Material Name
E-Strip 949 RTU

Details of the supplier of the safety data sheet
Electrochemical Products Inc.
17000 West Lincoln Ave
New Berlin, WI 53151
Phone: 262-786-9330
Emergency Phone #: NCEC (#EPI-29003) +1 202 464 2554, +44 1865 407333
E-mail: us-sales@epi.com
www.epi.com
Fax: 262-786-9403

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.
Skin Corrosion/Irritation - Category 1
Serious Eye Damage/Eye Irritation - Category 1
Specific Target Organ Toxicity - Repeated Exposure - Category 1 (digestive system,kidneys,liver,nervous system,respiratory system,testes)
Hazardous to the Aquatic Environment - Acute - Category 3

GHS Label Elements
Symbol(s)

Signal Word
Danger

Hazard Statement(s)
Causes severe skin burns and eye damage
Causes damage to organs through prolonged or repeated exposure
Harmful to aquatic life

Precautionary Statement(s)
Prevention
Wear protective gloves/protective clothing/eye protection/face protection
Do not breathe dust/fume/gas/mist/vapours/spray
Wash thoroughly after handling
Do not eat, drink or smoke when using this product
Avoid release to the environment

Response
IF INHALED: Remove person to fresh air and keep comfortable for breathing
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
Immediately call a POISON CENTER or doctor
Specific treatment (see label)

Storage
Store locked up
May cause mild eye or skin irritation.

Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations

Other Hazards
May cause burning or watering of eyes. May irritate mucous membranes if mists are inhaled. This product may be harmful if it is swallowed.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>CAS</th>
<th>Component Name</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>7732-18-5</td>
<td>Water</td>
<td>91-95</td>
</tr>
<tr>
<td>141-43-5</td>
<td>Ethanolamine</td>
<td>15-20</td>
</tr>
<tr>
<td>77-92-9</td>
<td>Citric acid</td>
<td>6-10</td>
</tr>
</tbody>
</table>

Section 4 - FIRST AID MEASURES

Inhalation
Rescuers should put on appropriate protective gear. Remove from area of exposure. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Keep victim warm. Get immediate medical attention. Aspiration hazard: If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.

**Skin**
Immediately flush skin with lots of running water for 5 minutes. Remove contaminated clothing and shoes. Wash before reuse. Get immediate medical attention.

**Eyes**
Immediately flush with lots of running water for 15 minutes, lifting the upper and lower eye lids occasionally. Washing eyes within several seconds is essential to achieve maximum effectiveness. Get immediate medical attention.

**Ingestion**
If swallowed, give milk or water to dilute. Seek medical attention immediately. Never give anything by mouth to an unconscious person. Call a physician immediately.

---

### Section 5 - FIRE FIGHTING MEASURES

**Extinguishing Media**

**Suitable Extinguishing Media**
Dry chemical, foam, carbon dioxide, water fog.

**Unsuitable Extinguishing Media**
None identified.

**Special Hazards Arising from the Chemical**
None identified.

**Hazardous Combustion Products**
Toxic gases/fumes are given off during burning or thermal decomposition.

**Advice for firefighters**
None identified.

**Fire Fighting Measures**
Use methods suitable to fight surrounding fire.

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### Section 6 - ACCIDENTAL RELEASE MEASURES

**Personal Precautions, Protective Equipment and Emergency Procedures**
Wear protective gloves and eye/face protection.

**Methods and Materials for Containment and Cleaning Up**
None identified.

**Environmental Precautions**
Dike and contain the spill with sand and earth.

---

**Section 7 - HANDLING AND STORAGE**

**Condtions for Safe Storage, Including any Incompatibilities**
Store locked up
Store in a well-ventilated place. Keep cool. Keep container tightly closed.

