

## Section 1: PRODUCT AND COMPANY IDENTIFICATION

<b>Product name</b>	Ethanol (99.5)
<b>Product code</b>	052-00467,054-00461,054-00466,050-00463
<b>CAS No</b>	64-17-5
<b>Formula</b>	C2H5OH
<b>Manufacturer</b>	Wako Pure Chemical Industries, Ltd. 1-2 Doshomachi 3-Chome, Chuo-ku, Osaka 540-8605, Japan Phone: +81 (0)6-6203-3741 Fax: +81 (0)6-6201-5964
<b>Supplier</b>	Wako Pure Chemical Industries, Ltd. 1-2 Doshomachi 3-Chome, Chuo-ku, Osaka 540-8605, Japan Phone: +81 (0)6-6203-3741 Fax: +81 (0)6-6201-5964
<b>Emergency telephone number</b>	+81-6-6203-3741 / +81-3-3270-8571
<b>Recommended uses and restrictions on use</b>	For research purposes

## Section 2: HAZARDS IDENTIFICATION

**GHS classification**

**Classification of the substance or mixture**

**Flammable liquids**

Category 2

**Serious eye damage/eye irritation**

Category 2B

**Carcinogenicity**

Category 1A

**Reproductive Toxicity**

Category 1A

**Specific target organ toxicity (single exposure)**

Category 3

Category 3 Respiratory tract irritation, Narcotic effects

**Specific target organ toxicity (repeated exposure)**

Category 1, Category 2

Category 1 liver

Category 2 central nervous system

**Pictograms**



Danger

**Signal word**

**Hazard statements**

H225 - Highly flammable liquid and vapor

H320 - Causes eye irritation

H350 - May cause cancer

H360 - May damage fertility or the unborn child

H335 - May cause respiratory irritation

H336 - May cause drowsiness or dizziness

H372 - Causes damage to the following organs through prolonged or repeated exposure: liver

H373 - May cause damage to the following organs through prolonged or repeated exposure: central nervous system

**Precautionary statements-(Prevention)**

- Obtain special instructions before use
- Do not handle until all safety precautions have been read and understood
- Use personal protective equipment as required.
- Wash face, hands and any exposed skin thoroughly after handling
- Do not breathe dust/fume/gas/mist/vapors/spray
- Do not eat, drink or smoke when using this product
- Use only outdoors or in a well-ventilated area
- Keep away from heat/sparks/open flames/hot surfaces. — No smoking
- Keep container tightly closed
- Ground/bond container and receiving equipment
- Use explosion-proof electrical/ventilating/lighting/equipment
- Use only non-sparking tools
- Take precautionary measures against static discharge
- Keep cool

**Precautionary statements-(Response)**

- IF exposed or concerned: Get medical advice/attention
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- If eye irritation persists: Get medical advice/attention.
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- In case of fire: Use CO<sub>2</sub>, dry chemical, or foam for extinction

**Precautionary statements-(Storage)**

- Store locked up.
- Store in a well-ventilated place. Keep container tightly closed

**Precautionary statements-(Disposal)**

- Dispose of contents/container to an approved waste disposal plant

**Others**

**Other hazards** Not available

### Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

**Single Substance or Mixture** Substance

**Formula** C<sub>2</sub>H<sub>5</sub>OH

Chemical Name	Weight-%	Molecular weight	ENCS	ISHL No.	CAS No
Ethanol	99.5 vol%	46.07	(2)-202	N/A	64-17-5

**Impurities and/or Additives :** Not applicable

### Section 4: FIRST AID MEASURES

**Inhalation**

Remove to fresh air. If symptoms persist, call a physician.

**Skin contact**

Wash off immediately with soap and plenty of water. If symptoms persist, call a physician.

**Eye contact**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediate medical attention is required.

**Ingestion**

Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. Do not induce vomiting without medical advice.

**Protection of first-aiders**

Use personal protective equipment as required.

## Section 5: FIRE FIGHTING MEASURES

### Suitable extinguishing media

Dry chemical, CO<sub>2</sub>, water spray or alcohol-resistant foam, Water spray (fog)

### Unsuitable extinguishing media

No information available

### Special extinguishing method

No information available

### Specific hazards arising from the chemical product

Extremely flammable

### Protection of fire-fighters

Use personal protective equipment as required. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

## Section 6: ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

For indoor, provide adequate ventilation process until the end of working. Deny unnecessary entry other than the people involved by, for example, using a rope. While working, wear appropriate protective equipments to avoid adhering it on skin, or inhaling the gas. Work from windward, and retract the people downwind.

