


## 2-Ethyl-2-Oxazoline

### Safety Data Sheet

<b>Section 1: Identification of substance/mixture and of the company/undertaking</b>	
<b>1.1 Product identifier:</b>	<b>2-ethyl-2-oxazoline</b>
<b>Trade name:</b>	ETOX
<b>CAS No.</b>	10431-98-8
<b>EC No.</b>	233-912-4
<b>Registration No.</b>	01-2120773935-39-0000
<b>1.2 Relevant identified uses of substance or mixture and used advised against</b>	Organic intermediate or monomer for use in manufacturing water soluble polymers, specialty coatings, pharmaceuticals and medical devices, binders, electronic components, paints and pigments, bactericides, herbicides, materials used in water technologies, cosmetics and personal care products, membranes and films, polishing preparations, quenches, additives, paper and packaging products, sizing materials, and adhesives.
<b>Uses advised against</b>	None known
<b>1.3 Details of the supplier of the safety data sheet</b>	Polymer Chemistry Innovations, Inc. 4231 South Fremont Avenue Tucson, AZ 85714 USA Tel: (1) 520-746-8446 Fax: (1) 520-746-8876
<b>Only representative</b>	Intertek Deutschland GmbH Stangenstrasse 1 70771 Leinfelden – Echterdingen Germany Tel: +49 711 27311-170
<b>1.4 Emergency telephone number</b>	24 hour emergency number CHEMTREC +1 703-527-3887 Contract number 201299 skw@polychemistry.com
<b>Country specific contact #</b>	France +33 1 45 42 59 59 Netherlands +31 30 274 8888

<b>Section 2: Hazard Classification</b>	
<b>2.1 Classification of the substance or mixture</b>	Classification according to Regulation (EC) No. 1272/2008 (CLP) Flammable Liquid 3 H226 Skin Corr. 1B H314
<b>Adverse physicochemical human health and environmental effects</b>	Causes severe skin burns and eye damage. Flammable liquid and vapour.

<b>2.2 Label elements Pictograms</b>	
<b>Signal word</b>	WARNING
<b>Hazard statements</b>	H314: Causes severe skin burns and eye damage H226: Flammable liquid and vapor
<b>Precautionary statements</b>	P210: Keep away from heat/sparks/open flames/hot surfaces.-No smoking P280: Use chemical resistant gloves and chemical safety goggles when handling. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water (or shower). P305+P351+P338: IF IN EYES; Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310: Immediately call a POISON CENTER/doctor/physician. P370+P378: In case of fire; Use to extinguish. (carbon dioxide, foam, sand)
<b>2.3 Other hazards</b>	Not a PBT or vPvB as defined in Regulation (EC) 1907/2006 Annex XIII No additional hazards that contribute to classification.

### Section 3: Composition/Information on Ingredients

<b>3.1 Substances</b>			
<b>Substance name:</b>	2-ethyl-2-oxazoline		
<b>Common name/description:</b>	ETOX Monomer		
<b>Ingredient/substance Name:</b>	<b>%</b>	<b>CAS #</b>	<b>EC/List No.</b>
2-ethyl-2-oxazoline	100	10431-98-8	233-912-4

### Section 4: First Aid Measures

<b>4.1 Description of first aid measures</b>	
<b>Eyes</b>	Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Will cause reversible irritation, Seek medical attention immediately. Will cause severe irritation if left in the eye.
<b>Skin</b>	Wash skin with soap and water for 15 minutes. Remove contaminated clothing. Seek medical attention. Will cause severe irritation if left on the skin. Wash clothing before reuse.
<b>Inhalation</b>	In case of adverse reaction; remove from exposure. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention.
<b>Ingestion</b>	Wash mouth with water. Do not induce vomiting. Seek immediate medical attention, or call poison control.
<b>4.2 Most important symptoms and effects, both acute and delayed</b>	Acute symptoms: Severe irritation to skin and mucus membrane. Chronic symptoms: None known.

<b>4.3 Indication of any immediate medical attention and special treatment needed</b>	Washing with soap and water to neutralize as soon as possible will reduce the effects of irritation that will develop.
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### Section 5: Fire-Fighting Measures

<b>5.1 Extinguishing Media</b>	All fire fighting methods are suitable, water spray, dry chemical, carbon dioxide, or chemical foam.
<b>Unsuitable Extinguishing Media</b>	None known.
<b>5.2 Special hazards arising from the substance or mixture</b>	Material decomposes above 380° C and toxic fumes may be generated.
<b>Products of Combustion</b>	Nitrogen oxides, carbon monoxide, carbon dioxide
<b>5.3 Advice for Firefighters</b>	No special advice for firefighters beyond normal equipment and procedures.

