1. Identification

Product identifier  EX-88- Hardener
Other means of identification
SDS number  01188
Product code  01188, 01288, 01287, 01179, 01183, 01488, 01189, 01188R, 120
Recommended use  High Gloss Coating
Recommended restrictions  None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer
Company name  Environmental Technology, Inc.
Address  300 S. Bay Depot Road
Fields Landing
CA 95537, USA.
Telephone number  001 707-443-9323
E-mail  mail@eti-usa.com
Contact person  Technical Director
Emergency phone number  800-424-9300 (CHEMTREC)

2. Hazard(s) identification

Physical hazards  Not classified.
Health hazards
Acute toxicity, oral  Category 4
Skin corrosion/irritation  Category 1
Serious eye damage/eye irritation  Category 1
Sensitization, skin  Category 1
Reproductive toxicity (fertility, the unborn child)  Category 2

OSHA defined hazards  Not classified.

Label elements

Signal word  Danger
Hazard statement  Harmful if swallowed. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Suspected of damaging fertility. Suspected of damaging the unborn child.

Precautionary statement

Prevention  Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist or vapor. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace.

Response  If swallowed: Rinse mouth. Do not induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. 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. Immediately call a poison center/doctor. Wash contaminated clothing before reuse.

Storage  Store locked up.
Disposal  Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)  None known.
3. Composition/information on ingredients

MIXTURES

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propyoxypoliediamine</td>
<td>Proprietary</td>
<td>20-60</td>
</tr>
<tr>
<td>Nonylphenol</td>
<td>Proprietary</td>
<td>10-60</td>
</tr>
<tr>
<td>2-Piperazin-1-ylethylamine</td>
<td>Proprietary</td>
<td>1-25</td>
</tr>
<tr>
<td>Alkyl ether amine</td>
<td>Proprietary</td>
<td>1-25</td>
</tr>
</tbody>
</table>

Composition comments

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

The manufacturer has claimed the exact percentage as trade secret under the OSHA Hazard Communication Standard.

4. First-aid measures

Inhalation

If inhaled, remove to fresh air. For breathing difficulties, oxygen may be necessary. Get medical attention immediately.

Skin contact

Remove contaminated clothing. Rinse skin thoroughly with lukewarm water for at least 15 minutes. Call a physician or poison control center immediately. Wash contaminated clothing before reuse.

Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

Ingestion

Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Call a physician or Poison Control Center immediately. Never give anything by mouth to a victim who is unconscious or is having convulsions.

Most important symptoms/effects, acute and delayed

Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract. May cause an allergic skin reaction. Dermatitis. Rash. Contact can cause corrosive burns, corneal damage, and blindness. Itching, redness, swelling, burning or blistering of skin.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed. Exposure may aggravate pre-existing skin disorders.

General information

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Suitable extinguishing media

Water fog. Alcohol resistant foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media

Water. Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical

During fire, gases hazardous to health may be formed such as: Carbon oxides (COx). Nitrogen oxides

Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions

In case of fire do not breath fumes. Move container from fire area if it can be done without risk.

Specific methods

Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards

No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Do not breathe mist or vapor. Avoid contact with skin and eyes. Keep unnecessary personnel away. Keep out of low areas. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up

Keep unnecessary personnel away. This product is miscible in water. Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Collect and dispose of spillage as indicated in section 13 of the SDS. Prevent entry into waterways, sewer, basements or confined areas.

Environmental precautions

Never return spills to original containers for re-use.

7. Handling and storage

Precautions for safe handling

Do not handle until all safety precautions have been read and understood. Do not breathe mist or vapor. Do not get this material in your eyes, on your skin, or on your clothing. Avoid contact during pregnancy/while nursing. Provide adequate ventilation. Use personal protective equipment as required. Wash contaminated clothing before reuse. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Avoid release to the environment. Keep out of reach of children.

Conditions for safe storage, including any incompatibilities

Keep out of the reach of children. Store locked up. Store in tightly closed original container in a dry, cool and well-ventilated place. Store away from incompatible materials, see Section 10 of the SDS.

