethyl alcohol
4. CAS number : 64-17-5
5. EC No: 200-578-6
6. EC Index No: 603-002-00-5

IV. FIRST AID MEASURES

1. General advice: Consult a physician; show this safety data sheet to the doctor in attendance. And move out of dangerous area.
2. If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician. In case of skin contact Wash off with soap and plenty of water. Consult a physician.
3. In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
4. If swallowed: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

V. FIREFIGHTING MEASURES

1. Conditions of flammability: Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.
2. Suitable extinguishing media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
3. Special protective equipment for fire-fighters Wear self contained breathing apparatus for firefighting if necessary.
4. Hazardous combustion products Hazardous decomposition products formed under fire conditions. - None known.
5. Further information Use water spray to cool unopened containers.

VI. ACCIDENTAL RELEASE MEASURES

1. Personal precautions: Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
2. Environmental precautions Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
3. Methods and materials for containment and cleaning up Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

VII. HANDLING AND STORAGE

1. Precautions for safe handling: Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.
2. Conditions for safe storage: Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

1. Components with workplace control parameters:

No	Parameters	Unit	Specifications
1	Density @ 20 deg C	Kg/l	Max 0.7915
2	Alcohol strength GL at 20 deg C	% vol	Min 99.6
3	Methanol content	% vol	Max 0.5
4	Acidity (as acetic acid)	Mg/l	Max 60
5	Water content	% vol	Max 0.4

2. Personal protective equipment:
 - 2.1. Respiratory protection: If the respirator is the sole means of protection, use a full-face supplied air respirator.
 - 2.2. Hand protection Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product.
 - 2.3. Eye protection: Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards.
 - 2.4. Skin and body protection impervious clothing, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
 - 2.5. Hygiene measures Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

PHYSICAL AND CHEMICAL PROPERTIES

IX. PHYSICAL AND CHEMICAL PROPERTIES

1. Appearance: Liquid, clear and bright
2. Safety data:
 - pH: no data available
 - Melting point/freezing point: -144.0 °C (-227.2 °F)
 - Boiling point: 75°C (167°F)
 - Flash point: 13.0 °C (55.0 °F)
 - Lower explosion limit: 3.3 % (V)
 - Upper explosion limit: 19 % (V)
 - Vapor pressure: 12.9 kPa at 20.0 °C
 - Density: 0.79 g/cm³
 - Relative density: 0.8 at 20.0 °C
 - Water solubility: completely soluble
 - VAPOUR DENSITY (AIR=1): 1.6
 - Partition coefficient n-octanol/water: N/A

X. STABILITY AND REACTIVITY

1. Chemical stability: Stable under recommended storage conditions.
2. Possibility of hazardous reactions: Vapours may form explosive mixture with air
3. Conditions to avoid Heat, flames and sparks. Extremes of temperature and direct sunlight.
4. Materials to avoid: heat, sparks, other sources of ignition
5. Hazardous decomposition product: Carbon dioxide
6. Other decomposition products – N/A

XI. Toxicological information

1. Potential health effects:
 - 1.2. Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
 - 1.3. Ingestion: May be harmful if swallowed.
 - 1.4. Skin: May be harmful if absorbed through skin. Causes skin irritation.
 - 1.5. Eyes: Causes eye irritation
2. Signs and Symptoms of Exposure:
 - 2.1. Central nervous system depression, narcosis, Damage to the heart,
 - 2.2. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
3. Specific target organ toxicity - single exposure (Globally Harmonized System)
Inhalation: May cause respiratory irritation.
4. Specific target organ toxicity - repeated exposure (Globally Harmonized System):N/A
5. Respiratory or skin sensitization: N/A
6. Germ cell mutagenicity: N/A

XII. ECOLOGICAL INFORMATION

1. Persistence and degradability: N/A
2. Bioaccumulative potential: N/A
3. Mobility in soil: N/A
4. Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life.

XIII. DISPOSAL CONSIDERATIONS

Contact a licensed professional waste disposal service to dispose of this material

XIV. TRANSPORT INFORMATION

1. UN number: 1170
2. Class: 3
3. Packing group: II
4. Proper shipping name: Ethanol
5. Marine pollutant: No Poison
6. EMS-No: F-E, S-D

XV. REGULATORY INFORMATION

OSHA Hazards Flammable liquid, Target Organ Effect, Irritant

XVI. OTHER INFORMATION INCLUDING INFORMATION ON PREPARATION AND REVISION OF THE SDS

For additional information, please contact Duyminhjsc during business hours with **hot number: 084-904-247-480**.

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