

## Section 1: Product and Company Identification

**Absolute Accuracy**  
4591 S Wayside Dr  
Houston, TX 77087  
(832) 571-2387

Product Code: ETO1500 PPM/N2

**Synonyms:**  
**Recommended Use:**  
**Usage Restrictions:**

## Section 2: Hazards Identification



**Danger**

### Hazard Classification:

Carcinogenicity (Category 1.B)  
Eye Effects (Category 2.A)  
Gases Under Pressure  
Germ Cell Mutagenicity (Category 1.B)  
Specific target organ toxicity (Single Exposure) (Category 3)

### Hazard Statements:

Causes serious eye irritation  
Contains gas under pressure; may explode if heated  
May cause cancer  
May cause genetic defects  
May cause respiratory irritation;

### Precautionary Statements

#### Prevention:

Wash thoroughly after handling.  
Avoid breathing dust/fume/gas/mist/ vapors/spray.  
[In case of inadequate ventilation] wear respiratory protection.  
Do not handle until all safety precautions have been read and understood.  
Use only outdoors or in a well-ventilated area.  
Wear protective gloves, protective clothing, eye protection and face protection.  
Obtain special instructions before use.

#### Response:

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If inhaled: Remove person to fresh air and keep comfortable for breathing.  
 Call a poison center or doctor if you feel unwell.  
 If exposed or concerned: Get medical advice/attention.

**Storage:**

Store in a well-ventilated place. Keep container tightly closed.  
 Protect from sunlight.  
 Store locked up.

**Disposal:**

Dispose of contents and/or container in accordance with applicable regulations.

## Section 3: Composition/Information on Ingredients

	CAS #	Concentration
Ethylene Oxide	75-21-8	1500 PPM
Nitrogen	7727-37-9	BALANCE

	Chemical Substance	Chemical Family	Trade Names
Ethylene Oxide	ETHYLENE OXIDE	Epoxides	OXIRANE; DIHYROOXIRENE; DIMETHYLENE OXIDE; EPOXYETHANE; 1,2-EPOXYETHANE; ETHENE OXIDE; ETO; EO; OXACYCLOPROPANE; OXANE; OXIDOETHANE; ALPHA,BETA-OXIDOETHANE; OXIRAN; RCRA U115; STCC 4906610; UN 1040; C2H4O
Nitrogen	NITROGEN, COMPRESSED GAS	Inorganic gases	DIATOMIC NITROGEN; DINITROGEN; NITROGEN; NITROGEN-14; NITROGEN GAS; UN 1066; N2

## Section 4: First Aid Measures

	Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
Ethylene Oxide	If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.	Wash eyes immediately with large amounts of water, occasionally lifting upper and lower lids, until no evidence of chemical remains. Get medical attention immediately.	Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Avoid mouth-to-mouth contact by using mouth guards or shields. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen. For ingestion, consider gastric lavage and activated charcoal slurry.

	<b>Skin Contact</b>	<b>Eye Contact</b>	<b>Ingestion</b>	<b>Inhalation</b>	<b>Note to Physicians</b>
<b>Nitrogen</b>	Wash exposed skin with soap and water.	Flush eyes with plenty of water.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.

## Section 5: Fire Fighting Measures

	<b>Suitable Extinguishing Media</b>	<b>Products of Combustion</b>	<b>Protection of Firefighters</b>
<b>Ethylene Oxide</b>	Carbon dioxide, regular dry chemical, water Large fires: Use alcohol-resistant foam or flood with fine water spray.	Carbon monoxide, carbon dioxide and toxic and irritating fumes, carbon, acetaldehyde	<ul style="list-style-type: none"> <li>Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode. Full body chemical protective suit.</li> <li>Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode. Full body chemical protective suit.</li> </ul>
<b>Nitrogen</b>	Non-flammable. Use suitable extinguishing media for surrounding fire. Cylinders may rupture or explode if exposed to heat.	Non-flammable	<ul style="list-style-type: none"> <li>Respiratory protection may be needed for frequent or heavy exposure.</li> </ul>

## Section 6: Accidental Release Measures

	<b>Personal Precautions</b>	<b>Environmental Precautions</b>	<b>Methods for Containment</b>
<b>Ethylene Oxide</b>	Keep unnecessary people away, isolate hazard area and deny entry.	Avoid heat, flames, sparks and other sources of ignition. Keep out of water supplies and sewers.	Stop leak if possible without personal risk. Reduce vapors with water spray. Do not get water inside container. Remove sources of ignition.
<b>Nitrogen</b>	Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.	No significant effects from contamination expected.	Stop leak if possible without personal risk.

	<b>Methods for Cleanup</b>	<b>Other Information</b>
<b>Ethylene Oxide</b>	Small spills: Flood with water. Large spills: Dike for later disposal.	Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA). Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).
<b>Nitrogen</b>	N/A	N/A

## Section 7: Handling and Storage

	Handling	Storage
<b>Ethylene Oxide</b>	Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.106. Store below 30 C. Store outside or in a detached building. Avoid contact with light. Store in a cool, dry place. Use diking sufficient to contain total contents plus 10%. Store with flammable liquids. Keep separated from incompatible substances. Grounding and bonding required. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355.30).	Keep separated from incompatible substances. Protect from physical damage.
<b>Nitrogen</b>	Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.

