

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

SDS No: 101

Revision Date: 10/30/2018 Date of Issue: 11/16/2015 Version: 1.0

SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Mixture Product Name: Ethane Synonyms: Ethyl Hydride

1.2. Intended Use of the Product

Used in chemical industry mainly in the production of ethylene. For professional use only.

1.3. Name, Address, and Telephone of the Responsible Party

Customer

Hess Tower 1501 McKinney Houston, TX 77010 T:(713) 496-4000

When calling the main operator ask for the EHS Safety

Department. All Hess SDSs are also available via the <u>Hess.com</u> website.

1.4. Emergency Telephone Number

Emergency Number : (800) 424-9300 CHEMTREC (24 hours)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

GHS-US/CA Classification

Simple Asphy

Flam. Gas 1 H220 Press. Gas (Liq.) H280

Full text of hazard classes and H-statements: see Section 16.

2.2. Label Elements

GHS-US/CA Labeling

Hazard Pictograms (GHS-US/CA)





Signal Word (GHS-US/CA) : Danger

Hazard Statements (GHS-US/CA) : H220 - Extremely flammable gas.

H280 - Contains gas under pressure; may explode if heated.

May displace oxygen and cause rapid suffocation.

Precautionary Statements (GHS-US/CA): P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition

sources. No smoking.

P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P381 - In case of leakage, eliminate all ignition sources.

P403 - Store in a well-ventilated place.

P410+P403 - Protect from sunlight. Store in a well-ventilated place.

2.3. Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions. Contact with gas escaping the container can cause frostbite.

2.4. Unknown Acute Toxicity (GHS-US/CA)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

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3.2. Mixture

Name	Product Identifier	% *	GHS Ingredient Classification
Ethane	(CAS-No.) 74-84-0	98.427	Simple Asphy
			Flam. Gas 1, H220
			Press. Gas (Liq.), H280
Methane	(CAS-No.) 74-82-8	1.3642	Simple Asphy
			Flam. Gas 1, H220
			Press. Gas (Liq.), H280
Propane	(CAS-No.) 74-98-6	0.1936	Simple Asphy
			Flam. Gas 1, H220
			Press. Gas (Liq.), H280
Butane	(CAS-No.) 106-97-8	0.0151	Simple Asphy
			Flam. Gas 1, H220
			Press. Gas (Liq.), H280

Full text of H-phrases: see Section 16.

SECTION 4: FIRST AID MEASURES

4.1. Description of First-aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). If frostbite or freezing occurs, immediately flush with plenty of lukewarm water to GENTLY warm the affected area. Do not use hot water. Do not rub affected area. Get immediate medical attention.

Inhalation: Obtain medical attention if breathing difficulty persists. First, take proper precautions to ensure your own safety before attempting rescue (e.g. wear appropriate respiratory protective equipment, use the buddy system), then remove the exposed person to fresh air. Keep at rest in a position comfortable for breathing.

Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation develops or persists. Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.

Eye Contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.

Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

General: Asphyxia by lack of oxygen: risk of death. May cause frostbite on contact with the liquid. Ethane is an asphyxiant. Lack of oxygen can be fatal.

Inhalation: This product is considered non-toxic by inhalation. Inhalation of high concentrations may cause central nervous system depression such as dizziness, drowsiness, headache, and similar narcotic symptoms, but no long-term effects. Numbness, a "chilly" feeling, and vomiting have been reported from accidental exposures to high concentrations.

This product is a simple asphyxiant. In high concentrations it will displace oxygen from the breathing atmosphere, particularly in confined spaces. Signs of asphyxiation will be noticed when oxygen is reduced to below 16%, and may occur in several stages. Symptoms may include rapid breathing and pulse rate, headache, dizziness, visual disturbances, mental confusion, incoordination, mood changes, muscular weakness, tremors, cyanosis, narcosis and numbness of the extremities. Unconsciousness leading to central nervous system injury and possibly death will occur when the atmospheric oxygen concentration is reduced to about ≤8%.

WARNING: The burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

Skin Contact: Contact with gas/liquid escaping the container can cause frostbite and freeze burns.

Eye Contact: Contact with gas/liquid escaping the container can cause frostbite, freeze burns, and permanent eye damage.

Ingestion: Not considered a potential route of exposure, but contact with gas/liquid escaping the container can cause freeze burns and frostbite.

Chronic Symptoms: None expected under normal conditions of use.

