

# SAFETY DATA SHEET

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

Trade name or designation of the mixture	EX-88- Hardener
Registration number	-
Synonyms	None.
SDS number	01188
Product code	01188, 01288, 01287, 01179, 01183, 01488, 01189, 01188R, 120
Issue date	22-March-2016
Version number	01
Revision date	-
Supersedes date	-

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses	High Gloss Coating
Uses advised against	None known.

### 1.3. Details of the supplier of the safety data sheet

#### 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	eti@eti-usa.com
Contact person	Technical Director

#### Supplier

Company name	
Address	

Telephone number

1.4. Emergency telephone number

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

#### Classification according to Regulation (EC) No 1272/2008 as amended

##### Health hazards

Acute toxicity, oral	Category 4	H302 - Harmful if swallowed.
Skin corrosion/irritation	Category 1	H314 - Causes severe skin burns and eye damage.
Skin sensitisation	Category 1	H317 - May cause an allergic skin reaction.
Reproductive toxicity	Category 2	H361 - Suspected of damaging fertility or the unborn child.

##### Environmental hazards

Hazardous to the aquatic environment, acute aquatic hazard	Category 1	
Hazardous to the aquatic environment, long-term aquatic hazard	Category 1	H410 - Very toxic to aquatic life with long lasting effects.

**Hazard summary** Causes severe skin burns and eye damage. Harmful if swallowed. May cause an allergic skin reaction. Possible reproductive hazard. Dangerous for the environment if discharged into watercourses.

## 2.2. Label elements

### Label according to Regulation (EC) No. 1272/2008 as amended

**Contains:** 2-Piperazin-1-ylethylamine, Alkyl Ether Amine, Nonylphenol, Polyoxypropylenediamine

#### Hazard pictograms



#### Signal word

Danger

#### Hazard statements

H302 Harmful if swallowed.  
H314 Causes severe skin burns and eye damage.  
H317 May cause an allergic skin reaction.  
H361 Suspected of damaging fertility or the unborn child.  
H410 Very toxic to aquatic life with long lasting effects.

### Precautionary statements

#### Prevention

P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P260 Do not breathe mist or vapour.  
P270 Do not eat, drink or smoke when using this product.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P264 Wash thoroughly after handling.  
P272 Contaminated work clothing should not be allowed out of the workplace.  
P273 Avoid release to the environment.

#### Response

P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.  
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
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.  
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.  
P308 + P313 IF exposed or concerned: Get medical advice/attention.  
P363 Wash contaminated clothing before reuse.  
P391 Collect spillage.

#### Storage

P405 Store locked up.

#### Disposal

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Supplemental label information** None.

**2.3. Other hazards** None known.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

#### General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Nonylphenol	20-60	84852-15-3 284-325-5	-	601-053-00-8	
<b>Classification:</b>	Acute Tox. 4;H302, Skin Corr. 1B;H314, Repr. 2;H361d, Repr. 2;H361f, Aquatic Acute 1;H400, Aquatic Chronic 1;H410				
Polyoxypropylenediamine	20-60	9046-10-0	-	-	
<b>Classification:</b>	Skin Corr. 1C;H314, Aquatic Chronic 2;H411				

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Alkyl Ether Amine	<20	39423-51-3 500-105-6	-	-	
<b>Classification:</b>	Acute Tox. 4;H302, Acute Tox. 4;H312, Eye Dam. 1;H318, Aquatic Chronic 2;H411				
2-Piperazin-1-ylethylamine	<10	140-31-8 205-411-0	-	612-105-00-4	
<b>Classification:</b>	Acute Tox. 4;H302, Acute Tox. 4;H312, Skin Corr. 1B;H314, Skin Sens. 1;H317, Aquatic Chronic 3;H412				

**Composition comments** The full text for all H-statements is displayed in Section 16. All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

## SECTION 4: First aid measures

**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.

### 4.1. Description of first aid measures

<b>Inhalation</b>	If inhaled, remove to fresh air. For breathing difficulties, oxygen may be necessary. Get medical attention immediately.
<b>Skin contact</b>	Wash contaminated clothing before reuse. Rinse skin thoroughly with lukewarm water for at least 15 minutes. Call a physician or poison control centre immediately.
<b>Eye contact</b>	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 centre immediately.
<b>Ingestion</b>	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 Centre immediately.

