

# Safety Data Sheet

According to Canadian Hazardous Products Regulations and WHMIS 2015

Initial preparation date: 03.02.2018

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**CLX Hardener**

## SECTION 1: Identification

### Product identifier

**Product name:** CLX Hardener

**Product code:** CLX-1

### Recommended use of the product and restriction on use

**Relevant identified uses:** Liquid curing agent for epoxy resin

**Uses advised against:** Not determined or not applicable.

**Reasons why uses advised against:** Not determined or not applicable.

### Manufacturer or supplier details

**Manufacturer:**

**North America**

Gougeon Brothers, Inc.  
100 Patterson Ave.  
Bay City, MI 48706, U.S.A.  
310-882-2120  
safety@entropyresin.com

**Supplier:**

**Canada**

Composites One  
26596 Gloucester Way Unit #105  
Langley, BC V4W 4A8

### Emergency telephone number:

**North America**

**CHEMTREC**

800-424-9300 US

703-527-3887 International

## SECTION 2: Hazard identification

### GHS classification:

Skin corrosion, category 1A

Serious eye damage, category 1

Skin sensitization, category 1

Respiratory sensitization, category 1

Reproductive toxicity, category 2

Germ cell mutagenicity, category 2

Specific target organ toxicity - repeated exposure, category 2

Acute toxicity (oral), category 4

Acute toxicity (dermal), category 4

Acute toxicity (inhalation), category 4

Acute aquatic hazard, category 2

Chronic aquatic hazard, category 2

### Label elements

#### Hazard pictograms:



**Signal word:** Danger

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### Hazard statements:

- H314 Causes severe skin burns and eye damage.
- H318 Causes serious eye damage.
- H317 May cause an allergic skin reaction.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H361 Suspected of damaging fertility or the unborn child.
- H341 Suspected of causing genetic defects.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H302 Harmful if swallowed.
- H312 Harmful in contact with skin.
- H332 Harmful if inhaled.
- H401 Toxic to aquatic life.
- H411 Toxic to aquatic life with long lasting effects.

### Precautionary statements:

- P260 Do not breathe dust/fume/gas/mist/vapors/spray.
- P264 Wash skin and eyes thoroughly after handling.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
- P272 Contaminated work clothing should not be allowed out of the workplace.
- P284 Wear respiratory protection.
- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P273 Avoid release to the environment.
- P310 Immediately call a POISON CENTER or doctor/physician.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308+P313 If exposed or concerned: Get medical advice/attention
- P321 Specific treatment (see supplemental first aid instructions on this label).
- P363 Wash contaminated clothing before reuse
- P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- P333+P313 If skin irritation or a rash occurs: Get medical advice/attention
- P362+P364 Take off contaminated clothing and wash it before reuse.
- P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
- P330 Rinse mouth
- P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- P314 Get medical advice/attention if you feel unwell
- P391 Collect spillage
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulation.

**Hazards not otherwise classified:** None

## SECTION 3: Composition/information on ingredients

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Identification	Name	Weight %
CAS number: 84852-15-3	Nonyl phenol	8-20
CAS number: 100-51-6	Benzyl Alcohol	25-28
CAS number: 108-95-2	Phenol	<0.5
CAS number: 140-31-8	1-Piperazineethanamine	<1
CAS number: 124-11-8	1-Nonene	<0.5
CAS number: 27344-41-8	Disodium 2,2'-([1,1'-biphenyl]-4,4'-diyldivynylene)bis(benzenesulphonate)	<0.1
CAS number: 2579-20-6	1,3-Cyclohexanedimethanamine	24-30
CAS number: 2855-13-2	Isophorone diamine	25-28
CAS number: 102-71-6	2,2',2''-Nitrilotriethanol	<5
CAS number: 110-85-0	Piperazine	<2

**Additional Information:** None

## SECTION 4: First-aid measures

### Description of first-aid measures

#### General notes:

Not determined or not available.

#### After inhalation:

Move exposed individual to fresh air

Loosen clothing as necessary and position individual in a comfortable position

Maintain an unobstructed airway

Immediately call a POISON CONTROL CENTER or seek medical attention

#### After skin contact:

Immediately remove all contaminated clothing

Wash affected area with soap and water

Immediately call a POISON CONTROL CENTER or seek medical attention

#### After eye contact:

Rinse/flush exposed eye(s) gently using water for 15-20 minutes

Remove contact lens(es) if able to do so during rinsing

Immediately call a POISON CONTROL CENTER or seek medical attention

#### After ingestion:

Immediately call a POISON CONTROL CENTER or seek medical attention

Do not induce vomiting

Rinse mouth and then drink plenty of water

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### Most important symptoms and effects, both acute and delayed

#### Acute symptoms and effects:

Not determined or not available.

#### Delayed symptoms and effects:

Not determined or not available.

### Immediate medical attention and special treatment

#### Specific treatment:

Not determined or not available.

#### Notes for the doctor:

Not determined or not available.

## SECTION 5: Fire-fighting measures

### Extinguishing media

#### Suitable extinguishing media:

Use appropriate fire suppression agents for adjacent combustible materials or sources of ignition

#### Unsuitable extinguishing media:

Not determined or not applicable.