## Section 8: Exposure Controls/Personal Protection

	Exposure Guidelines
<b>Ethylene Oxide</b>	ETHYLENE OXIDE: 1 ppm OSHA TWA 5 ppm OSHA excursion limit 15 minute(s) 0.5 ppm OSHA action level 1 ppm ACGIH TWA 0.1 ppm (0.18 mg/m <sup>3</sup> ) NIOSH recommended TWA 10 hour(s) (not to exceed) 5 ppm (9 mg/m <sup>3</sup> ) NIOSH recommended ceiling 10 minute(s)
<b>Nitrogen</b>	NITROGEN, COMPRESSED GAS: NITROGEN: ACGIH (simple asphyxiant)

### Engineering Controls

Handle only in fully enclosed systems.

	Eye Protection	Skin Protection	Respiratory Protection
<b>Ethylene Oxide</b>	Wear splash resistant safety goggles with a face shield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.	For the gas: Wear appropriate chemical resistant clothing. For the liquid: Wear appropriate protective, cold insulating clothing. Wear appropriate chemical resistant clothing.	Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode. Full body chemical protective suit.
<b>Nitrogen</b>	Eye protection not required, but recommended.	Protective clothing is not required.	Respiratory protection may be needed for frequent or heavy exposure.

### General Hygiene considerations

- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

## Section 9: Physical and Chemical Properties

	Physical State	Appearance	Color	Change in Appearance	Physical Form	Odor	Taste
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	Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits
<b>Ethylene Oxide</b>	-4 F (-20 C) (CC) (pure ethylene oxide)	Not available	Not available	804 F (429 C)	1	0.03
<b>Nitrogen</b>	Not flammable	Not available	Not available	Nonflammable	Nonflammable	Nonflammable

	Boiling Point	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity	Water Solubility	pH	Odor Threshold	Evaporation Rate	Viscosity
<b>Ethylene Oxide</b>	50.7 F (10.4 C) (pure ethylene oxide)	-168 F (-111 C)	1095 mmHg @ 20 C	1.5 (Air=1)	0.8824 @ 10 C	Soluble	Not applicable	500 ppm	Not applicable	0.0095 cP @ 20 C
<b>Nitrogen</b>	-321 F (-196 C)	-346 F (-210 C)	760 mmHg @ -196 C	0.967 (Air=1)	Not applicable	1.6% @ 20 C	Not applicable	Not available	Not applicable	0.01787 cP @ 27 C

	Molecular Weight	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility
<b>Ethylene Oxide</b>	44.06	(C-H <sub>2</sub> ) <sub>2</sub> -O	Not available	Not available	100%	1	Soluble: Alcohol, ether, acetone, benzene, carbon tetrachloride, organic solvents
<b>Nitrogen</b>	28.0134	N <sub>2</sub>	1.2506 g/L	Not available	100%	1	Soluble: Liquid ammonia

## Section 10: Stability and Reactivity

	Stability	Conditions to Avoid	Incompatible Materials
<b>Ethylene Oxide</b>	May decompose explosively when heated above 427 C. Normally stable in the absence of catalysts.	May decompose explosively when heated above 427 C. Normally stable in the absence of catalysts.	Acids, combustible materials, bases, metal salts, metal oxides, amines, halo carbons, metals, cyanides, oxidizing materials, porous refractory insulation, alcohols
<b>Nitrogen</b>	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Metals, oxidizing materials

	Hazardous Decomposition Products	Possibility of Hazardous Reactions
<b>Ethylene Oxide</b>	Oxides of carbon	May polymerize violently or explosively. May polymerize when heated. Avoid contact with incompatible materials.
<b>Nitrogen</b>	Oxides of nitrogen	Will not polymerize.

## Section 11: Toxicology Information

### Acute Effects

	Oral LD50	Dermal LD50	Inhalation
<b>Ethylene Oxide</b>	72 mg/kg oral-rat LD50	Not available	Irritation, lack of sense of smell, tearing, nausea, vomiting, diarrhea, difficulty breathing, irregular heartbeat, headache, drowsiness, symptoms of drunkenness, disorientation, bluish skin color, lung congestion, lung damage, kidney damage, paralysis, reproductive effects, convulsions
<b>Nitrogen</b>	Not available	Not available	Nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, tingling sensation, loss of coordination, convulsions, coma

	Eye Irritation	Skin Irritation	Sensitization
<b>Ethylene Oxide</b>	Irritation (possibly severe), frostbite, tearing	Irritation (possibly severe), allergic reactions, blisters	Skin irritation, Category 2; H315: Causes skin irritation. Eye irritation, Category 2; H319: Causes serious eye irritation. Acute toxicity, Category 3, inhalation; H331: Toxic if inhaled. Specific Target Organ Toxicity (single exposure), Category 3; H335: May cause respiratory irritation. Germ cell mutagenicity, Category 1B; H340: May cause genetic defects. Carcinogenicity, Category 1B; H350: May cause cancer.
<b>Nitrogen</b>	Contact with rapidly expanding gas may cause burns or frostbite	No information on significant adverse effects	Difficulty breathing