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^{*}Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

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4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand. Individuals with pre-existing conditions of the heart, lungs, and blood may have increased susceptibility to symptoms of asphyxia.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Do not extinguish burning gas if flow cannot be shut off immediately. Extinguish secondary FIRES with appropriate materials.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Extremely flammable gas.

Explosion Hazard: May form flammable/explosive vapor-air mixture. Container may explode in heat of fire.

Reactivity: Hazardous reactions will not occur under normal conditions.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Gas fires should not be extinguished unless flow of gas can be immediately stopped. Shut off gas source and allow gas to burn out. If spill or leak has not ignited, determine if water spray may assist in dispersing gas or vapor to protect personnel attempting to stop leak. Use water to cool equipment, surfaces and containers exposed to fire and excessive heat. For large fire the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure.

Isolate area, particularly around ends of storage vessels. Let vessel, tank car or container burn unless leak can be stopped. Withdraw immediately in the event of a rising sound from a venting safety device. Large fires typically require specially trained personnel and equipment to isolate and extinguish fire.

Firefighting activities that may result in potential exposure to high heat, smoke, or toxic by-products of combustion should require NIOSH/MSHA - approved pressure-demand self-contained breathing apparatus with full face piece and full protective clothing. **Protection During Firefighting:** Do not enter fire area without proper protective equipment, including respiratory protection. **Hazardous Combustion Products:** Carbon oxides (CO, CO₂). Nitrogen oxides. Ethylene.

Other Information: Use water spray to disperse vapors.

Reference to Other Sections

Refer to Section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Eliminate every possible source of ignition. Do not get in eyes, on skin, or on clothing. Do not breathe gas.

6.1.1. For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protective equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Evacuate unnecessary personnel, isolate, and ventilate area. Ventilate area.

6.2. Environmental Precautions

Prevent entry to sewers and public waters.

6.3. Methods and Materials for Containment and Cleaning Up

For Containment: Stop leak, if possible without risk. As an immediate precautionary measure, isolate spill or leak area in all directions.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill. Stop the source of the release, if safe to do so. Consider the use of water spray to disperse vapors. Isolate the area until gas has dispersed. Ventilate and gas test area before entering.

6.4. Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

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SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: Handle empty containers with care because residual vapors are flammable. Ruptured cylinders may rocket. Do not pressurize, cut, or weld containers. Asphyxiating gas at high concentrations.

Precautions for Safe Handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Avoid prolonged contact with eyes, skin and clothing. Do not breathe gas.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations. Proper grounding procedures to avoid static electricity should be followed. **Storage Conditions:** Keep container closed when not in use. Store in a dry, cool place. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials. Keep in fireproof place. Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling.

Incompatible Materials: Fluorinated compounds, halogenated compounds, reactive metals, strong acids, strong bases, strong oxidizers.

7.3. Specific End Use(s)

Used in chemical industry mainly in the production of ethylene. For professional use only.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

For substances listed in Section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), or Canadian provincial governments.

<u> </u>		
Ethane (74-84-0)		
Alberta	OEL TWA (ppm)	1000 ppm
British Columbia	OEL TWA (ppm)	1000 ppm
Methane (74-82-8)		
British Columbia	OEL TWA (ppm)	1000 ppm
Butane (106-97-8)		
USA ACGIH	ACGIH STEL (ppm)	1000 ppm (explosion hazard)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	1900 mg/m³
USA NIOSH	NIOSH REL (TWA) (ppm)	800 ppm
USA IDLH	US IDLH (ppm)	1600 ppm (>10% LEL)
Alberta	OEL TWA (ppm)	1000 ppm
British Columbia	OEL STEL (ppm)	750 ppm
British Columbia	OEL TWA (ppm)	600 ppm
Ontario	OEL STEL (ppm)	1000 ppm
Ontario	OEL TWA (ppm)	800 ppm
Québec	VEMP (mg/m³)	1900 mg/m³
Québec	VEMP (ppm)	800 ppm
Propane (74-98-6)		
USA OSHA	OSHA PEL (TWA) (mg/m³)	1800 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	1000 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m³)	1800 mg/m³
USA NIOSH	NIOSH REL (TWA) (ppm)	1000 ppm
USA IDLH	US IDLH (ppm)	2100 ppm (10% LEL)
Alberta	OEL TWA (ppm)	1000 ppm
British Columbia	OEL TWA (ppm)	1000 ppm
Québec	VEMP (mg/m³)	1800 mg/m³
Québec	VEMP (ppm)	1000 ppm
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8.2. Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed. Use explosion-proof equipment. Proper grounding procedures to avoid static electricity should be followed. Gas detectors should be used when flammable gases or vapors may be released. Oxygen detectors should be used when asphyxiating gases may be released.

Personal Protective Equipment: Gloves. Protective clothing. Protective goggles. Insufficient ventilation: wear respiratory protection.











Materials for Protective Clothing: Chemically resistant materials and fabrics. Wear fire/flame resistant/retardant clothing.

Hand Protection: Wear protective gloves. If material is cold, wear thermally resistant protective gloves.

Eye and Face Protection: Chemical safety goggles.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: Use a NIOSH/MSHA approved positive-pressure, supplied air respirator with escape bottle or self-contained breathing apparatus (SCBA) for gas concentrations above occupational exposure limits, for potential for uncontrolled release, if exposure levels are not known, or in an oxygen-deficient atmosphere.

CAUTION: Flammability limits (i.e., explosion hazard) should be considered when assessing the need to expose personnel to concentrations requiring respiratory protection.

Refer to OSHA 29 CFR 1910.134, ANSI Z88.2, NIOSH Respiratory Decision Logic, and the manufacturer for additional guidance on respiratory protection selection.

Thermal Hazard Protection: Wear thermally resistant protective clothing.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State Gas **Appearance** Odorless Odor Odorless **Odor Threshold** Not available pН Not available **Evaporation Rate** Not available **Melting Point** Not available **Freezing Point** Not available **Boiling Point** Not available

Flash Point : -134.4 °C (-209.92 °F)

Auto-ignition Temperature: Not availableDecomposition Temperature: Not available

Flammability (solid, gas) : Extremely flammable gas

Lower Flammable Limit : 3.0 %

Upper Flammable Limit : 12.4 %

Vapor Pressure : Not available

Relative Vapor Density at 20°C : Not available

Relative Density : Not available

Specific Gravity : Not available

Specific Gravity: Not availableSolubility: Not availablePartition Coefficient: N-Octanol/Water: Not availableViscosity: Not available

Explosive Properties : Contains gas under pressure; may explode if heated

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SECTION 10: STABILITY AND REACTIVITY

- **10.1. Reactivity:** Hazardous reactions will not occur under normal conditions.
- **10.2. Chemical Stability:** Contains gas under pressure; may explode if heated.
- **10.3.** Possibility of Hazardous Reactions: Hazardous polymerization will not occur.
- **10.4. Conditions to Avoid:** Direct sunlight, extremely high or low temperatures, open flames, sources of ignition and incompatible materials.
- **10.5. Incompatible Materials:** Fluorinated compounds, halogenated compounds, reactive metals, strong acids, strong bases, strong oxidizers.
- 10.6. Hazardous Decomposition Products: None expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects - Product

Acute Toxicity (Oral): Not classified
Acute Toxicity (Dermal): Not classified
Acute Toxicity (Inhalation): Not classified

LD50 and LC50 Data: Not available Skin Corrosion/Irritation: Not classified Eye Damage/Irritation: Not classified

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: This product is considered non-toxic by inhalation. Inhalation of high concentrations may cause central nervous system depression such as dizziness, drowsiness, headache, and similar narcotic symptoms, but no long-term effects. Numbness, a "chilly" feeling, and vomiting have been reported from accidental exposures to high concentrations.

This product is a simple asphyxiant. In high concentrations it will displace oxygen from the breathing atmosphere, particularly in confined spaces. Signs of asphyxiation will be noticed when oxygen is reduced to below 16%, and may occur in several stages. Symptoms may include rapid breathing and pulse rate, headache, dizziness, visual disturbances, mental confusion, incoordination, mood changes, muscular weakness, tremors, cyanosis, narcosis and numbness of the extremities. Unconsciousness leading to central nervous system injury and possibly death will occur when the atmospheric oxygen concentration is reduced to about ≤8%.

WARNING: The burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

Symptoms/Injuries After Skin Contact: Contact with gas/liquid escaping the container can cause frostbite and freeze burns. Symptoms/Injuries After Eye Contact: Contact with gas/liquid escaping the container can cause frostbite, freeze burns, and permanent eye damage.

Symptoms/Injuries After Ingestion: Not considered a potential route of exposure, but contact with gas/liquid escaping the container can cause freeze burns and frostbite.

Chronic Symptoms: None expected under normal conditions of use.