---

**Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Component Exposure Limits**

<table>
<thead>
<tr>
<th>Component</th>
<th>Exposure Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanolamine</td>
<td>141-43-5</td>
</tr>
<tr>
<td>ACGIH:</td>
<td>3 ppm TWA</td>
</tr>
<tr>
<td></td>
<td>6 ppm STEL</td>
</tr>
<tr>
<td>NIOSH:</td>
<td>3 ppm TWA; 8 mg/m3 TWA</td>
</tr>
<tr>
<td></td>
<td>6 ppm STEL; 15 mg/m3 STEL</td>
</tr>
<tr>
<td></td>
<td>30 ppm IDLH</td>
</tr>
<tr>
<td>Europe:</td>
<td>1 ppm TWA; 2.5 mg/m3 TWA</td>
</tr>
<tr>
<td></td>
<td>Possibility of significant uptake through the skin</td>
</tr>
<tr>
<td></td>
<td>3 ppm STEL; 7.6 mg/m3 STEL</td>
</tr>
<tr>
<td>OSHA (US):</td>
<td>3 ppm TWA; 6 mg/m3 TWA</td>
</tr>
<tr>
<td>Mexico:</td>
<td>3 ppm TWA LMPE-PPT; 8 mg/m3 TWA LMPE-PPT</td>
</tr>
<tr>
<td></td>
<td>6 ppm STEL [LMPE-CT]; 15 mg/m3 STEL [LMPE-CT]</td>
</tr>
</tbody>
</table>

**Biological limit value**
There are no biological limit values for any of this product's components.

**Engineering Controls**
Local exhaust is suggested for use, where possible, in enclosed or confined spaces.

**Individual Protection Measures, such as Personal Protective Equipment**

**Eye/face protection**
Safety glasses. It is generally recognized that contact lenses should not be worn when working with chemicals because they may contribute to the severity of an eye injury.
**Skin Protection**
Wear rubber gloves, long sleeved shirt and trousers.

**Respiratory Protection**
Not normally needed.

**Glove Recommendations**
Wear rubber gloves.

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**Section 9 - PHYSICAL AND CHEMICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td>Clear solution</td>
</tr>
<tr>
<td><strong>Physical State</strong></td>
<td>Liquid</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>Characteristic</td>
</tr>
<tr>
<td><strong>Color</strong></td>
<td>Yellow</td>
</tr>
<tr>
<td><strong>Odor Threshold</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>9.5 - 11.2</td>
</tr>
<tr>
<td><strong>Melting Point</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Boiling Point</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Freezing point</strong></td>
<td>32 °F (0 °C)</td>
</tr>
<tr>
<td><strong>Evaporation Rate</strong></td>
<td>(Approx. equal to Water)</td>
</tr>
<tr>
<td><strong>Boiling Point Range</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Flammability (solid, gas)</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Autoignition</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Flash Point</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Lower Explosive Limit</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Decomposition</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Upper Explosive Limit</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Vapor Pressure</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Vapor Density (air=1)</strong></td>
<td>(Approx. equal to water)</td>
</tr>
<tr>
<td><strong>Specific Gravity (water=1)</strong></td>
<td>1.145 - 1.162</td>
</tr>
<tr>
<td><strong>Water Solubility</strong></td>
<td>Completely</td>
</tr>
<tr>
<td><strong>Partition coefficient: n- octanol/water</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Viscosity</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Solubility (Other)</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Density</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>VOC</strong></td>
<td>0</td>
</tr>
</tbody>
</table>

---

**Section 10 - STABILITY AND REACTIVITY**

**Reactivity**
No known hazardous reactions.

**Chemical Stability**
This is a stable material.

**Possibility of Hazardous Reactions**
None identified. Hazardous polymerization will not occur.

**Conditions to Avoid**
High temperatures.

**Incompatible Materials**
Strong oxidizers and strong acids. This product is incompatible with nitrates.

**Hazardous decomposition products**
Oxides of nitrogen, oxides of carbon.

**Thermal decomposition products**
Irritating and toxic gases or fumes may be released during a fire.

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**Section 11 - TOXICOLOGICAL INFORMATION**