### Chronic Effects

	Carcinogenicity	Mutagenicity	Reproductive Effects	Developmental Effects
<b>Ethylene Oxide</b>	OSHA: Carcinogen; NTP: Known Human Carcinogen; IARC: Human Limited Evidence, Animal Sufficient Evidence, Group 1; ACGIH: A2 - Suspected Human Carcinogen	Available.	Available.	No data
<b>Nitrogen</b>	Not hazardous	Not available	Not available	No data

## Section 12: Ecological Information

### Fate and Transport

	Eco toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environment
<b>Ethylene Oxide</b>	Fish toxicity: Acute LC50 84000 to 96000 ug/L Fresh water Fish - Fathead minnow - Pimephales promelas 96 hours Invertebrate toxicity: 490000 ug/L 48 hour(s) LC50 (Mortality) Brine shrimp (Artemia sp) Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Not available	Not available
<b>Nitrogen</b>	Fish toxicity: Not available Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Not available	Not available

## Section 13: Disposal Considerations

<b>Ethylene Oxide</b>	Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): U115. Dispose in accordance with all applicable regulations.
<b>Nitrogen</b>	Dispose in accordance with all applicable regulations.

## Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

### DOT Information For This Mixture

Shipping Name	Compressed gas, n.o.s. (Nitrogen, Ethylene Oxide)
UN Number	UN1956
Hazard Class	2.2
Hazard Information	Non-Flammable Gas

### Individual Component Information

	Proper Shipping Name	ID Number	Hazard Class or Division	Packing Group	Labeling Requirements	Passenger Aircraft or Railcar Quantity Limitations	Cargo Aircraft Only Quantity Limitations	Additional Shipping Description
Ethylene Oxide	ETHYLENE OXIDE; or ETHYLENE OXIDE WITH NITROGEN up to a total pressure of 1 MPa (10 bar) at 50 degrees C	UN1040	2.3	Not applicable	2.3; 2.1	Forbidden	Forbidden	Toxic-Inhalation Hazard Zone D
Nitrogen	Nitrogen, compressed	UN1066	2.2	Not applicable	2.2	75 kg or L	150 kg	N/A

### Canadian Transportation of Dangerous Goods

	Shipping Name	UN Number	Class	Packing Group / Risk Group
Ethylene Oxide	ETHYLENE OXIDE; or ETHYLENE OXIDE WITH NITROGEN up to a total pressure of 1 MPa (10 bar) at 50 degrees C	UN1040	2.3; 2.1	Not applicable
Nitrogen	Nitrogen, compressed	UN1066	2.2	Not applicable

## Section 15: Regulatory Information

### U.S. Regulations

	CERCLA Sections	SARA 355.30	SARA 355.40
Ethylene Oxide	ETHYLENE OXIDE: 10 LBS RQ Acetaldehyde: 1000 LBS RQ ACETIC ACID: 5000 LBS RQ	1000 LBS TPQ	10 LBS RQ
Nitrogen	Not regulated.	Not regulated.	Not regulated.

### SARA 370.21

	Acute	Chronic	Fire	Reactive	Sudden Release
Ethylene Oxide	Yes	Yes	Yes	Yes	Yes
Nitrogen	Yes	No	No	No	Yes

### SARA 372.65

<b>Ethylene Oxide</b>	ETHYLENE OXIDE
<b>Nitrogen</b>	Not regulated.

### OSHA Process Safety

<b>Ethylene Oxide</b>	ETHYLENE OXIDE: 5000 LBS TQ Acetaldehyde: 2500 LBS TQ
<b>Nitrogen</b>	Not regulated.

### State Regulations

	<b>CA Proposition 65</b>
<b>Ethylene Oxide</b>	WARNING: This product can expose you to chemicals including Ethylene Oxide, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a> .
<b>Nitrogen</b>	Not regulated.

### Canadian Regulations

	<b>WHMIS Classification</b>
<b>Ethylene Oxide</b>	A, B1, D1A, D2A, E, F
<b>Nitrogen</b>	A

### National Inventory Status

	<b>US Inventory (TSCA)</b>	<b>TSCA 12b Export Notification</b>	<b>Canada Inventory (DSL/NDSL)</b>
<b>Ethylene Oxide</b>	Listed on inventory.	Not listed.	Not determined.
<b>Nitrogen</b>	Listed on inventory.	Not listed.	Listed on inventory.

## Section 16: Other Information

	<b>NFPA Rating</b>
<b>Ethylene Oxide</b>	HEALTH=3 FIRE=4 REACTIVITY=3
<b>Nitrogen</b>	HEALTH=0 FIRE=0 REACTIVITY=0 SPECIAL=SA

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard