



SAFETY DATA SHEET

1. Identification

Product identifier	ETHANE
Other means of identification	
SDS number	304-GHS
Synonyms	Ethyl Hydride, Bimethyl, Methylmethane, Dimethyl
Recommended use	This product is intended for use as a refinery feedstock, fuel or for use in engineered processes. Use in other applications may result in higher exposures and require additional controls, such as local exhaust ventilation and personal protective equipment.
Recommended restrictions	None known.
Manufacturer/Importer/Supplier/Distributor information	
Manufacturer/Supplier	Valero Marketing & Supply Company and Affiliates One Valero Way San Antonio, TX 78269-6000 210-345-4593
General Assistance	210-345-4593
E-Mail	CorpHSE@valero.com
Contact Person	Industrial Hygienist
Emergency Telephone	24 Hour Emergency 866-565-5220 1-800-424-9300 (CHEMTREC USA)

2. Hazard(s) identification

Physical hazards	Flammable gases	Category 1
	Gases under pressure	Compressed gas
Health hazards	Not classified.	
OSHA defined hazards	Simple asphyxiant	
Label elements		



Signal word	Not available.
Hazard statement	Extremely flammable gas. Contains gas under pressure; may explode if heated.
Precautionary statement	
Prevention	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Response	Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.
Storage	Protect from sunlight. Store in a well-ventilated place.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
Ethane		74-84-0	95 - 100
Propane		74-98-6	0 - 5
Methane		74-82-8	0 - 2

ETHANE

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Prepared by 3E Company

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Inhalation Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a physician or poison control center immediately.

Skin contact Wash frost-bitten areas with plenty of water. Do not remove clothing. Get medical attention immediately.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

Ingestion Ingestion is not a typical route of exposure for gases or liquefied gases.

Most important symptoms/effects, acute and delayed Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold burn").

Indication of immediate medical attention and special treatment needed Treat symptomatically.

5. Fire-fighting measures

Suitable extinguishing media Dry powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire-fighting equipment/instructions Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. ALWAYS stay away from tanks engulfed in flame. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Withdraw immediately in case of rising sound from venting safety devices or any discoloration of tanks due to fire. Move containers from fire area if you can do it without risk. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Stay upwind. Ventilate closed spaces before entering. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Wear suitable protective clothing, gloves and eye/face protection.

Methods and materials for containment and cleaning up Ventilate well, stop flow of gas or liquid if possible. Remove ignition sources. Do not allow chemical to enter confined spaces such as sewers due to explosion risk. Sewers designed to preclude formation of explosive concentrations of vapor may be permitted.

Environmental precautions Stop leak if possible without any risk. Sewers must be covered and basements and workpits evacuated. Contact local authorities in case of spillage to drain/aquatic environment.

7. Handling and storage

Precautions for safe handling Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Before entering storage tanks and commencing any operation in a confined area, check the atmosphere for oxygen content, hydrogen sulfide (H₂S) and flammability. Provide adequate ventilation. Avoid contact with eyes, skin, and clothing. Material may deplete oxygen from the air to dangerously low levels. Avoid breathing gas. Wear appropriate personal protective equipment. The product is extremely flammable. May form explosive mixtures with air. Avoid heat, sparks, open flames and other ignition sources. Ground container and transfer equipment to eliminate static electric sparks. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities Flammable compressed gas storage. Keep away from heat, sparks and open flame. Keep in a cool, well-ventilated place. Store away from incompatible materials.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Propane (CAS 74-98-6)	PEL	1800 mg/m ³ 1000 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Propane (CAS 74-98-6)	TWA	1800 mg/m ³ 1000 ppm

Biological limit values	No biological exposure limits noted for the ingredient(s).
Exposure guidelines	No exposure standards allocated.
Appropriate engineering controls	Observe Occupational Exposure Limits and minimize the risk of inhalation. Use explosion-proof equipment.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Risk of contact: Wear goggles/face shield.
Skin protection	
Hand protection	Risk of contact: Wear cold insulating gloves. Suitable gloves can be recommended by the glove supplier.
Other	Wear suitable protective clothing.
Respiratory protection	In case of inadequate ventilation, use air-supplied full-mask. Seek advice from local supervisor.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice. Observe any medical surveillance requirements.

9. Physical and chemical properties

Appearance	Compressed liquefied gas.
Physical state	Gas.
Form	Compressed liquefied gas.
Color	Colorless.
Odor	Weak odor. Sweetish.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	-277.87 °F (-172.15 °C)
Initial boiling point and boiling range	-126.4 °F (-88 °C)
Flash point	-211.3 °F (-135.2 °C)
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	3 %
Flammability limit - upper (%)	12.5 %
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	4199.64 kPa at 25 °C 4194.11 kPa at 25 °C
Vapor density	1.1 (Air=1)
Relative density	0.546 (Water= 1)

Solubility(ies)	
Solubility (water)	Insoluble in the cold water.
Partition coefficient (n-octanol/water)	Not applicable. 1.81
Auto-ignition temperature	986 °F (530 °C) 881.6 °F (472 °C) 882 °F (472.22 °C)
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	0.45 g/cm ³ estimated
Dynamic viscosity	0.06 mPa.s
Dynamic viscosity temperature	-109.3 °F (-78.5 °C)
Kinematic viscosity	0.14 mm ² /s estimated
Molecular formula	C ₂ -H ₆
Molecular weight	30.08 g/mol
Percent volatile	Essentially 100%
VOC (Weight %)	100

10. Stability and reactivity

Reactivity	Not available.
Chemical stability	Stable at normal conditions. Heat may cause the containers to explode.
Possibility of hazardous reactions	Hazardous polymerization does not occur. Hazardous reactions do not occur.
Conditions to avoid	Heat, sparks, flames, elevated temperatures. Contact with incompatible materials.
Incompatible materials	Strong acids, alkalis and oxidizing agents. Reducing agents.
Hazardous decomposition products	Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Not likely, due to the form of the product.
Inhalation	Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels.
Skin contact	Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling.
Eye contact	Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling.