8. Exposure controls/personal protection

Occupational exposure limits

No exposure limits noted for ingredient(s).

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines

No exposure standards allocated. Use personal protective equipment as required. Keep working clothes separately.

Appropriate engineering controls

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection

Hand protection

Chemical resistant gloves. The most suitable glove must be chosen in consultation with the gloves supplier, who can inform about the breakthrough time of the glove material.

Skin protection

Other

Wear appropriate chemical resistant clothing to prevent any possibility of skin contact.

Respiratory protection

If ventilation is insufficient, suitable respiratory protection must be provided.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace. Wash at the end of each work shift and before eating, smoking and using the toilet.

9. Physical and chemical properties

Appearance

Viscous liquid.

Physical state

Liquid.

Form

Pourable liquid.

Color

Clear.

Odor


Odor threshold

Not available.

pH

>= 11.7

Melting point/freezing point

Not available.

Initial boiling point and boiling range

Not available.

Flash point

> 249.8 °F (> 121.0 °C) Closed Cup

Evaporation rate

Not available.
Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)
Not available.

Flammability limit - upper (%)
Not available.

Explosive limit - lower (%)
Not available.

Explosive limit - upper (%)
Not available.

Vapor pressure
Not available.

Vapor density > 1 (Air=1)

Relative density
1.15

Solubility(ies)

Solubility (water) Slightly soluble (0.1-1%)

Partition coefficient (n-octanol/water)
Not available.

Auto-ignition temperature
Not available.

Decomposition temperature
Not available.

Viscosity
Not available.

Other information

Explosive properties Not explosive.

Oxidizing properties Not oxidizing.

10. Stability and reactivity

Reactivity
The product is stable and non-reactive under normal conditions of use, storage and transport. Read and follow manufacturer's recommendations.

Chemical stability
Stable under normal temperature conditions and recommended use.

Possibility of hazardous reactions
Hazardous polymerization does not occur.

Conditions to avoid
Avoid temperatures exceeding the flash point. Reacts violently with strong acids. This product may react with oxidizing agents. Do not mix with other chemicals. Avoid incompatible materials and intense heat.

Incompatible materials

Hazardous decomposition products
None expected under normal conditions of use.

11. Toxicological information

Information on likely routes of exposure

Inhalation
Under normal conditions of intended use, this material is not expected to be an inhalation hazard. When heated, the vapors/fumes given off may cause respiratory tract irritation.

Skin contact
Causes severe skin burns. May cause an allergic skin reaction. May be harmful if absorbed through skin.

Eye contact
Causes eye burns. Causes serious eye damage.

Ingestion
Causes digestive tract burns. Harmful if swallowed. Under normal conditions of intended use, this material does not pose a risk to health.

Symptoms related to the physical, chemical and toxicological characteristics
Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract. May cause an allergic skin reaction. Dermatitis. Rash. Contact can cause corrosive burns, corneal damage, and blindness. Itching, redness, swelling, burning or blistering of skin.

Information on toxicological effects

Acute toxicity
Harmful if swallowed. May be harmful if absorbed through skin. May cause digestive tract burns.

Components

<table>
<thead>
<tr>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Piperazin-1-ylethylamine (CAS Proprietary)</td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td>harms to organs</td>
</tr>
<tr>
<td>Dermal</td>
<td>harms to organs</td>
</tr>
<tr>
<td>LD50</td>
<td>rabbit</td>
</tr>
<tr>
<td></td>
<td>880 mg/kg</td>
</tr>
</tbody>
</table>

EX-88- Hardener
920330 Version #: 02 Revision date: 21-July-2019 Issue date: 06-May-2014

