

Common Name: **ETHYLENEIMINE**

Synonyms: Aminoethylene; Azacyclopropane; Aziridine; Dimethyleneimine

CAS No: 151-56-4

Molecular Formula: C<sub>2</sub>H<sub>5</sub>N

RTK Substance No: 0881

Description: Clear, colorless liquid with an *Ammonia*-like odor

### HAZARD DATA

Hazard Rating	Firefighting	Reactivity
<p><b>4 - Health</b></p> <p><b>3 - Fire</b></p> <p><b>3 - Reactivity</b></p> <p><b>DOT#:</b> UN 1185</p> <p><b>ERG Guide #:</b> 131</p> <p><b>Hazard Class:</b> 6.1 (Poison)</p>	<p>FLAMMABLE and REACTIVE LIQUID</p> <p>Use dry chemical, water spray or alcohol-resistant foam as extinguishing agents.</p> <p><b>Ethyleneimine</b> can polymerize violently when exposed to ELEVATED TEMPERATURES if not inhibited.</p> <p>The vapors of <b>Ethyleneimine</b> are NOT stabilized and may form polymers in vents or other confined spaces, resulting in fires and explosions.</p> <p>POISONOUS GASES ARE PRODUCED IN FIRE, including <i>Nitrogen Oxides</i>.</p> <p>CONTAINERS MAY EXPLODE IN FIRE.</p> <p>Use water spray to keep fire-exposed containers cool and to disperse vapors.</p> <p>Vapor is heavier than air and may travel a distance to cause a fire or explosion far from the source and flashback.</p> <p><b>Ethyleneimine</b> may form an ignitable vapor/air mixture in closed tanks or containers.</p>	<p><b>Ethyleneimine</b> can polymerize violently, if not inhibited, when exposed to ELEVATED TEMPERATURES; OXIDIZING AGENTS (such as PERCHLORATES, PEROXIDES, PERMANGANATES, CHLORATES, NITRATES, CHLORINE, BROMINE and FLUORINE); and STRONG ACIDS (such as HYDROCHLORIC, SULFURIC and NITRIC).</p> <p><b>Ethyleneimine</b> reacts with SODIUM HYPOCHLORITE to form explosive <i>1-Chloroazidine</i>.</p> <p>Contact with SILVER and ALUMINUM may result in the formation of explosive compounds.</p> <p>Protect from HEAT, SUNLIGHT, and WATER.</p>

### SPILL/LEAKS

**Isolation Distance:**

Small Spill: 30 meters (100 feet)

Large Spill: 100 meters (300 feet)

Fire: 800 meters (1/2 mile)

Absorb liquids in dry sand, earth, or a noncombustible material and place into sealed containers for disposal.

Use only non-sparking tools and equipment.

Ground and bond all metal containers when transferring **Ethyleneimine**.

Keep **Ethyleneimine** out of confined spaces, such as sewers, because of the possibility of an explosion.

DO NOT wash into sewer as **Ethyleneimine** is harmful to aquatic organisms.

### PHYSICAL PROPERTIES

<b>Odor Threshold:</b>	1.5 ppm
<b>Flash Point:</b>	12 °F (-11 °C)
<b>LEL:</b>	3.3%
<b>UEL:</b>	46%
<b>Auto Ignition Temp:</b>	608 °F (320 °C)
<b>Vapor Density:</b>	1.5 (air = 1)
<b>Vapor Pressure:</b>	160 mm Hg at 68 °F (20 °C)
<b>Specific Gravity:</b>	0.83 (water = 1)
<b>Water Solubility:</b>	Soluble
<b>Boiling Point:</b>	131 ° to 135 °F (55 ° to 57 °C)
<b>Freezing Point:</b>	-98 °F (-72 °C)
<b>Ionization Potential:</b>	9.2 eV
<b>Molecular Weight:</b>	43

### EXPOSURE LIMITS

**OSHA/NIOSH:** Lowest feasible concentration

**ACGIH:** 0.05 ppm, 8-hr TWA; 0.1 ppm, STEL

**IDLH:** 100 ppm

The Protective Action Criteria values are:

PAC-1 = 0.1 ppm    PAC-2 = 4.6 ppm    PAC-3 = 9.9 ppm

### PROTECTIVE EQUIPMENT

<b>Gloves:</b>	Butyl (>8-hr breakthrough)
<b>Coveralls:</b>	Tychem® TK (>8-hr breakthrough)
<b>Respirator:</b>	SCBA

### HEALTH EFFECTS

<b>Eyes:</b>	Irritation and burns
<b>Skin:</b>	Irritation and burns
<b>Inhalation:</b>	Nose, throat and lung irritation, with coughing, and severe shortness of breath (pulmonary edema)
<b>Chronic:</b>	Cancer (lung and liver) in animals

### FIRST AID AND DECONTAMINATION

**Remove** the person from exposure.

**Flush** eyes with large amounts of water for at least 30 minutes. Remove contact lenses if worn. Seek medical attention.

**Quickly** remove contaminated clothing and wash contaminated skin with large amounts of soap and water. Seek medical attention.

**Begin** artificial respiration if breathing has stopped and CPR if necessary.

**Transfer** promptly to a medical facility.