**4.2. Most important symptoms and effects, both 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.

**4.3. Indication of any immediate medical attention and special treatment needed** Exposure may aggravate pre-existing skin disorders. Treat symptomatically. Keep victim under observation. Symptoms may be delayed.

## SECTION 5: Firefighting measures

**General fire hazards** No unusual fire or explosion hazards noted.

### 5.1. Extinguishing media

<b>Suitable extinguishing media</b>	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO <sub>2</sub> ).
<b>Unsuitable extinguishing media</b>	Water. Do not use water jet as an extinguisher, as this will spread the fire.

**5.2. Special hazards arising from the substance or mixture** During fire, gases hazardous to health may be formed.

### 5.3. Advice for firefighters

<b>Special protective equipment for firefighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>Special fire fighting procedures</b>	Move containers from fire area if you can do so without risk.

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

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

<b>For non-emergency personnel</b>	Ensure adequate ventilation. Do not breathe mist or vapour. 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.
<b>For emergency responders</b>	Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

**6.2. Environmental precautions** Avoid discharge into drains, water courses or onto the ground. Contact local authorities in case of spillage to drain/aquatic environment.

### 6.3. Methods and material 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.

Never return spills to original containers for re-use.

### 6.4. Reference to other sections

For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Do not handle until all safety precautions have been read and understood. Do not breathe mist or vapour. 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.

### 7.2. 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.

### 7.3. Specific end use(s)

High Gloss Coating

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Occupational exposure limits

No exposure limits noted for ingredient(s).

#### Biological limit values

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

#### Recommended monitoring procedures

Follow standard monitoring procedures.

#### Derived no-effect level (DNEL)

Not available.

#### Predicted no effect concentrations (PNECs)

Not available.

#### Exposure guidelines

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

### 8.2. Exposure controls

#### Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) 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

##### General information

Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the 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.

##### - Other

Wear appropriate chemical resistant clothing. 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.

#### Hygiene measures

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 or using the toilet.

#### Environmental exposure controls

Environmental manager must be informed of all major releases.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

#### Appearance

Viscous liquid.

#### Physical state

Liquid.

<b>Form</b>	Liquid. Pourable liquid.
<b>Colour</b>	Clear.
<b>Odour</b>	Minimal. Not distinct. Ammonia-like.
<b>Odour threshold</b>	Not available.
<b>pH</b>	>= 11.7
<b>Melting point/freezing point</b>	Not available.
<b>Initial boiling point and boiling range</b>	Not available.
<b>Flash point</b>	> 121.0 °C (> 249.8 °F) Closed cup
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not applicable.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Vapour pressure</b>	Not available.
<b>Vapour density</b>	> 1 (Air = 1)
<b>Relative density</b>	1.15
<b>Solubility(ies)</b>	Slightly soluble (0.1-1%)
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Explosive properties</b>	Not explosive.
<b>Oxidising properties</b>	Not oxidising.
<b>9.2. Other information</b>	No relevant additional information available.

## SECTION 10: Stability and reactivity

<b>10.1. Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>10.2. Chemical stability</b>	Stable under normal temperature conditions and recommended use.
<b>10.3. Possibility of hazardous reactions</b>	Hazardous polymerisation does not occur.
<b>10.4. Conditions to avoid</b>	Avoid temperatures exceeding the flash point. Reacts violently with strong acids. This product may react with oxidizing agents. Do not mix with other chemicals. Contact with incompatible materials. Avoid incompatible materials and intense heat.
<b>10.5. Incompatible materials</b>	Acids. Strong oxidising agents. Oxidizing agents.
<b>10.6. Hazardous decomposition products</b>	None expected under normal conditions of use.

