



# Samchun Chemicals

## Material Safety Data Sheet

### Ethyl alcohol, 95%(Fermentation)

#### Section 1 – PRODUCT AND COMPANY IDENTIFICATION

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| 1. Product Identifier                        | Ethyl alcohol, 95%(Fermentation); Ethanol    |
| 2. Recommended Use<br>& Uses advised against | Uses for Laboratory and R&D, Industrial only |
| 3. Information of Supplier                   | SAMCHUN PURE CHEMICAL CO.,LTD                |

#### Section 2 – HAZARDS and DANGER IDENTIFICATION

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|--------------------------------------|---|---|
| 1.GHS Classification· Identification | Flammable liquid                                      | Category2                                   |
|                                      | Serious Eye Damage/Eye Irritation                     | Category2                                   |
|                                      | Germ cell Mutagenicity                                | Category1B                                  |
|                                      | Reproductive toxic                                    | Category1A                                  |
|                                      | Specific Target Organ Toxicity<br>(Single Exposure)   | Category3<br>-Anesthetic effect             |
|                                      | Specific Target Organ Toxicity<br>(Single Exposure)   | Category3<br>-Respiratory system irritation |
|                                      | Specific Target Organ Toxicity<br>(Repeated Exposure) | Category1                                   |

#### 2. Label and Mark including Precautionary Statement

◦Label elements



◦Signal word

Danger

◦Hazard · Danger statement

H225 Highly flammable liquid and vapour  
H319 Causes serious eye irritation  
H340 May cause genetic defects  
H360 May damage fertility or the unborn child  
H335 May cause respiratory irritation  
H336 May cause drowsiness or dizziness  
H372 Causes damage to organs (Liver, respiratory system) through prolonged or repeated exposure

◦Precautionary statement

**Precaution**

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/face protection  
P264 Wash ... thoroughly after handling.

<b>Precaution</b>	P201 Obtain special instructions before use P202 Do not handle until all safety precautions have been read and understood. P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P271 Use only outdoors or in a well-ventilated area. P260 Do not breathe dust/fume/gas/mist/vapours/spray. P270 Do not eat, drink or smoke when using this product.
<b>Measures</b>	P303+P361+P353 SKIN (or hair) all contaminated clothing IF ON Take off. Rinse skin with water / shower. P370+P378 In case of fire: Use (Section 5. explosions, according to the fire-fighting extinguishing agent suitable method) for extinction 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. P308+P313 IF exposed: Call a POISON CENTER or doctor/physician P312 Call a POISON CENTER or doctor/physician if you feel unwell. P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P314 Get medical advice/attention if you feel unwell. P403+P235 Store in a well-ventilated place. Keep cool.
<b>Storage</b>	P405 Store locked up P403+P233 Store in a well-ventilated place. Keep container tightly closed.
<b>Dispose</b>	P501 Dispose of contents/container under related law and regulations

### 3. Other Hazard-Risk which are not included in the classification criteria

NFPA index(0~4steps) : Health=0, Fire=3, Reaction=0

By the flow of a substance or mixture that also can cause static electricity

## Section 3 – COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical Name	Other Name	CAS No.	Content (%)
Ethyl alcohol	Ethanol	64-17-5	95
Water	-	7732-18-5	5

## Section 4 – FIRST AID MEASURES

<b>1. Eye Contact</b>	Rinse with plenty of water for at least 15minutes and get medical attention immediately.
<b>2. Skin Contact</b>	Take off contaminated cloths and shoes immediately, wash with plenty of water and soap for at least 15minutes.
<b>3. Inhalation</b>	Move victim to fresh air. If breathing is difficult, give artificial respiration and get medical attention immediately.
<b>4. Ingestion</b>	Do not induce vomiting. If conscious, give 2 to 4 cups of water or milk immediately. Get medical advice/attention immediately.
<b>5. Immediate medical attention and Notes for physician</b>	Keep the medical personnel aware of the materials involved and take protective action.

