

1. identification

A. Product name

- Ethanol 99%

B. Recommended use and restriction on use

- Recommended Use : Industrial use (Synthetic detergent, Organic synthesis resins, Inks, Dyes, Cleaning agent, Reagents, toilet soap, toilet water, perfume, paint diluent, adhesive)
- Restrictions on Use : Restrict except for recommended use

C. Manufacturer / Supplier / Distributor information

- Supplier information
 - Supplier : GODO CHEMICAL Corporation
 - Address : #1017, 10F Suseo Hyundai Ventureville 10 Bamgogae-ro 1-gil Gangnam-gu Seoul 06349 Korea
 - Telephone : (82)2 417 2555~6
 - Email : godochem@godochem.com

2. hazard identification

A. Classification

Flammable Liquid

Category 2

(Flash Point < 23°C, Boiling point > 35°C)

Serious eye damage or irritant material

Specific Target Organ Toxicity (Single Exposure)

Specific Target Organ Toxicity (Single Exposure)

Specific Target Organ Toxicity (Repeat Exposure)

B. Warning

- Label



- Hazard Communication : DANGER!

- Label Element

H225 Highly flammable Liquid and Vapor

H319 Cause eye irritation.

H335 May cause irritation to the respiratory tract

H336 May cause drowsiness or dizziness

H372 Causes damage to organs if repeated exposure

- Terms for Precaution

- 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.

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- P241 Use explosion-proof electrical/ventilating/lighting/.../equipment.
- P242 Use only non-sparking tools.
- P243 Take precautionary measures against static discharge.
- P260 Do not breathe vapor/spray
- P261 Avoid inhalation vapor/spray
- P264 Wash hands thoroughly after handling
- P270 Do not eat, drink or smoke when using this product
- P271 Keep handling outdoors or in a well-ventilated area
- P273 Do not exhaust to environment
- P280 Wear protective gloves/protective clothing/eye protection/face protection
- Response
- P303+P361+P353 If on skin(or hair) Take off immediately all contaminated clothing
Rinse skin with water/shower.
- P304+P340 If inhaled, Move person to fresh air and keep comfortable for breathing.
- P312 Call a POISON CENTRE or doctor/physician if you feel unwell.
- P314 If feel uncomfortable, Seek medical advice or action
- P370+P378 In case of fire, use water spray/alcohol resistant foam for extinction.
- Storage
- P403+P233 Store in a well-ventilated place. keep closed tightly.
- P403+P235 Store in a well-ventilated place and keep cooling
- P405 Store locked up.
- Disposal
- P501 Dispose of contents/container by incineration or recycle.
- C. Other
- NFPA
- Health 1
- Flammability 3
- Reactivity 0

3. composition/information on ingredients

Chemical name : Ethanol K99
 Synonyms : Ethanol
 CAS number : 64-17-5
 Content(%) :

Name	Trade names and Synonyms	KE No.	Content (%)
Ethyl Alcohol	Ethyl alcohol ; Ethanol solution ; Alcohol ; Fermentation alcohol ; Algrain ; Ethyl hydrate ; Ethyl hydroxide	KE-13217	99.9
Water	Dihydrogen oxide ; Oxidane	KE-35400	0.05
Other Organic Compound	–	–	0.05

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Chemical name	: Denatonium Benzoate, Bitrex
Synonyms	: Benzene Methane Amium, N-(2-(2,6-Dimethylphenyl)Amino)-2-Oxoethyl)-N
CAS number	: 3734-3-6
Content(pm)	: 5.3pm

4. first aid measures

- A. Eye contact
Do not rub your eyes.
Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.
Get medical attention immediately.
- B. Skin contact
Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Laundering enough contaminated clothing before reuse.
Get medical attention immediately.
- C. Inhalation contact
When exposed to large amounts of steam and mist, move to fresh air.
Take specific treatment if needed.
Get medical attention immediately.
- D. Ingestion contact
Please be advised by doctor whether induction of vomit is demanded or not.
Rinse your mouth with water immediately.
Get medical attention immediately.
- E. Delayed and immediate effects and also chronic effects from short and long term exposure
Not available
- F. Notes to physician
Notify medical personnel of contaminated situations and have them take appropriate protective measures.