SDS US 4 / 8
<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oral LD50</strong></td>
<td>Rat</td>
<td>&gt; 1000 mg/kg</td>
</tr>
<tr>
<td><strong>Nonylphenol (CAS Proprietary)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dermal LD50</strong></td>
<td>Rabbit</td>
<td>2031 mg/kg</td>
</tr>
<tr>
<td><strong>Oral LD50</strong></td>
<td>Rat</td>
<td>1200 mg/kg</td>
</tr>
<tr>
<td><strong>Skin corrosion/irritation</strong></td>
<td></td>
<td>Corrosive to skin and eyes. Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td><strong>Serious eye damage/eye irritation</strong></td>
<td></td>
<td>Causes eye burns. Causes serious eye damage.</td>
</tr>
<tr>
<td><strong>Respiratory or skin sensitization</strong></td>
<td></td>
<td>Due to partial or complete lack of data the classification is not possible.</td>
</tr>
<tr>
<td><strong>Respiratory sensitization</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Skin sensitization</strong></td>
<td></td>
<td>May cause an allergic skin reaction.</td>
</tr>
<tr>
<td><strong>Germ cell mutagenicity</strong></td>
<td></td>
<td>No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.</td>
</tr>
<tr>
<td><strong>Carcinogenicity</strong></td>
<td></td>
<td>This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.</td>
</tr>
<tr>
<td><strong>IARC Monographs. Overall Evaluation of Carcinogenicity</strong></td>
<td></td>
<td>Not listed.</td>
</tr>
<tr>
<td><strong>NTP Report on Carcinogens</strong></td>
<td></td>
<td>Not listed.</td>
</tr>
<tr>
<td><strong>Reproductive toxicity</strong></td>
<td></td>
<td>Possible reproductive hazard. Possible risk of harm to the unborn child. Possible risk of impaired fertility.</td>
</tr>
<tr>
<td><strong>Specific target organ toxicity - single exposure</strong></td>
<td></td>
<td>Not classified.</td>
</tr>
<tr>
<td><strong>Specific target organ toxicity - repeated exposure</strong></td>
<td></td>
<td>Not classified.</td>
</tr>
<tr>
<td><strong>Aspiration hazard</strong></td>
<td></td>
<td>Due to the high viscosity the product is not an aspiration hazard.</td>
</tr>
<tr>
<td><strong>Chronic effects</strong></td>
<td></td>
<td>Prolonged exposure may cause chronic effects. Possible adverse reproductive and developmental effects.</td>
</tr>
<tr>
<td><strong>Further information</strong></td>
<td></td>
<td>Reproductive toxicity. Symptoms may be delayed. May cause allergic respiratory and skin reactions.</td>
</tr>
</tbody>
</table>

12. Ecological information

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Piperazin-1-ylethylamine (CAS Proprietary)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fish LC50</strong></td>
<td>Fathead minnow (Pimephales promelas)</td>
<td>1950 - 2460 mg/l, 96 hours</td>
</tr>
<tr>
<td><strong>Nonylphenol (CAS Proprietary)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Algae EC50</strong></td>
<td>Scenedesmus subspicatus</td>
<td>1.3 mg/l, 72 Hours</td>
</tr>
<tr>
<td><strong>Crustacea EC50</strong></td>
<td>Daphnia magna</td>
<td>0.085 mg/l, 48 Hours</td>
</tr>
<tr>
<td><strong>Fish LC50</strong></td>
<td>Pimephales promelas</td>
<td>0.128 mg/l, 96 Hours</td>
</tr>
<tr>
<td><strong>Chronic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Crustacea NOEC</strong></td>
<td>Daphnia magna</td>
<td>24 µg/l, 21 days</td>
</tr>
<tr>
<td><strong>Fish NOEC</strong></td>
<td>Pimephales promelas</td>
<td>0.0074 mg/l, 33 days</td>
</tr>
</tbody>
</table>
Components Test Results

Polyoxypropylenediamine (CAS Proprietary)

Aquatic

Chronic

<table>
<thead>
<tr>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algae</td>
<td>NOEC</td>
</tr>
<tr>
<td>Algae</td>
<td>Algae</td>
</tr>
</tbody>
</table>

Persistence and degradability

No data is available on the degradability of this product.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

Nonylphenol 5.71

Mobility in soil

No data available.

