

Safety Data Sheet

1. Product and company identification

Product name : Ethanol (99.5)
Name of manufacturer : KANTO CHEMICAL CO., INC.
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SDS No. : GE00017

2. Summary of danger and Hazard

GHS classification

Physical and chemical hazard

Flammable liquids : Category 2
Pyrophoric liquids : Out of category

Human health hazard

Acute toxicity(oral) : Out of category
Acute toxicity(dermal) : Out of category

Acute toxicity(inhalation:vapors) : Out of category

Skin corrosion/irritation : Out of category

Serious eye damage/eye irritation : Category 2B

Carcinogenicity : Category 1A

Reproductive toxicity : Category 1A

Specific target organ systemic toxicity(single exposure) : Category 3 (respiratory tract irritation) 、 Category 3 (anesthetic action)

Specific target organ systemic toxicity(repeated exposure) : Category 1 、 Category 2

Environmental hazard

Hazardous to the aquatic environment-acute hazard : Out of category

Hazardous to the aquatic environment-chronic hazard : Out of category

Pictogram or symbol



Signal word	: Danger
Hazard statement	: Highly flammable liquid and vapor Causes eye irritation May cause cancer May damage fertility or the unborn child May cause respiratory irritation May cause drowsiness and dizziness Causes damage to organs (liver) through prolonged or repeated exposure May cause damage to organs (central nervous system) through prolonged or repeated exposure
Cautions	
Safety measurements	: Do not handle until all safety precautions have been read and understood. Keep away from ignition sources such as heat, sparks, or open flame. Keep containers tightly closed. Ground container and receiving equipment in case of transport and stirring. Use explosion-proof apparatus. Use only non-sparking tools. Do not breathe dust, mist, and vapor. Use only in a well-ventilated area. Do not eat, drink or smoke when using this product. Wear appropriate protective gloves, glasses, clothing, face shield, or mask. Wash hands thoroughly after handling.
First-aid measures	: If inhaled : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical treatment if you feel unwell. If in eyes : Rinse cautiously with water for several minutes. Get medical treatment. If on skin : Remove contaminated clothing and the substance. Get medical treatment, if you feel unwell. Wash hands thoroughly after handling. If exposed or concerned, get medical treatment. Get medical treatment, if you feel unwell.
Storage	: Tightly container closed and store in a well-ventilated area. Store locked up.
Disposal	: Dispose of contents and containers appropriately in accordance with related regulations.

3. Composition/Information on ingredients

Substance/Mixture	: Substance
Chemical name or commercial name	
	: Ethanol
Synonyms	: Ethyl alcohol
Ingredients and composition	

: Ethanol min. 99.5%
Chemical formula : C₂H₅OH
CAS No. : 64-17-5
TSCA Inventory : Registered
EINECS No. : 2005786
Dangerous and hazardous ingredients
: Ethanol

4. First aid measures

Inhalation : Remove the victim to fresh air, and make him blow his nose and gargle.
Skin contact : Wash the affected areas under running water.
Eye contact : Wash the affected areas under running water for at least 15 minutes.
If necessary, get medical treatment.
Ingestion : Give the victim water or salt water and induce vomiting. Do not give
an unconscious victim anything to drink. Get medical attention.
Anticipated acute and delayed symptoms
: Inhalation causes cough, headache, feeling of fatigue, and lethargy.
Protection for first aid person
: Rescuers should wear proper protective equipment like rubber gloves,
goggles.

5. Fire fighting measures

Extinguishing media : Water, dry chemical powder, carbon dioxide, dry sand, alcohol
resistant foam
Prohibited extinguishing media
: Foam extinguisher
Particular fire fighting : Move containers from fire area if it can be done without risk, if not
possible, apply water from a safe distance to cool and protect
surrounding area.
Dry chemical powder, carbon dioxide or dry sand should be used for
small fires. Alcohol-resistant foam extinguisher is effective for a
large scale fire.
Protection for firefighters
: Wear breathing apparatus.

6. Accidental release measures

Cautions for personnel : Wear proper protective equipment and avoid contact with skin and
inhalation of vapor. Conduct operations from upwind and evacuate
people downwind. Remove all sources of ignition. Keep away personnel
except for authorized ones from spillage area by stretching ropes.
Cautions for environment : Attention should be given to avoid discharge of spilled product into
rivers and resulting environmental damage. When diluting spill with
large amounts of water, discharge of untreated wastewater into the
environment must be avoided.
Removal measure : Absorb spill with inert material (e.g., diatomaceous earth, sand) and
flush spillage area with copious amounts of water.
Prevention of second accident
: Remove nearby sources of ignition and prepare extinguishing media.

7. Cautions of handling and storage

Handling

- Engineering measures : Wear proper protective equipment to avoid contact with skin or inhalation of vapor. Fire is strictly prohibited.
Ventilate well at working places.
Prevent build-up of electrostatic charges (e.g. by grounding).

Cautions for safety handling

- : Use with an enclosed system or a local exhaust ventilation. Use in well-ventilated areas.

- Cautions : Do not allow contact with oxidizing substances.

Storage

Adequate storage condition

- : Store in a dark, cool place and tightly closed.

Safety adequate container materials

- : Glass, fluorine resin, stainless steel
Do not use polyvinyl chloride resin, acrylic resin.

8. Exposure control/Personal protection

- Engineering measures : Use with an enclosed system or a local exhaust ventilation.