5. fire fighting measures

- A. Suitable(or unsuitable) extinguish media
Dry chemical, carbon dioxide, regular foam extinguishing agent, spray
Avoid use of water jet for extinguishing
- B. Specific hazards arising from the chemical
Not available
- C. Special protective actions for firefighters
Cool containers with water until well after fire is out.
Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
Notify your local firestation and inform the location of the fire and characteristics hazard.
Using a unattended and water devices in case of large fire and leave alone to
- C. Special protective actions for fire-fighting

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burn if you do not imperative.
Avoid inhalation of materials or combustion by-products.
Keep containers cool with water spray.
Vapor or gas is burned at distant ignition sources can be spread quickly.
Due to the extremely low flash point, irrigating fire extinguishing may be less effective when put out a fire.

6. additional release measures

- A. Personal precautions, protective equipment and emergency procedures
Must work against the wind, let the upwind people to evacuate.
Remove all sources of ignition.
Handling the damaged containers or spilled material after wearing protective equipment.
Do not direct water at spill or source of leak.
Keep unauthorized people away, isolate hazard area and deny entry
- B. Environment precautions
Prevent runoff and contact with waterways, drains or sewers.
If large amounts have been spilled, inform the relevant authorities.
- C. Methods and materials for containment and cleaning up
- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
Notification to central government, local government. When emissions at least of the standard amount
Dispose of waste in accordance with local regulation.
Appropriate container for disposal of spilled material collected.
 - Small leak : sand or other non-combustible material, please let use absorption.
Wipe of the solvent.
Dike for later disposal.
Do not use plastic containers.

7. handling and storage

- A. Precaution for safe handling
Since emptied containers retain product residue (vapor, liquid, solid) follow all MSDS and label warnings even after container is emptied.
Do not handle until all safety precautions have been read and understood.
Operators should wear antistatic footwear and clothing.
Do not inhale the steam prolonged or repeated.
Avoid contact with heat, sparks, flame or other ignition sources.
- B. Conditions for safe storage
Check regularly for leaks.
Do not use damaged containers.
Do not apply direct heat.
Do not apply any physical shock to container.

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Avoid direct sunlight.
Collected them in sealed containers.

8. exposure controls/personal protection

A. Control parameters – Occupational Exposure Limits

- ACGIH : STEL – 1000ppm (1880 mg/m³)
- OSHA : 1000ppm 1900mg/m³

B. Engineering Controls

A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

C. Personal protection

○ Respiratory protection

Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.

Respiratory protection is ranked in order from minimum to maximum.

Consider warning properties before use.

Any chemical cartridge respirator with organic vapor cartridge(s).

Any chemical cartridge respirator with a full facepiece and organic vaporcartridge(s).

Any air-purifying respirator with a full facepiece and an organic vapor canister.

For Unknown Concentration or Immediately Dangerous to Life or Health :

Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.

○ Eye protection

Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.

Provide an emergency eye wash station and quick drench shower in the immediate work area.

○ Hand protection

Wear appropriate chemical resistant glove.

○ Body protection

Wear appropriate chemical resistant protective clothing.

9. physical and chemical properties

A. Appearance	:	Liquid, Colorless
B. Odor	:	Wine or whisky odo
C. Odor threshold	:	10 ppm
D. pH	:	No data
E. Melting/Frezing point	:	-114.1°C
F. Boiling point	:	78.5°C

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G. Ignition point	:	13°C(CC)
H. Evaporation rate	:	No data
I. Flammable(solid, gas)	:	No data
J. Ignition or explosion range	:	3.3 / 19%
K. Vapor pressure	:	59.3 mmHg (25°C)
L. Solubility	:	10g/10ml(25°C, Soluble)
M. Vapor density	:	1.59
N. Specific gravity	:	0.8 (20°C)
O. n-octanol/water partition coeff.	:	-0.31
P. Autoignition temperature	:	363°C
Q. Decomposition temperature	:	No data
R. Viscosity	:	1.17 cP (20°C)
S. Molecular formular/Weight	:	CH ₃ CH ₂ OH / 46.07

10. stability and reactivity

A. Chemical stability	:	This material is stable under recommended storage and handling conditions.
B. Possibility of Hazardous Reactions	:	Cylinders exposed to fire may vent and release flammable gas.
C. Conditions to avoid	:	Avoid contact with incompatible materials and condition. Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces Avoid contact with heat, sparks, flame or other ignition sources.
D. Incompatible materials	:	Not available
E. Hazardous decomposition materials	:	May emit flammable vapour if involved in fire.