Other adverse effects

None known.

13. Disposal considerations

Disposal instructions

Dispose in accordance with applicable federal, state, and local regulations. Do not allow this material to drain into sewers/water supplies.

Local disposal regulations

Dispose in accordance with all applicable regulations.

Hazardous waste code

The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging

Dispose in accordance with applicable federal, state, and local regulations.

14. Transport information

DOT

UN number UN1760

UN proper shipping name Corrosive liquids, n.o.s. (Nonyl Phenol Mixture)

Transport hazard class(es)

Class 8

Subsidiary risk -

Label(s) 8

Packing group III

Environmental hazards

Marine pollutant Yes

Special precautions for user

Read safety instructions, SDS and emergency procedures before handling.

Special provisions IB3, T7, TP1, TP28

Packaging exceptions 154

Packaging non bulk 203

Packaging bulk 241

IMDG

UN number UN1760

UN proper shipping name Corrosive liquids, n.o.s. (Nonyl Phenol Mixture)

Transport hazard class(es)

Class 8

Subsidiary risk -

Label(s) 8

Packing group III

Environmental hazards Yes

Special precautions for user

Read safety instructions, SDS and emergency procedures before handling.
Environmental hazards
Marine pollutant Yes
EmS Not available.
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not established.

15. Regulatory information

US federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Nonylphenol (CAS Proprietary) 1.0 % One-Time Export Notification only.

TSCA Chemical Action Plans, Chemicals of Concern
Nonylphenol (CAS Proprietary) Nonylphenol (NP) and Nonylphenol Ethoxylates (NPEs) Action Plan

CERCLA Hazardous Substance List (40 CFR 302.4)
Not listed.
SARA 304 Emergency release notification
Not regulated.
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Not listed.

Toxic Substances Control Act (TSCA)
All components of the mixture on the TSCA 8(b) inventory are designated "active".

Superfund Amendments and Reauthorization Act of 1986 (SARA)
SARA 302 Extremely hazardous substance
Not listed.
SARA 311/312 Hazardous chemical Yes
Classified hazard categories
Acute toxicity (any route of exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitization
Reproductive toxicity

SARA 313 (TRI reporting)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>% by wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonylphenol</td>
<td>Proprietary</td>
<td>10-60</td>
</tr>
</tbody>
</table>

Other federal regulations
Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.
Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.
Safe Drinking Water Act (SDWA)
Not regulated.

US state regulations
US. Massachusetts RTK - Substance List
2-Piperazin-1-ylethylamine (CAS Proprietary)

US. New Jersey Worker and Community Right-to-Know Act
2-Piperazin-1-ylethylamine (CAS Proprietary)
Nonylphenol (CAS Proprietary)

US. Pennsylvania Worker and Community Right-to-Know Law
2-Piperazin-1-ylethylamine (CAS Proprietary)

US. Rhode Island RTK
Not regulated.
California Proposition 65
California Safe Drinking Water and Toxic Enforcement Act of 2016 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Nonylphenol (CAS Proprietary)

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>No</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Taiwan Chemical Substance Inventory (TCSI)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s). A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date: 06-May-2014
Revision date: 21-July-2019
Version #: 02

HMIS® ratings
Health: 3*
Flammability: 0
Physical hazard: 0

List of abbreviations
LD50: Lethal Dose 50%.
LC50: Lethal Concentration 50%.
EC50: Effective Concentration, 50%.
NOAEC: No Observed Adverse Effect Concentration.
PEL: Permissible Exposure Limit.
STEL: Short-term Exposure Limit.
TWA: Time Weighted Average Value.

References
ACGIH
EPA: AQUIRE database
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents
HSDB® - Hazardous Substances Data Bank
IARC Monographs. Overall Evaluation of Carcinogenicity
National Toxicology Program (NTP) Report on Carcinogens
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices

Disclaimer
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