## Section 5 – FIRE-FIGHT MEASURES

<b>1. Suitable extinguish media</b>	Powder extinguisher, carbon dioxide, water spray, alcohol-resistant foam Inappropriate Extinguishing Media: N/A
<b>2. Special hazards arising from the substance</b>	Thermal decomposition products: Carbon oxides FIRE AND EXPLOSION HAZARDS: Severe fire hazard. Vapors or gases may ignite from a distant ignition source and spread rapidly. Vapors are heavier than air and may spread through the surface. Vapors may form explosive mixtures with air.
<b>3. Special protective equipment and Precautions for fire-fighters</b>	Move containers from fire area if you can do it without risk. When extinguishing a fire, be sure to wear personal protective equipment.

If it is not possible to extinguish the fire, withdraw immediately. Keep containers cool by spraying with water for a long time, even after the fire is out. Isolate hazardous areas and deny access to people.

## Section 6 – ACCIDENTAL RELEASE MEASURES

<b>1. Personal precautions and Emergency procedures</b>	Do not touch spilled material. Avoid inhalation and skin contact. In case of confined space, wear air respirator and ventilate and remove all sources of ignition.
<b>2. Environmental precautions</b>	Minimize leak/spill, collect and keep leak/spill in container
<b>3. Methods and material for containment and cleaning up</b>	Soak up with sand, clay and other inert absorbent material Remove residue with high-efficient cleaner

## Section 7 – HANDLING AND STORAGE

<b>1. Precautions for safe Handling</b>	Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. All containers should be grounded.
<b>2. Conditions for safe storage</b>	Requires grounding and equipotential grounding Keep outdoors or in an isolated building Store with flammable liquid. Separate from incompatible substances.

## Section 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

### 1. Occupational exposure limit, biological exposure limit

#### National law of Safety management of

Occupational Health and Safety Act

TWA : 1000 ppm , 1900 mg/m<sup>3</sup>

1000 ppm ACHIH TWA

<b>2. Appropriate Engineering controls</b>	Ensure compliance with applicable exposure limits and operate local exhaust ventilation when working. If the substance is at risk of explosion, ventilation equipment should be explosion-resistant.
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### 3. Personal protective equipment

◦ <b>Respiratory protection</b>	Because it is concerned about the harmfulness of human body due to chemical substances, it is recommended to wear respiratory protective equipment with dust mask or dust filter in consideration of physical and chemical characteristics when handling. Respiratory protection should be certified by the Health and Safety Authority. It is concerned about the harmfulness of the human body depending on the working environment, it should wear respirator, air-purifying respirator.
◦ <b>Eye-protection</b>	Wear safety glasses when handling as they may cause human health hazards due to chemicals. Install eye wash facilities and emergency eyewash stations near chemical handling sites.
◦ <b>Hand protection</b>	Wear safety gloves when handling, as it is likely to harm human health due to chemicals.
◦ <b>Skin and body protection</b>	Wear chemical protective clothing when handling, as it is likely to harm human health due to chemicals.

## Section 9 – PHYSICAL AND CHEMICAL PROPERTIES

<b>1. Physical state and color</b>	Liquid(Colorless)	<b>2. Odor</b>	Wine or whiskey odor
<b>3. threshold</b>	10ppm	<b>4. pH</b>	N/A
<b>5. Melting/Freezing point</b>	-117.3°C	<b>6. Boiling point/range</b>	78°C
<b>7. Flashing point</b>	17°C	<b>8. Evaporation speed</b>	1.4
<b>9. Flammability(solid,gas)</b>	N/A	<b>10. Flash or Explosion limit upper / lower</b>	19% / 3.3%
<b>11. Vapor pressure</b>	5.8kPa(20°C)	<b>12. Solubility</b>	100g/100ml@25°C
<b>13. Vapor density</b>	1.6	<b>14. Gravity</b>	0.816

15. n-octanol-water Partition coefficient -0.32  
17. Cracking temp(°C) N/A  
19. Molecular Weight 46.07