### Environmental precautions

To be careful not discharged to the environment without being properly handled waste water contaminated. See Section 12 for additional ecological information.

### Methods and materials for contaminant and methods and materials for cleaning up

Absorb dry sand, earth, sawdust and the waste. Collect empty container that can be sealed.

### Recovery, neutralization

No information available

### Secondary disaster prevention measures

Clean contaminated objects and areas thoroughly observing environmental regulations.

## Section 7: HANDLING AND STORAGE

### Handling

#### Technical measures

Highly flammable. Avoid contact with high temperature objects, spark, and strong oxidizing agents. Use with local exhaust ventilation.

#### Precautions

Do not rough handling containers, such as upsetting, falling, giving a shock, and dragging. Prevent leakage, overflow, and scattering. Not to generate steam and dust in vain. Seal the container after use. After handling, wash hands and face, and then gargle. In places other than those specified, should not be smoking or eating and drinking. Should not be brought contaminated protective equipment and gloves to rest stops. Deny unnecessary entry of non-emergency personnel to the handling area.

#### Safety handling precautions

Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors).

### Storage

#### Safe storage conditions

##### Storage conditions

Store away from sunlight in well-ventilated place at room temperature (preferably cool).  
Keep container tightly closed.

##### Safe packaging material

Glass, Iron

##### Incompatible substances

Strong oxidizing agents

## Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Engineering controls

In case of indoor workplace, seal the source or use a local exhaust system. Provide the safety shower facility, and hand- and eye-wash facility. And display their position clearly.

### Exposure limits

Chemical Name	JSOH (Japan)	ISHL (Japan)	ACGIH
Ethanol 64-17-5	N/A	N/A	STEL: 1000 ppm

### Personal protective equipment

#### Respiratory protection

gas mask for organic gas

#### Hand protection

Protection gloves

#### Eye protection

protective eyeglasses or chemical safety goggles

#### Skin and body protection

Wear suitable protective clothing, protective boots

### General hygiene considerations

When using do not eat, drink or smoke.

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

### Form

#### Color

colorless

#### Turbidity

clear

#### Appearance

liquid

### Odor

characteristic odor

### pH

No data available

### Melting point/freezing point

-130 °C

### Boiling point, initial boiling point and boiling range

78 °C

### Flash point

13 °C

### Evaporation rate:

No data available

### Flammability (solid, gas):

No data available

### Upper/lower flammability or explosive limits

#### Upper :

19.0 vol%

#### Lower :

3.3 vol%

### Vapour pressure

5.33 kPa

### Vapour density

1.6 (air = 1)

### Specific Gravity / Relative density

0.789-0.791

### Solubilities

water , Diethyl ether : soluble .

### n-Octanol/water partition coefficient:(log Pow)

-0.32

### Auto-ignition temperature:

371 °C

### Decomposition temperature:

No data available

### Viscosity (coefficient of viscosity)

No data available

### Dynamic viscosity

No data available

## Section 10: STABILITY AND REACTIVITY

### Stability

#### Stability

Stable under recommended storage conditions.

#### Reactivity

No data available

### Hazardous reactions

May cause ignition on contact with strong oxidizing agents

### Conditions to avoid

Extremes of temperature and direct sunlight, Heat, flames and sparks

### Incompatible materials

Strong oxidizing agents

**Hazardous decomposition products**Carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>)**Section 11: TOXICOLOGICAL INFORMATION****Acute toxicity**

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Ethanol	6020mg/kg(Rat)	N/A	20000ppm/10H(Rat)

Chemical Name	Acute toxicity -oral- source information	Acute toxicity -dermal- source information	Acute toxicity -inhalation gas-source information
Ethanol			Based on the NITE GHS classification results.