## SECTION 11: Toxicological information

<b>General information</b>	Occupational exposure to the substance or mixture may cause adverse effects.
<b>Information on likely routes of exposure</b>	
<b>Inhalation</b>	Under normal conditions of intended use, this material is not expected to be an inhalation hazard. When heated, the vapours/fumes given off may cause respiratory tract irritation.
<b>Skin contact</b>	Causes severe skin burns. May cause an allergic skin reaction. May be harmful if absorbed through skin.
<b>Eye contact</b>	Causes eye burns. Causes serious eye damage.
<b>Ingestion</b>	Under normal conditions of intended use, this material does not pose a risk to health. Harmful if swallowed. Causes digestive tract burns.
<b>Symptoms</b>	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.
<b>11.1. Information on toxicological effects</b>	
<b>Acute toxicity</b>	Harmful if swallowed. May be harmful if absorbed through skin. May cause digestive tract burns.

Components	Species	Test results
2-Piperazin-1-ylethylamine (CAS 140-31-8)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	880 mg/kg
<b>Skin corrosion/irritation</b>	Corrosive to skin and eyes.	
<b>Serious eye damage/eye irritation</b>	Causes eye burns. Causes serious eye damage.	
<b>Respiratory sensitisation</b>	Based on available data, the classification criteria are not met.	
<b>Skin sensitisation</b>	May cause an allergic skin reaction.	
<b>Germ cell mutagenicity</b>	Based on available data, the classification criteria are not met.	
<b>Carcinogenicity</b>	Based on available data, the classification criteria are not met.	
<b>Reproductive toxicity</b>	Possible reproductive hazard. Possible risk of harm to the unborn child. Possible risk of impaired fertility.	
<b>Specific target organ toxicity - single exposure</b>	Based on available data, the classification criteria are not met.	
<b>Specific target organ toxicity - repeated exposure</b>	Based on available data, the classification criteria are not met.	
<b>Aspiration hazard</b>	Due to the high viscosity the product is not an aspiration hazard.	
<b>Mixture versus substance information</b>	No information available.	
<b>Other information</b>	Prolonged exposure may cause chronic effects. Possible adverse reproductive and developmental effects.	

## SECTION 12: Ecological information

**12.1. Toxicity** Very toxic to aquatic life with long lasting effects.

Components	Species	Test results
2-Piperazin-1-ylethylamine (CAS 140-31-8)		
<b>Aquatic</b>		
Fish	LC50	Fathead minnow ( <i>Pimephales promelas</i> ) 1950 - 2460 mg/l, 96 hours
Polyoxypropylenediamine (CAS 9046-10-0)		
<b>Aquatic</b>		
<i>Chronic</i>		
Algae	NOEC	Algae 0.32 mg/l, 72 hours

**12.2. Persistence and degradability** No data is available on the degradability of this product.

### 12.3. Bioaccumulative potential

**Partition coefficient n-octanol/water (log Kow)**

Nonylphenol (CAS 84852-15-3) 5.71

**Bioconcentration factor (BCF)** Not available.

**12.4. Mobility in soil** No data available.

**12.5. Results of PBT and vPvB assessment** Not a PBT or vPvB substance or mixture.

**12.6. Other adverse effects**

None known.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

**Residual waste** 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** Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

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

**Disposal methods/information** Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

**Special precautions** Dispose in accordance with all applicable regulations.

## SECTION 14: Transport information

### ADR

**14.1. UN number** UN1760  
**14.2. UN proper shipping name** Corrosive liquids, n.o.s. (Nonyl Phenol Mixture)  
**14.3. Transport hazard class(es)**  
    **Class** 8  
    **Subsidiary risk** -  
    **Label(s)** 8  
    **Hazard No. (ADR)** Not available.  
    **Tunnel restriction code** Not available.  
**14.4. Packing group** III  
**14.5. Environmental hazards** Yes.  
**14.6. Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

