

SAFETY DATA SHEETS

According to the UN GHS revision 10

Version: 1.1
Creation Date: July 15, 2024
Revision Date: March 23, 2025

SECTION 1: Identification

1.1 GHS Product identifier

Product name Ethane Solution, 50 mg/L, 1 ml

1.2 Other means of identification

Product number C1806574
Other names -

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.
Uses advised against no data available

1.4 Supplier's details

Company CATO Research Chemicals Inc.
Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou
Telephone +86-20-81960175

1.5 Emergency phone number

Emergency phone number +86-20-81960175
Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Gases under pressure: Liquefied gas
Flammable gases, Category 1A, Flammable gas

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word Danger
Hazard statement(s) H220 Extremely flammable gas
Precautionary statement(s)
Prevention P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Response P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 In case of leakage, eliminate all ignition sources.
Storage P410+P403 Protect from sunlight. Store in a well-ventilated place.
P403 Store in a well-ventilated place.
Disposal none

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Ethane Solution, 50 mg/L, 1 ml	Ethane	74-84-0	200-814-8	≈ 99%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.

Following skin contact

ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. Refer for medical attention.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

4.2 Most important symptoms/effects, acute and delayed

In high vapor concentrations, can act as simple asphyxiant. Liquid causes severe frostbite. (USCG, 1999)
Excerpt from ERG Guide 115 [Gases - Flammable (Including Refrigerated Liquids)]: Vapors may cause dizziness or asphyxiation without warning. Some may be irritating if inhaled at high concentrations. Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite. Fire may produce irritating and/or toxic gases. (ERG, 2016)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

FIRST AID: Skin--ON CONTACT WITH LIQUID FROSTBITE: rinse with plenty of water, do NOT remove clothes. Refer for medical attention; Eyes--ON CONTACT WITH LIQUID FROSTBITE: First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Wear self contained breathing apparatus for fire fighting if necessary.

5.2 Specific hazards arising from the chemical

Excerpt from ERG Guide 115 [Gases - Flammable (Including Refrigerated Liquids)]: EXTREMELY FLAMMABLE. Will be easily ignited by heat, sparks or flames. Will form explosive mixtures with air. Vapors from liquefied gas are initially heavier than air and spread along ground. CAUTION: Hydrogen (UN1049), Deuterium (UN1957), Hydrogen, refrigerated liquid (UN1966) and Methane (UN1971) are lighter than air and will rise. Hydrogen and Deuterium fires are difficult to detect since they burn with an invisible flame. Use an alternate method of detection (thermal camera, broom handle, etc.) Vapors may travel to source of ignition and flash back. Cylinders exposed to fire may vent and release flammable gas through pressure relief devices. Containers may explode when heated. Ruptured cylinders may rocket. (ERG, 2016)

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5.3 Special protective actions for fire-fighters

Shut off supply; if not possible and no risk to surroundings, let the fire burn itself out. In other cases extinguish with water spray, powder. In case of fire: keep cylinder cool by spraying with water. Combat fire from a sheltered position.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate danger area! Consult an expert! Personal protection: self-contained breathing apparatus. Ventilation. Remove all ignition sources. NEVER direct water jet on liquid.

6.2 Environmental precautions

Evacuate danger area! Consult an expert! Personal protection: self-contained breathing apparatus. Ventilation. Remove all ignition sources. NEVER direct water jet on liquid.

6.3 Methods and materials for containment and cleaning up

Evacuate danger area! Consult an expert! Personal protection: self-contained breathing apparatus. Ventilation. Remove all ignition sources. NEVER direct water jet on liquid.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Prevent build-up of electrostatic charges (e.g., by grounding) if in liquid state. Use non-sparking handtools. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Fireproof. Cool. Separated from strong oxidants and halogens. Keep container tightly closed in a dry and well-ventilated place.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

Component	Ethane			
CAS No.	74-84-0			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m ³	ppm	mg/m ³
Finland	1000			
New Zealand	(1)			
	Remarks			
New Zealand	(1) Simple asphyxiant - may present an explosion hazard			

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear face shield.