Chemical Name	Acute toxicity -inhalation vapor- source information	Acute toxicity -inhalation dust-source information	Acute toxicity -inhalation mist-source information
Ethanol		Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

**Skin irritation/corrosion**

Chemical Name	Skin corrosion irritation source information
Ethanol	

**Serious eye damage/ irritation**

Chemical Name	Serious eye damage source information
Ethanol	

**Respiratory or skin sensitization**

Chemical Name	Respiratory, Skin sensitization source information
Ethanol	

**Reproductive cell mutagenicity**

Chemical Name	Mutagenic source information
Ethanol	

**Carcinogenicity**

Chemical Name	Carcinogenicity source information
Ethanol	

Chemical Name	NTP	IARC	ACGIH	JSOH (Japan)
Ethanol 64-17-5	Known	Group 1	A3	-

**Reproductive toxicity**

Chemical Name	Reproductive toxicity source information
Ethanol	

**STOT-single exposure**

Chemical Name	STOT -single exposure- source information
Ethanol	

**STOT-repeated exposure**

Chemical Name	STOT -repeated exposure- source information
Ethanol	

**Aspiration hazard**

Chemical Name	Aspiration Hazard source information
Ethanol	Based on the NITE GHS classification results.

**Section 12: ECOLOGICAL INFORMATION****Ecotoxicity**

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Ethanol	EC50: <i>Chlorella alga</i> 1000 mg/L 96 h	LC50: <i>Fathead minnow</i> > 100mg/L 96 h	LC50: <i>Ceriodaphnia</i> <i>quadrangula</i> 5012 mg/L 48 h

**Other data**

Chemical Name	Aquatic toxicity -Acute- source information	Aquatic toxicity -Chronic- source information
Ethanol		

<b>Persistence and degradability</b>	Degree of decomposition : 89 % by BOD
<b>Bioaccumulative potential</b>	No information available
<b>Mobility in soil</b>	No information available
<b>Hazard to the ozone layer</b>	No information available
<b>Mobility</b>	

### Section 13: DISPOSAL CONSIDERATIONS

**Waste from residues**

Disposal should be in accordance with applicable regional, national and local laws and regulations.

**Contaminated container and contaminated packaging**

Disposal should be in accordance with applicable regional, national and local laws and regulations.

### Section 14: TRANSPORT INFORMATION

**ADR/RID**

<b>UN number</b>	UN1170
<b>Proper shipping name:</b>	Ethanol
<b>UN classification</b>	3
<b>Subsidiary hazard class</b>	
<b>Packing group</b>	II
<b>Marine pollutant</b>	Not applicable

**IMDG**

<b>UN number</b>	UN1170
<b>Proper shipping name:</b>	Ethanol
<b>UN classification</b>	3
<b>Subsidiary hazard class</b>	
<b>Packing group</b>	II
<b>Marine pollutant (Sea)</b>	Not applicable
<b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>	No information available

**IATA**

<b>UN number</b>	UN1170
<b>Proper shipping name:</b>	Ethanol solution
<b>UN classification</b>	3
<b>Subsidiary hazard class</b>	
<b>Packing group</b>	II
<b>Environmentally Hazardous Substance</b>	Not applicable

### Section 15: REGULATORY INFORMATION

**International Inventories**

<b>EINECS/ELINCS</b>	Listed
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TSCA Listed

**Japanese regulations**

<b>Fire Service Act</b>	Category IV, alcohols, dangerous grade 2 water-soluble
<b>Poisonous and Deleterious Substances Control Law</b>	Not applicable
<b>Industrial Safety and Health Act</b>	Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Attached Table No.9)No.61 Dangerous Substances - Flammable Substance (Enforcement Order Attached Table 1 Item 4) Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18)
<b>Regulations for the carriage and storage of dangerous goods in ship</b>	Flammable Liquids (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)
<b>Civil Aeronautics Law</b>	Flammable Liquids (Ordinance Art.194, MITL Notification for Air Transportation of Explosives etc., Attached Table 1)
<b>Marine Pollution Prevention Law</b>	
<b>Pollutant Release and Transfer Register Law</b>	Not applicable
<b>Export Trade Control Order</b>	Not applicable

### Section 16: OTHER INFORMATION

**Key literature references and sources for data etc.**

NITE: National Institute of Technology and Evaluation (JAPAN)  
<http://www.safe.nite.go.jp/japan/db.html>  
 IATA dangerous Goods Regulations  
 RTECS:Registry of Toxic Effects of Chemical Substances  
 Japan Industrial Safety and Health Association GHS Model SDS  
 Dictionary of Synthetic Organic Chemistry, SSOCJ, Koudansha Scientific Co.Ltd.  
 Chemical Dictionary, Kyouritsu Publishing Co., Ltd.  
 etc

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.  
 GHS Classification is according to JIS Z7252(2010). \*JIS: Japanese Industrial Standards

**End of Safety Data Sheet**