16. Self ignition temp(°C) 363°C  
18. Viscosity 1.41cP(20°C)

#### Section 10 – STABILITY AND REACTIVITY

- 1. Chemical stability and Possibility of Hazardous Reactions** Stable under normal temp. and pressure  
Not polymerize
- 2. Conditions to Avoid** Avoid heat, sparks, flames and other sources of ignition.  
Containers may rupture or explode if exposed to heat.
- 3. Incompatible Materials** Halocarbon compounds, metals, metal salts, oxidizing agents, halogens, peroxides, acids, metal oxides, bases, combustible materials
- 4. Hazardous Decomposition Products** Thermal decomposition products: Carbon oxides

#### Section 11 – TOXICOLOGICAL INFORMATION

##### 1. Information on the likely routes of exposure.

May cause irritation, difficulty breathing, headache, drowsiness, dizziness, loss of coordination, Low body temperature or fever, change in blood pressure, nausea, vomiting, difficulty breathing, irregular heartbeat, Drowsiness, loss of orientation, vocal disorders, emotional changes, visual impairment, pupil dilation, convulsions, coma

##### 2. Health hazard information

- **Acute toxic** Oral : LD50 6200mg/kg Rat  
Skin : N/A  
Inhalation : LC50 20000ppm 10hr Rat
- **Serious skin corrosive / irritation** Non irritation
- **Serious eye damage / irritation** Moderate irritation
- **Respiratory sensitization** N/A
- **Skin sensitization** N/A
- **Carcinogenicity** ACGIH Group A4, IARC Group 1
- **Germ cell Mutagenicity** The dominant lethal test results in rats and mice: positive  
Aneuploidy induction in mouse germ cells is reported.
- **Reproductive toxic** A large number of malformations of the fetus and other adverse effects were reported by the habitual ingestion of alcohol.
- **Specific target organ toxicity (single exposure )** It affects the central nervous system of a person, causing headache, fatigue, loss of concentration. Causes airway irritation, confusion, and morbidity by inhalation.
- **Specific target organ toxicity (repeated exposure )** It affects the human liver, nerves (epilepsy, delirium, etc.).
- **Aspiration hazard** N/A

#### Section 12 – ECOLOGICAL INFORMATION

- 1. Aquatic and Terrestrial eco toxicity** Fish toxicity : LC50 42mg/l 96hr Oncorhynchus mykiss  
Invertebrate toxicity : EC50 2 mg/l 48 hr Daphnia magna  
Sea algae : N/A
- 2. Persistence and degradability** Persistence : N/A  
Degradability : BOD5/COD=0.57
- 3. Bioaccumulative potential** Concentrations : N/A  
Bioaccumulative : 75% 20day (aerobic, etc., easily decomposed)

4.Mobility in soil	N/A
5.Other adverse effects	N/A

#### Section 13 – Disposable considerations

1.Waste methods	Dispose in accordance with local regulations.
2.Waste warning	Dispose prohibited substances and waste separately from others.

#### Section 14 – TRANSPORT INFORMATION

1. UN No.	1170
2.Proper shipping Name	Ethanol
3.Hazard class	3
4.Packing group	II
5.Marine pollutant	N/A
6.Particular safety Measures for transportation	Fire emergency : F-E Emergency measures RELEASE : S-D

#### Section 15 – REGULATORY INFORMATION

1.Occupation safety and health acts	Standard material of exposure
2. Chemical Substances Control Act	Non-described
3. National law of Safety management of hazardous material	4 Class Alcohol 400L
4.National law of management of Wastes	Designated Waste, Waste organic solvent
5.Other domestic and foreign law	EU classification information (confirmed classification result): F; R11 EU classification information (Risk phrases): R11 EU classification information (Safety phrases): S2, S7, S16

#### Section 16 – OTHER INFORMATION

1. Material source	A chemical information MSDS Safety and Health Agency National Institute of Environmental Research Chemical Information Systems Korea Industrial Technology National Fire Hazardous Materials Information System
1. The 1 <sup>st</sup> edition	2002.07.30
2. Revision and The final revision	12 / 2016.11.01
. Other references	

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