**Acute and Chronic Toxicity**

**Component Analysis - LD50/LC50**
The components of this material have been reviewed in various sources and the following selected endpoints are published:
- Water (7732-18-5) Oral LD50 Rat >90 mL/kg
- Ethanolamine (141-43-5) Oral LD50 Rat 1720 mg/kg
- Dermal LD50 Rabbit 1000 mg/kg
- Citric acid (77-92-9) Oral LD50 Rat 3 g/kg

**Immediate Effects**
No information on significant adverse effects.

**Delayed Effects**
No information on significant adverse effects.

**Irritation/Corrosivity Data**
No data available.

**Respiratory Sensitization**
No data available.

**Dermal Sensitization**
No data available.

**Component Carcinogenicity**
None of this product’s components are listed by ACGIH, IARC, NTP, DFG or OSHA

**Germ Cell Mutagenicity**
No data available.

**Tumorigenic Data**
No data available

**Reproductive Toxicity**
No data available.

**Specific Target Organ Toxicity - Single Exposure**
No data available.

**Specific Target Organ Toxicity - Repeated Exposure**
No data available.

**Aspiration hazard**
No data available.

**Medical Conditions Aggravated by Exposure**
No data available.

### Section 12 - ECOLOGICAL INFORMATION

#### Component Analysis - Aquatic Toxicity

<table>
<thead>
<tr>
<th>Component</th>
<th>Fish LC50 values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanolamine</td>
<td>141-43-5</td>
</tr>
<tr>
<td>Fish:</td>
<td>LC50 96 h Pimephales promelas 227 mg/L [flow-through]; LC50 96 h Brachydanio rerio 3684 mg/L [static]; LC50 96 h Lepomis macrochirus 300 - 1000 mg/L [static]; LC50 96 h Oncorhynchus mykiss 114 - 196 mg/L [static]; LC50 96 h Oncorhynchus mykiss &gt;200 mg/L [flow-through]</td>
</tr>
</tbody>
</table>

**Algae:**
EC50 72 h Desmodesmus subspicatus 15 mg/L IUCLID

**Invertebrate:**
EC50 48 h Daphnia magna 65 mg/L IUCLID

**Citric acid:**
77-92-9

**Fish:**
LC50 96 h Lepomis macrochirus 1516 mg/L [static]

### Section 13 - DISPOSAL CONSIDERATIONS

**Disposal Methods**
Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.
Section 14 - TRANSPORT INFORMATION

US DOT Information:
No Classification assigned.

TDG Information:
No Classification assigned.

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations
None of this product's components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.
All components are on the U.S. EPA TSCA Inventory List. Supplier(s) of proprietary component(s) have stated that their components appear on the Canadian DSL/NDSL.

U.S. State Regulations
The following components appear on one or more of the following state hazardous substances lists:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>CA</th>
<th>MA</th>
<th>MN</th>
<th>NJ</th>
<th>PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanolamine</td>
<td>141-43-5</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Not listed under California Proposition 65

Canada Regulations
This material is a controlled product under Canadian WHMIS regulations.

Canadian WHMIS Ingredient Disclosure List (IDL)
Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanolamine</td>
<td>141-43-5</td>
<td>1 %</td>
</tr>
<tr>
<td>Citric acid</td>
<td>77-92-9</td>
<td>1 %</td>
</tr>
</tbody>
</table>

Component Analysis - Inventory
Water (7732-18-5)
Section 16 - OTHER INFORMATION

**HMIS Rating**
Health: 1 Fire: 0 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

**NFPA Ratings**
Health: 1 Fire: 0 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

**Key / Legend**
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; JP - Japan; Kow - Octanol/water partition coefficient; KECI - Korea Existing Chemicals Inventory; KECL – Korea Existing Chemicals List; KR - Korea; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of...
Other Information

Disclaimer:
Reasonable care has been taken in the preparation of this information; however, the manufacturer makes no warranty whatsoever including the warranty of merchantability, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental, consequential, or other such damages resulting from its use or misuse.