### RID

**14.1. UN number** UN1760  
**14.2. UN proper shipping name** Corrosive liquids, n.o.s. (Nonyl Phenol Mixture)  
**14.3. Transport hazard class(es)**  
    **Class** 8  
    **Subsidiary risk** -  
    **Label(s)** 8  
**14.4. Packing group** III  
**14.5. Environmental hazards** Yes.  
**14.6. Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

### ADN

**14.1. UN number** UN1760  
**14.2. UN proper shipping name** Corrosive liquids, n.o.s. (Nonyl Phenol Mixture)  
**14.3. Transport hazard class(es)**  
    **Class** 8  
    **Subsidiary risk** -  
    **Label(s)** 8  
**14.4. Packing group** III  
**14.5. Environmental hazards** Yes.  
**14.6. Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

### IATA

**14.1. UN number** UN1760  
**14.2. UN proper shipping name** Corrosive liquids, n.o.s. (Nonyl Phenol Mixture)  
**14.3. Transport hazard class(es)**  
    **Class** 8  
    **Subsidiary risk** -  
    **Label(s)** 8  
**14.4. Packing group** III  
**14.5. Environmental hazards** Yes.  
**14.6. Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

### IMDG

**14.1. UN number** UN1760  
**14.2. UN proper shipping name** Corrosive liquids, n.o.s. (Nonyl Phenol Mixture)  
**14.3. Transport hazard class(es)**  
    **Class** 8  
    **Subsidiary risk** -  
    **Label(s)** 8  
**14.4. Packing group** III

#### 14.5. Environmental hazards

**Marine pollutant** Yes.

**EmS** Not available.

**14.6. Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

**14.7. Transport in bulk according to Annex II of Marpol and the IBC Code** Not applicable.

### SECTION 15: Regulatory information

#### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

##### EU regulations

**Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended**  
Not listed.

**Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended**  
Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended**  
Nonylphenol (CAS 84852-15-3)

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended**  
Nonylphenol (CAS 84852-15-3)

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended**  
Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended**  
Not listed.

**Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended**  
Not listed.

**Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA**  
Nonylphenol (CAS 84852-15-3)

##### Authorisations

**Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended**  
Not listed.

##### Restrictions on use

**Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended**  
Nonylphenol (CAS 84852-15-3)

**Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended**  
Not listed.

**Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding, as amended**  
Nonylphenol (CAS 84852-15-3)

##### Other EU regulations

**Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended**  
Nonylphenol (CAS 84852-15-3)

**Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work, as amended**  
2-Piperazin-1-ylethylamine (CAS 140-31-8)  
Nonylphenol (CAS 84852-15-3)

**Directive 94/33/EC on the protection of young people at work, as amended**  
2-Piperazin-1-ylethylamine (CAS 140-31-8)  
Nonylphenol (CAS 84852-15-3)

##### Other regulations

The product is classified and labelled in accordance with EC directives or respective national laws. Pregnant women should not work with the product, if there is the least risk of exposure. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

##### National regulations

Follow national regulation for work with chemical agents. Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work, as amended.

#### 15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.



## SECTION 16: Other information

<b>List of abbreviations</b>	Not available.
<b>References</b>	Not available.
<b>Information on evaluation method leading to the classification of mixture</b>	The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.
<b>Full text of any H-statements not written out in full under Sections 2 to 15</b>	H302 Harmful if swallowed. H312 Harmful in contact with skin. H314 Causes severe skin burns and eye damage. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H361d Suspected of damaging the unborn child. H361f Suspected of damaging fertility. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects. H411 Toxic to aquatic life with long lasting effects. H412 Harmful to aquatic life with long lasting effects.
<b>Training information</b>	Follow training instructions when handling this material.
<b>Disclaimer</b>	The information in the sheet was written based on the best knowledge and experience currently available.