Control parameters

- ACGIH(2015) : 1000ppm (TLV-STEL)

Protective equipment

Respiration protective equipment

- : Chemical cartridge respirator with an organic vapor cartage or airline respirator

Hands protective equipment

- : Impervious protective gloves

Eyes protective equipment

- : Safety goggles

Skin and body protective equipment

- : Protective clothing, protective boots

9. Physical and chemical properties

Appearance : Liquid

Color : Colorless

Odor : Aromatic odor

Boiling point : 78.3°C

Melting point : -114.1°C

Flash point : 14°C

Auto-ignition point : 363°C

Explosion characteristics

Explosion limit : upper : 19.0vol% lower : 4.3vol%

Vapor pressure : 59hPa(20°C)

Vapor density : 1.59

Density : 0.79g/cm³ (20°C)

Solubility

Solubility in solvents : Water ; Miscible

Organic solvents ; Miscible with many kinds of organic solvents like diethyl ether, chloroform.

log Pow : -0.32

Other data : Viscosity : 1.17cP(20°C)

10. Stability and reactivity

Stability : Stable under normal conditions.

Reactivity : May react with strong oxidizing substances.

Incompatible conditions : Light, heat

Incompatible materials : Oxidizing substances

Hazardous decomposition products

: Carbon monoxide

11. Toxicological information

Acute toxicity : Oral : Out of category

Dermal : Out of category

Inhalation(vapor) : Out of category

Inhalation(dust, mist) : Not possible to classify because of insufficient data.

rat skin LD50=6.2-17.8g/kg

rabbit skin LDLo=20000mg/kg

rat inhalation LC50=63000ppm/4H(vapor)

Skin corrosion/irritation : Out of category

There is a mention that ethanol has no irritation by test of OECD TG404 and American guidelines.

Serious eye damage/eye irritation

: Causes eye irritation(category 2B)

In rabbit Draize tests, results of "moderate irritating" were reported. Additionally, there was a report that corneal opacity, iritis, conjunctival redness and chemosis were observed at 1 - 3 days after application. The MMAS (Modified Maximum Average Score: corresponding to AOI) was calculated to be 24.0 and the effects were almost reversed within 7 days. Based on the data, it was classified into category 2B.

Respiratory sensitization or Skin sensitization

: Respiratory sensitization : Not possible to classify because of insufficient data.

Skin sensitization : Not possible to classify because of insufficient data.

Mutagenicity : Not possible to classify because of insufficient data.

Carcinogenic effects : May cause cancer(category 1A)

Ethanol is classified into "A3" in ACGIH, which corresponds to category 2. IARC(2010) shows that there is ample evidence for carcinogenicity of alcoholic beverages from many epidemiological data, indicating that ethanol and its main metabolite, acetaldehyde, induce malignant tumors in esophagus following ingestion of ethanol-containing-alcoholic beverages. Thus, ethanol was classified into category 1A.

Effects on the reproductive system

: May damage fertility or the unborn child(category 1A)

Many reports indicate that habitual heavy alcohol consumption caused adverse effects such as fetal malformation to human embryo.

Specific target organ systemic toxicity single exposure

: May cause respiratory irritation(category 3) - May cause drowsiness and dizziness(category 3)

There is the description that "the oral ingestion of ethanol may affect central nervous systems, may cause the headache, fatigue, the fall of concentration, and may cause death in the case of acute intoxication in humans", and the description that "inhalation by 5000ppm (9.4mg/L) causes the respiratory irritation, stupor, pathological sleep in humans".

Specific target organ systemic toxicity repeated exposure

: Cause damage to organs (liver) through prolonged or repeated exposure(category 1)

May cause damage to organs (central nervous system) through prolonged or repeated exposure(category 2)

Long-term consumption of large doses of alcohol causes toxic effects in almost all organ systems. The most affected target organ is the liver; beginning with fatty degeneration, damage can progress via necrosis and fibrotic stages to liver cirrhosis. Based on this information, it was classified into category 1 (liver). There is a report that patients with severe physical dependence caused by alcohol consumption experience craving and drug-seeking behavior and hyperreflexia with nausea, weakness, anxiety and sweating, in addition to the elicitation of a withdrawal syndrome of tremors, seizures and delirium. Based on this information, it was classified into category 2 (central nervous system).

Aspiration hazard : Not possible to classify because of insufficient data.

12. Ecological information

Ecotoxicity

Fish toxicity

: Acute aquatic toxicity : Out of category

Chronic aquatic toxicity : Out of category

Daphnia magna LC50=5463mg/L/48H

Persistence and degradability

: High biodegradability

89 by BOD

Bioaccumulative potential : Low or no bioconcentration or bioaccumulation potential in fish or shells.

Mobility in soil

: May transfer to the atmosphere, water or soil because of physical and chemical properties.

13. Disposal consideration

Residual disposal : Burn in a chemical incinerator equipped with an afterburner and a scrubber. Or entrust approved waste disposal companies with the disposal.

Containers : In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.

14. Transport information

UN class : Class 3(Flammable liquids) P. G. II

UN number : 1170

Marine regulation information

UN No. : 1170

Proper shipping name : ETHANOL

Class : 3

Sub risk : -

Packing group : II

Marine pollutant : Not applicable

Aviation regulation information

UN No. : 1170

Proper shipping name : Ethanol

Class : 3

Sub risk : -

Packing group : II

15. Regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

16. Other information

References Solvents Handbook, T, Asahara et al, Kodansha Scientific Ltd. (1976)
Handbook of dangerous and hazardous chemicals, Japan Industrial Safety & Health Association. (2000-2001)
Dangerous Properties of Industrial Materials, 6th ed. N. I. Sax Van Nostrand Reinhold Company (1984)
Handbook of Dangerous Substances Springer-Verlag Tokyo (1991)
Handbook of 16817 Chemical Products, The Chemical Daily Co. (2017)

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully. The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements. The information herein is only provision of information, and it does not represent a guarantee the properties of the product. The Safety Data Sheet (SDS) is prepared based on JIS Z7253, and it has the same required elements on the Material Safety Data Sheet (MSDS) which is prepared based on JIS Z7250:2010.