### Section 6: Accidental Release Measures

<b>6.1 Personal Precautions, Protective Equipment and Emergency procedures</b>	
<b>For Non-Emergency Personnel</b>	All non-essential personnel are to leave the area.
<b>For Emergency Responders</b>	Acid gas/organic vapor respirators are indicated if engineering controls cannot keep vapors at non-irritating levels. Avoid contact with skin and clothing. Remove all sources of ignition. Ask all non-essential personnel to leave the area. If vapors are irritating, respirator use is indicated. SCBA use is not necessary. No other special advice for responders.
<b>6.2 Environmental Precautions</b>	Do not allow material to enter the environment.
<b>6.3 Methods and Material for Containment and Clean Up</b>	Cover drains if necessary to prevent material from entering environment. Absorb spill with inert material, (e.g., vermiculite, dry sand or earth), then place into a chemical waste container. Do not use combustible materials such as sawdust. Use spark-proof tools to scoop material. Decontamination of clothing can be accomplished with water. Seal filled chemical waste containers tightly.
<b>6.4 Reference to Other Sections</b>	For Fire Fighting advice see section 5 For PPE advice see section 8 For Stability and Reactivity advice see section 10 For information on disposal advice see section 13

## Section 7: Storage and Handling

### 7.1 Precautions for safe handling

<b>Safe Handling</b>	Store in a cool dry place with adequate ventilation. Keep containers tightly closed when not in use. Store and use with secondary containment to prevent spills that might enter the environment.
<b>Fire and Explosion Protection</b>	Do not smoke. Ground or bond containers. Keep away from sources of ignition.
<b>Occupational Hygiene</b>	Don't eat, drink, or smoke in work areas. Wash hands thoroughly after working with material Remove contaminated clothing and PPE before entering non-work areas. Wash clothing before wearing again.
<b>7.2 Conditions for safe storage, including any incompatibilities</b>	Use ventilation to keep vapors low, explosive conditions are not expected. Use polyethylene or neoprene gloves, aprons, or boots. Store away from ignitions sources Do not store with strong acids, strong oxidizing agents, copper or copper alloys Keep containers closed when not in use to prevent evaporation. Use in explosion proof rooms, use with adequate ventilation. No open flames. Use only spark-proof tools. Weather is not expected to cause a problem Ambient pressure is not expected to cause a problem Ambient temperature is not expected to cause a problem Sunlight is not expected to cause a problem Keep drums closed when not in use to keep moisture out of ETOX Vibration is not expected to cause a problem. No stabilisers needed No antioxidants needed. No special advice for ventilation No special advice for storage design. No limits on storage quantity beyond local fire regulations for flammable materials with similar flash points. Avoid packaging with copper or copper alloys.
<b>7.3 Specific End Use(s)</b>	No recommendations and no industrial sector specific solutions.

## Section 8: Exposure Controls/ Personal Protection

### 8.1 Control Parameters

<b>Occupational Exposure Limits</b>	No data available.	
<b>Other Occupational Limits</b>	No limits set by ACIGH, OSHA, or any other safety agency in the USA.	
<b>Biological Limit Values</b>	No data available.	
<b>Other biological exposure limits</b>	No data available for other biological exposure limits.	
<b>DNEL Values (Workers)</b>	Acute – systemic effects, dermal	No hazard identified
	Acute - systemic effects, inhalation	No hazard identified
	Acute – local effects, dermal	Medium hazard (no threshold derived)
	Acute – local effects, inhalation	Medium hazard (no threshold derived)
	Long-term – systemic effects, dermal	5.2 mg/kg bw/day
	Long-term – local effects, dermal	Medium hazard (no threshold derived)