11.2. Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Ethane (74-84-0)	
LC50 Inhalation Rat	658 mg/l/4h
Butane (106-97-8)	
LC50 Inhalation Rat	30957 mg/m³ (Exposure time: 4 h)
Propane (74-98-6)	
LC50 Inhalation Rat	> 800000 ppm (Exposure time: 15 min)

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SECTION 12: ECOLOGICAL INFORMATION

12.1. **Toxicity**

Ecology - General: Not classified.

12.2. **Persistence and Degradability**

Ethane	
Persistence and Degradability	Not established.

12.3. **Bioaccumulative Potential**

Ethane	
Bioaccumulative Potential	Not established.
Ethane (74-84-0)	
Log Pow	<= 2.8
Butane (106-97-8)	
Log Pow	2.89
Propane (74-98-6)	
Log Pow	2.3

12.4. **Mobility in Soil**

Not available

Other Adverse Effects 12.5.

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

Additional Information: Container may remain hazardous when empty. Continue to observe all precautions. Handle empty containers with care because residual vapors are flammable. Empty gas cylinders should be returned to the vendor for recycling or refilling. Do not puncture or incinerate container.

Ecology - Waste Materials: Avoid release to the environment.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

In Accordance with DOT

Proper Shipping Name : ETHANE MIXTURE

Hazard Class : 2.1 **Identification Number** : UN1035 **Label Codes** : 2.1 **ERG Number** : 115



14.2. In Accordance with IMDG

Proper Shipping Name : ETHANE MIXTURE

Hazard Class : 2.1 **Identification Number** : UN1035 **Label Codes** : 2.1 : F-D EmS-No. (Fire) EmS-No. (Spillage) : S-U In Accordance with IATA



Proper Shipping Name : ETHANE MIXTURE

Identification Number : 2.1 **Hazard Class** : UN1035 **Label Codes** : 2.1 **ERG Code (IATA)** : 10L



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14.4. In Accordance with TDG

Proper Shipping Name : ETHANE MIXTURE

Hazard Class : 2.1 Identification Number : UN1035 Label Codes : 2.1



SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

Ethane		
SARA Section 311/312 Hazard Classes	Fire hazard	
	Sudden release of pressure hazard	
	Immediate (acute) health hazard	

Ethane (74-84-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Methane (74-82-8)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Butane (106-97-8)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Propane (74-98-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. US State Regulations

Ethane (74-84-0)

- U.S. Massachusetts Right To Know List
- U.S. New Jersey Right to Know Hazardous Substance List
- U.S. Pennsylvania RTK (Right to Know) List

Methane (74-82-8)

- U.S. Massachusetts Right To Know List
- U.S. New Jersey Right to Know Hazardous Substance List
- U.S. Pennsylvania RTK (Right to Know) List

Butane (106-97-8)

- U.S. Massachusetts Right To Know List
- U.S. New Jersey Right to Know Hazardous Substance List
- U.S. Pennsylvania RTK (Right to Know) List

Propane (74-98-6)

- U.S. Massachusetts Right To Know List
- U.S. New Jersey Right to Know Hazardous Substance List
- U.S. Pennsylvania RTK (Right to Know) List

15.3. Canadian Regulations

Ethane (74-84-0)

Listed on the Canadian DSL (Domestic Substances List)

Methane (74-82-8)

Listed on the Canadian DSL (Domestic Substances List)

Butane (106-97-8)

Listed on the Canadian DSL (Domestic Substances List)

Propane (74-98-6)

Listed on the Canadian DSL (Domestic Substances List)

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Date of Preparation or Latest : 10/30/2018

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: This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR) SOR/2015-17.

GHS Full Text Phrases:

H280	Contains gas under pressure; may explode if heated
Flam. Gas 1	Flammable gases Category 1
Press. Gas (Liq.)	Gases under pressure Liquefied gas
Simple Asphy	Simple Asphyxiant
H220	Extremely flammable gas
H280	Contains gas under pressure; may explode if heated

NFPA Health Hazard : 1 - Materials that, under emergency conditions, can cause

significant irritation.

NFPA Fire Hazard : 4 - Materials that rapidly or completely vaporize at

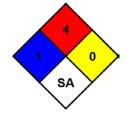
atmospheric pressure and normal ambient temperature or

that are readily dispersed in air and burn readily.

NFPA Reactivity Hazard : 0 - Material that in themselves are normally stable, even

under fire conditions.

NFPA Specific Hazards : SA - This denotes gases which are simple asphyxiants.



This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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