11. toxicological information

A. Information on the likely routes of exposure	
○ Respiratory tracts	: May cause respiratory irritation.
○ Oral contact	: Not available
○ Eye, Skin contact	: Not available
B. Delayed and immediate effects and also chronic effects from short and long term exposure	
○ Acute toxicity	
- Oral	: LD50 620mg/kg (Rat)
- Dermal	: Not available
- Inhalation	: LC50 59.59 mg/L/4hr Rat
○ Skin corrosive or Irritation	: Not available
○ Acute eye damages or Irritation	: Not available
○ Respiratory hypersensitivity	: Not available
○ Skin hypersensitivity	: Not available

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- Carcinogenic : IARC GROUP 1(Ethanol in Alcoholic beverage)
ACGIH A3(Ethanol in Alcoholic beverage)
- Germ cells mutagenicity : Not available
- Reproductive toxicity : Not available
- Specific target organ toxicity(STOT) – single exposure
May cause drowsiness and dizziness.
May cause respiratory irritation.
- Specific target organ toxicity(STOT) – repeated exposure
Causes damage to organs through prolonged or repeated exposure
- Aspiration hazards : No data
- C. Numerical measures of toxicity : No data

12. ecological information

- A. Aquatic / Terrestrial / Ecology toxicity
 - Fish : LC50 42 mg/l / 96 Hours Oncorhynchus mykiss
 - Shellfish : EC50 2 mg/l / 48 Hours Daphnia magna
 - Birds : No data
- B. Persistence and Biodegradability
 - Persistence : Not available
 - Biodegradability : BOD5 / COD = 0.57
- C. Bioaccumulation
 - Biodegradability : 75% 20 day (Aerobic, etc., easily decomposed)
 - Bioaccumulation : No data
- D. Soil mobility : Koc = 1
- E. Ozone Hazard : No data
- F. Other hazardous : No data

13. disposal considerations

- A. Method of disposal
Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process.
If water separation is possible, pre-process with Water separation process.
Dispose by incineration.
- B. Caution
The user of this product must dispose by oneself or entrust to waste disposer or person who others' waste recycle and dispose, person who establish and operate waste disposal facilities.
Dispose of waste in accordance with all applicable laws and regulations.

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14. transport information

- A. UN number : 1170
- B. UN Shipping name : ETHANOL(ETHYL ALCOHOL) or ETHANOL SOLUTION
(ETHYL ALCOHOL SOLUTION)
- C. Hazard Class(Transport) : 3
- D. Packing class : II
- E. Marine pollutant : YES
- F. EmS code
- Fire : F-E
 - Spill : S-D

15. regulatory information

- A. Occupation Safety and Health Acts
- Working environment measurement materials : not applicable
 - Exposure standard setting materials : Applicable (Ethyl Alcohol)
 - Managed Hazardous Materials : not applicable
 - Special medical examination material : not applicable
 - Manufacture Restriction Materials : not applicable
 - Need Permissiion Materials : not applicable
 - Special Managed Materials : not applicable
- B. Harmful chemical substance Management Acts
- Toxic Materials : not applicable
 - Emission Survey Materials : not applicable
 - Accident Prepare Materials : not applicable
 - Restriction Materials : not applicable
 - Permission Materials : not applicable
 - Prohibiton Materials : not applicable
 - Related Law For Chemicals Registration, evaluation : Existing Chemicals (Ethanol, Water)
- C. Hazardous Safety Control Acts : 4 Class Alcohols, 400 L
- D. Waste Control Acts : This Product is Industrial Waste(except for appointed Waste) in accordance with Waste Control Acts
- E. Other regulation and foreign regulation
- Persistent Organic Pollutants Control Acts : Not application
 - EU Regulations
 - Clasification results : F; R1
 - Hazard phases : R1
 - Precaution phases : S2, S7, S16
 - US Regulations
 - OSHA Regulations (29CFR1910.19) : Not application
 - CERCLA 103 Regulations (40CFR302.4) : Not application
 - EPCRA 302 Regulations (40CFR35.30) : Not application
 - EPCRA 304 Regulations (40CFR35.40) : Not application

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– EPCRA 313 Regulations (40CFR372.65)	: Not application
○ Rotterdam Convention	: Not application
○ Stockholm Convention	: Not application
○ Montreal Protocol	: Not application

16. other information

- A. References : MSDS (KOSHA)
TOXNET, U.S. National Library of Medicine
International Chemical Safety Cards(ICSC)
ECS-ESIS(European chemical Substances Information System)
IUCLID Chemical Data Shet, EC-ECB
NCIS, National Institute of Environmental Research
Korea Information System for Chemical Safety Management
- B. Original preparation date : 2013, AUG. 08.
- C. Revision number and revision date : 2 / 2017, Jan. 6.
3 / 2017, Mar. 14. – Application Of NO.2016-19
Revised Regulation(2016, April, 6. MOEL Notice)
4 / 2017. Aug. 2 – Revised MSDS in Korea
Safety and Health Corporation
- D. Other No data