	Long-term – systemic effects, inhalation	36.7 mg/m <sup>3</sup>
	Long-term – local effects, inhalation	Medium hazard (no threshold derived)
<b>PNEC (Water)</b>	PNEC aqua (freshwater)	0.024 mg/L
	PNEC aqua (marine water)	0.0024 mg/L
	PNEC aqua (intermittent, freshwater)	0.24 mg/L
	PNEC aqua (intermittent, marine water)	0.024 mg/L
<b>PNEC (Sediment)</b>	PNEC sediment (freshwater)	0.136 mg/kg dwt
	PNEC sediment (marine water)	0.0136 mg/kg dwt
<b>PNEC (Soil)</b>	PNEC soil	0.0127 mg/kg dwt
<b>PNEC (Oral)</b>	PNEC oral (secondary poisoning)	58 mg/kg food
<b>PNEC (STP)</b>	PNEC sewage treatment plant	60 mg/L
<b>Specific Control Banding Recommendations</b>	Not applicable.	
<b>8.2 Engineering Controls</b>		
<b>Engineering Controls</b>	Use adequate ventilation to keep vapor concentrations low.	
<b>Eyes</b>	Use European Standard EN 166 or 29 CFR 1910.133 compliant eye and face protection. Use goggles or full-face respirators for eye protection. Full face respirators are recommended.	
<b>Skin</b>	Work experience has shown polyethylene or neoprene gloves offer the best protection. Breakthrough rates have not been determined. Polyethylene or neoprene boots will offer the best protection.	
<b>Respirator</b>	Use European Standard EN 136 or NIOSH compliant respirators with EN 141 compliant cartridges, acid gas/organic vapor combination cartridges.	
<b>Thermal Hazard</b>	Not a thermal hazard.	
<b>Environmental Exposure Controls</b>	None known.	

## Section 9: Physical and Chemical Properties

### 9.1 Information on basic physical and chemical properties

<b>Physical State</b>	Liquid
<b>Appearance</b>	Colorless liquid
<b>Odor/Odor Threshold</b>	Not characterized/Not determined
<b>Freezing/Melting Point C°</b>	-62°
<b>Boiling Point C°</b>	128.4 @ 760.00 mm Hg
<b>Solubility in Water</b>	Miscible
<b>Oxidising properties</b>	None
<b>Volatile Content</b>	Not available
<b>pH</b>	~ 11
<b>Auto-ignition Temp.</b>	>400° C
<b>Flammability</b>	Flammable class IC
<b>Flash Point C°</b>	29°
<b>Evaporation rate</b>	Not determined
<b>Explosive Properties</b>	Not determined
<b>Vapor pressure</b>	0.450 (PSIA)
<b>Vapor density</b>	Not determined

<b>Relative density</b>	0.982 g/cm <sup>3</sup>
<b>Decomposition Temp</b>	Not determined
<b>Partition Coefficient n-octonal/water</b>	Log Kow of ~0.198
<b>Solubilities</b>	Most polar and non-polar solvents. Will decompose in protic solvents, like water
<b>Viscosity</b>	Not determined
<b>Molecular Weight</b>	99.13
<b>Molecular Formula</b>	C <sub>5</sub> H <sub>9</sub> NO
<b>9.2 Other Information</b>	None

## Section 10: Stability and Reactivity

<b>10.1 Reactivity</b>	Not determined.
<b>10.2 Chemical Stability</b>	Product is stable under normal conditions of storage and handling.
<b>10.3 Possibility of hazardous reactions</b>	Spontaneous polymerization will not occur.
<b>10.4 Conditions to Avoid</b>	Incompatible materials, sources of ignition.
<b>10.5 Incompatible materials</b>	Strong oxidizing agents, strong acids, copper alloys, copper.
<b>10.6 Hazardous decomposition products</b>	No known hazardous decomposition products.

## Section 11: Toxicological Information

<b>11.1 Information on Toxicological Effects</b>	
<b>Acute toxicity – LD50 oral</b>	No category. 2,700 mg/kg bw female rats, 3,660 mg/kg bw male rats.
<b>Acute toxicity – LD50 dermal</b>	No category. Toxicity was not determined after 24 hours of constant exposure to 500 mg/kg bw.
<b>Acute toxicity - LC/50 inhalation</b>	No category. The 7-hour LC50 is >635 ppm
<b>Skin Corrosion/Irritation</b>	Skin Corrosion category 1B
<b>Serious eye damage/irritation</b>	Eye Damage category 1
<b>Respiratory sensitization</b>	Not considered to be a sensitizer.
<b>Skin sensitization</b>	Not considered to be a sensitizer.
<b>Germ cell mutagenicity</b>	Negative (based on surrogate data)
<b>Carcinogenicity</b>	Not listed as a carcinogen.
<b>Reproductive toxicity</b>	Not embryotoxic, fetotoxic, or teratogenic (based on surrogate data)
<b>STOT-single exposure</b>	No specific organ effects noted following single exposure
<b>STOT-repeat exposure</b>	No specific organ effects noted following repeated exposure (based on surrogate data)
<b>Aspiration hazard</b>	No.
<b>Inhalation hazard</b>	No conclusive inhalation data.
<b>Likely Routes of Exposure</b>	Skin and eye contact, ingestion and inhalation.
<b>Symptoms</b>	Severe irritation, reversible chemical burns to skin and eyes.
<b>Effects Acute/Chronic</b>	Acute – irritation and burns/Chronic – no expected effects.
<b>Interactive Effects</b>	None known