Symptoms related to the physical, chemical and toxicological characteristics Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold burn").

Information on toxicological effects

Acute toxicity Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels. Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold burn").

Components	Species	Test Results
Propane (CAS 74-98-6)		
Acute		
<i>Inhalation</i>		
LC50	Rat	> 1442 mg/l, 15 Minutes
Skin corrosion/irritation	Based on available data, the classification criteria are not met.	
Serious eye damage/eye irritation	Based on available data, the classification criteria are not met.	
Respiratory or skin sensitization		
Respiratory sensitization	Based on available data, the classification criteria are not met.	

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Skin sensitization	Based on available data, the classification criteria are not met.
Germ cell mutagenicity	Based on available data, the classification criteria are not met.
Carcinogenicity	Based on available data, the classification criteria are not met.
Reproductive toxicity	Based on available data, the classification criteria are not met.
Specific target organ toxicity - single exposure	Based on available data, the classification criteria are not met.
Specific target organ toxicity - repeated exposure	Based on available data, the classification criteria are not met.
Aspiration hazard	Based on available data, the classification criteria are not met.

12. Ecological information

Ecotoxicity	The product is a volatile organic compound which has a photochemical ozone creation potential.
Persistence and degradability	Not available.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

ETHANE (CAS 74-84-0)	1.81
Ethane (CAS 74-84-0)	1.81
Methane (CAS 74-82-8)	1.09
Propane (CAS 74-98-6)	2.36

Mobility in soil	Not available.
Other adverse effects	Not available.

13. Disposal considerations

Disposal instructions	Dispose in accordance with all applicable regulations. This material and its container must be disposed of as hazardous waste.
Hazardous waste code	D001
Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN1035
UN proper shipping name	Ethane
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Packing group	Not applicable.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Packaging exceptions	306
Packaging non bulk	304
Packaging bulk	302

IATA

UN number	UN1035
UN proper shipping name	Ethane
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	2.1
Packing group	Not applicable.
Environmental hazards	No.
ERG Code	10L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1035
UN proper shipping name	ETHANE

Transport hazard class(es)**Class** 2.1**Subsidiary risk** -**Label(s)** 2.1**Packing group** Not applicable.**Environmental hazards****Marine pollutant** No.**EmS** F-D, S-U**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable. This product is a compressed or liquefied gas and when transported in bulk is covered under IGC code.**15. Regulatory information****US federal regulations** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Ethane (CAS 74-84-0) LISTED

Methane (CAS 74-82-8) LISTED

Propane (CAS 74-98-6) LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)**Hazard categories** Immediate Hazard - No

Delayed Hazard - No

Fire Hazard - No

Pressure Hazard - No

Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes**SARA 313 (TRI reporting)**

Not regulated.

Other federal regulations**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Ethane (CAS 74-84-0)

Methane (CAS 74-82-8)

Propane (CAS 74-98-6)

Safe Drinking Water Act (SDWA) Not regulated.**US state regulations**

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

WARNING: Byproducts of the combustion of propane contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

California requires all "persons in the course of doing business" whose products are sold in California to comply with Proposition 65 (Cal. Health and Safety Code Sections 25249.6 et seq.). Accordingly, resellers of this product in California shall comply with Proposition 65, including the provision of any necessary warnings for exposure to chemicals listed by the State of California: http://oehha.ca.gov/prop65/prop65_list/files/P65single111811.pdf**US. Massachusetts RTK - Substance List**

Ethane (CAS 74-84-0)

Methane (CAS 74-82-8)

Propane (CAS 74-98-6)

US. New Jersey Worker and Community Right-to-Know Act

Ethane (CAS 74-84-0)

Methane (CAS 74-82-8)

Propane (CAS 74-98-6)

US. Pennsylvania Worker and Community Right-to-Know Law

Ethane (CAS 74-84-0)

Methane (CAS 74-82-8)

Propane (CAS 74-98-6)

US. Rhode Island RTK

Ethane (CAS 74-84-0)

Methane (CAS 74-82-8)

Propane (CAS 74-98-6)

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Not listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

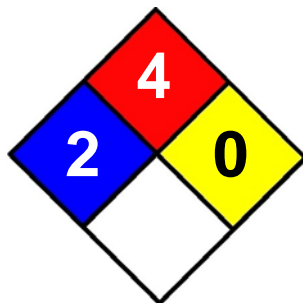
16. Other information, including date of preparation or last revision

Issue date 28-May-2014

Revision date -

Version # 01

NFPA Ratings



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