Skin protection

Cold-insulating gloves. Protective clothing.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Ethane is a colorless odorless gas. It is easily ignited. The vapors are heavier than air. It can asphyxiate by the displacement of air. Under prolonged exposure to fire or intense heat the containers may rupture violently and rocket. Contact with the liquid may cause frostbite.
Colour	Colorless gas
Odour	Odorless
Melting point/freezing point	-172°C(lit.)
Boiling point or initial boiling point and boiling range	?88°C(lit.)
Flammability	Extremely flammable.
Lower and upper explosion limit/flammability limit	Lower flammable limit: 3.0% by volume; Upper flammable limit: 12.5% by volume.
Flash point	-135°C
Auto-ignition temperature	881°F
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	6.4 at 200 K; 9.4 at 300 K; 12.2 at 400 K; 14.8 at 500 K; 18.1 at 600 K (all in uPa.s)
Solubility	In water, 60.2 mg/L at 25 deg C
Partition coefficient n-octanol/water	log Kow = 1.81
Vapour pressure	37.95 atm (21.1 °C)
Density and/or relative density	0.362g/mL at 20°C(lit.)
Relative vapour density	1.05 (vs air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Reacts violently with halogens and strong oxidants. This increases fire and explosion hazard.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

Flammable in the presence of an oxidizing gas (eg air), a source of ignition, and when the concentration of the gas is between the lower and upper explosive limits. Keep away from heat/sparks/open flame/hot surface/oxidizing gas. No smoking. The gas mixes well with air, explosive mixtures are easily formed. As a result of flow, agitation, etc., electrostatic charges can be generated. Saturated aliphatic hydrocarbons, such as ETHANE, may be incompatible with strong oxidizing agents like nitric acid. Charring of the hydrocarbon may occur followed by ignition of unreacted hydrocarbon and other nearby combustibles. In other settings, aliphatic saturated hydrocarbons are mostly unreactive. They are not affected by aqueous solutions of acids, alkalis, most oxidizing agents, and most reducing agents. Peroxidizable

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Chlorine dioxide mixed with ... ethane ... always explodes spontaneously.

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. -Carbon oxides.

SECTION 11: Toxicological information

Acute toxicity

- Oral: no data available
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

Rapid evaporation of the liquid may cause frostbite.

STOT-repeated exposure

no data available

Aspiration hazard

On loss of containment this substance can cause suffocation by lowering the oxygen content of the air in confined areas.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: Within 24 hr, ethane was oxidized to its corresponding alcohol, ethanol, by cell suspensions of over 20 methyltrophic organisms isolated from lake water and soil samples(1,2). The respective gas exchange and degradation rate constants were 0.83×10^{-5} sq cm sec⁻¹ and 0.027 day⁻¹ for ethane contained in a model estuarine ecosystem at 10 deg C and a salinity of 30 parts per thousand; the corresponding biodegradation half-life was greater than 87 days(3). At 20 deg C and a salinity of 30, the respective gas exchange and degradation rate constants were 1.132×10^{-5} sq cm sec⁻¹ and 0.062 day⁻¹; the corresponding biodegradation half life for n-ethane ranged from 21 to 33 days(3).

12.3 Bioaccumulative potential

An estimated BCF of 7.3 was calculated in fish for ethane(SRC), using a log Kow of 1.81(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

The Koc of ethane is estimated as 37(SRC), using a log Kow of 1.81(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that ethane is expected to have very high mobility in soil.

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: UN1035 (For reference only, please check.) IMDG: UN1035 (For reference only, please check.) IATA: UN1035 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: ETHANE (For reference only, please check.) IMDG: ETHANE (For reference only, please check.) IATA: ETHANE (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 2.1 (For reference only, please check.) IMDG: 2.1 (For reference only, please check.) IATA: 2.1 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: (For reference only, please check.) IMDG: (For reference only, please check.) IATA: (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: No IMDG: No IATA: No

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Ethane	Ethane	74-84-0	200-814-8
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

SECTION 10. Other information

Information on revision

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Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

High concentrations in the air cause a deficiency of oxygen with the risk of unconsciousness or death. Check oxygen content before entering area. Turn leaking cylinder with the leak up to prevent escape of gas in liquid state. Other UN number : 1961 (refrigerated liquid), Hazard class : 2.1.

Any questions regarding this SDS, Please send your inquiry to info@cato-chem.com

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.