**Section 12: Ecological Information**

<b>12.1 Toxicity</b>	48h LC50 (daphnid) = 67 mg/L (based on surrogate data) 72h EC (algae) = mg/L (based on surrogate date)
<b>12.2 Persistence and Degradability</b>	Readily biodegradable so not considered persistent.
<b>12.3 Bio-accumulative Potential</b>	Not considered to be bio-accumulative or very bio-accumulative based on a log Kow of 0.198.
<b>12.4 Mobility in Soil</b>	No data
<b>12.5 PBT and vPvB</b>	Not a PBT or vPvB as defined in Regulation (EC) 1907/2006 Annex XIII
<b>12.6 Other Adverse Effects</b>	None known or expected

**Section 13: Disposal Considerations**

<b>13.1 Waste treatment methods</b>	Dispose of in a manner consistent with local regulations. Dispose of in a licensed waste facility. Incineration is the recommended method of disposal.
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**Section 14: Transportation Information**

	<b>DOT/ADR/RID/ADN 2017</b>	<b>IMDG</b>	<b>ICAO/IATA</b>
<b>14.1 UN Number</b>	UN 2920	UN 2920	UN 2920
<b>14.2 UN Proper Shipping Name</b>	Corrosive liquid, Flammable N.O.S. (2-ethyl-2-oxazoline)	Corrosive liquid, Flammable N.O.S. (2-ethyl-2-oxazoline)	Corrosive liquid, Flammable N.O.S. (2-ethyl-2-oxazoline)
<b>14.3 Transport Hazard Class</b>	8 (3)	8 (3)	8 (3)
<b>14.4 Packing Group</b>	II	II	II
<b>14.5 Environmental Hazards</b>	Not environmentally hazardous in tank-vessels according to ADN	Not a marine pollutant.	
<b>14.6 Special Precautions for users</b>	RQ is 100 lbs.	Flash point 29° C RQ is 100 lbs.	None
<b>14.7 Transport in bulk according to Annex II of Marpol and IBC Code</b>	Yes (2-ethyl-2-oxazoline)	Yes (2-ethyl-2-oxazoline)	

<b>Section 15: Regulatory Information</b>	
<b>(EC) No 1005/2009</b>	Not subject to regulation under 1005/2009
<b>(EC) No 850/2004</b>	Not subject to regulation under 850/2004
<b>(EC) No 649/2012</b>	Not subject to regulation under 649/2012
<b>15.1 Safety, health, and environmental regulations/legislation specific for the substance or mixture</b>	No REACH Annex XVII restrictions Is not on the REACH Candidate List Is not on the REACH Annex XIV List WGK Hazard 1 (per Rigoletto)
<b>15.2 Chemical Safety Assessment</b>	A chemical safety assessment was completed.

<b>Section 16: Additional Information</b>
Creation date: 04/27/17 Created by Polymer Chemistry Innovations, Inc.
Last revision date: 4/16/2019, revision #2
Sources for data may be available through the manufacturer.
Indication of change: Toxicity information and DNEL and PNEC values have been added based on the REACH registration.
The classification of this material was based on testing.
No additional training required to use this material safely
This data sheet and recommendations presented in this data sheet concerning the use of our product and the materials contained therein are believed to be accurate and are based on information that is considered reliable as of the date hereof. However, the customer should determine the suitability of such materials for his or her purpose before adopting them on a commercial scale. Since the use of our products by others is beyond our control, no guarantee, expressed or implied, is made and no responsibility assumed for the use of this material or the results to be obtained therefrom. Information on the form is furnished for the purpose of compliance with Government Health and Safety Regulations and shall not be used for any other purpose. Moreover, the recommendations contained in this data sheet are not to be construed as a license to operate under, or a recommendation to infringe, any existing patents, nor should they be confused with state, municipal, or insurance requirements, or with national safety codes.