### Specific hazards during fire-fighting:

Thermal decomposition can lead to release of irritating gases and vapors

### Special protective equipment for firefighters:

Wear protective eye wear, gloves and clothing

Refer to Section 8

Use typical firefighting equipment, self-contained breathing apparatus, special tightly sealed suit

### Special precautions:

Heating causes a rise in pressure, risk of bursting and combustion

Shut off sources of ignition

Carbon monoxide and carbon dioxide may form upon combustion

## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures:

Ensure adequate ventilation

Ensure air handling systems are operational

Wear protective eye wear, gloves and clothing

### Environmental precautions:

Should not be released into the environment

Prevent from reaching drains, sewer or waterway

### Methods and material for containment and cleaning up:

Absorb with non-combustible liquid-binding material (sand, diatomaceous earth (clay), acid binders, universal binders)

Dispose of contents / container in accordance with local regulations

### Reference to other sections:

Not determined or not applicable.

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### SECTION 7: Handling and storage

**Precautions for safe handling:**

- Do not eat, drink, smoke or use personal products when handling chemical substances.
- Avoid breathing mist or vapor.
- Use only with adequate ventilation.

**Conditions for safe storage, including any incompatibilities:**

- Store in a cool, well-ventilated area.
- Store away from foodstuffs.

### SECTION 8: Exposure controls/personal protection

Only those substances with limit values have been included below.

**Occupational Exposure limit values:**

Country (Legal Basis)	Substance	Identifier	Permissible concentration
ACGIH	2,2',2''-Nitrilotriethanol	102-71-6	ACGIH TLV TWA: 5.0 mg/m <sup>3</sup>
	Piperazine	110-85-0	8-Hour Exposure Limit (TLV-TWA): 0.03 ppm
	Phenol	108-95-2	ACGIH TLV TWA 5 ppm [skin]
WEEL	Benzyl Alcohol	100-51-6	WEEL TWA 10.0 ppm
Bulgaria	Benzyl Alcohol	100-51-6	TWA: 5.0 mg/m <sup>3</sup>
	Piperazine	110-85-0	15-minute STEL: 0.3 mg/m <sup>3</sup>
	Phenol	108-95-2	TWA: 8 mg/m <sup>3</sup> (2 ppm)
	Phenol	108-95-2	15-minute STEL: 16 mg/m <sup>3</sup> (4 ppm)
Czech Republic	Benzyl Alcohol	100-51-6	8-hour TWA: 40 mg/m <sup>3</sup>
	Benzyl Alcohol	100-51-6	Ceiling limit (NPK-P): 80 mg/m <sup>3</sup>
	2,2',2''-Nitrilotriethanol	102-71-6	8-hour TWA: 5 mg/m <sup>3</sup>
	2,2',2''-Nitrilotriethanol	102-71-6	Ceiling limit (NPK-P): 10 mg/m <sup>3</sup>
	Piperazine	110-85-0	8-hour TWA: 0.1 mg/m <sup>3</sup>
	Piperazine	110-85-0	Ceiling limit (NPK-P): 0.3 mg/m <sup>3</sup>
	Phenol	108-95-2	8-hour TWA: 7.5 mg/m <sup>3</sup>
	Phenol	108-95-2	Ceiling limit (NPK-P): 15 mg/m <sup>3</sup>
Latvia	Benzyl Alcohol	100-51-6	8-hour TWA: 5 mg/m <sup>3</sup>
	Piperazine	110-85-0	8-hour TWA: 0.1 mg/m <sup>3</sup>
	Piperazine	110-85-0	15-minute STEL: 0.3 mg/m <sup>3</sup>
	Phenol	108-95-2	8-hour TWA: 8 mg/m <sup>3</sup> (2 ppm)
	Phenol	108-95-2	15-minute STEL: 16 mg/m <sup>3</sup> (4 ppm)
Poland	Benzyl Alcohol	100-51-6	8-hour TWA (NDS): 240 mg/m <sup>3</sup>
	Piperazine	110-85-0	8-hour TWA (NDS): 0.1 mg/m <sup>3</sup>
	Piperazine	110-85-0	15-minute STEL (NDSCh): 0.3 mg/m <sup>3</sup>
	Phenol	108-95-2	8-hour TWA (NDS): 7.8 mg/m <sup>3</sup>
	Phenol	108-95-2	15-minute STEL (NDSCh): 16 mg/m <sup>3</sup>

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Country (Legal Basis)	Substance	Identifier	Permissible concentration
Finland	Benzyl Alcohol	100-51-6	8-hour limit: 10 ppm (45 mg/m <sup>3</sup> )
	2,2',2''-Nitrilotriethanol	102-71-6	8-hour limit: 5 mg/m <sup>3</sup>
	Piperazine	110-85-0	8-hour limit: 0.1 mg/m <sup>3</sup> (0.028 ppm)
	Piperazine	110-85-0	15-minute limit: 0.3 mg/m <sup>3</sup> (0.084 ppm)
	Phenol	108-95-2	8-hour limit: 8 mg/m <sup>3</sup> (2 ppm)
	Phenol	108-95-2	15-minute limit: 16 mg/m <sup>3</sup> (4 ppm)
Australia	2,2',2''-Nitrilotriethanol	102-71-6	Time weighted average: 5 mg/m <sup>3</sup>
	Phenol	108-95-2	Time Weighted Average: 4 mg/m <sup>3</sup> (1 ppm)
Estonia	2,2',2''-Nitrilotriethanol	102-71-6	8-hour TWA: 5 mg/m <sup>3</sup>
	2,2',2''-Nitrilotriethanol	102-71-6	STEL: 10 mg/m <sup>3</sup>
	Piperazine	110-85-0	8-hour TWA: 0.1 mg/m <sup>3</sup>
	Piperazine	110-85-0	STEL: 0.3 mg/m <sup>3</sup>
	Phenol	108-95-2	8-hour TWA: 8 mg/m <sup>3</sup> (2 ppm)
	Phenol	108-95-2	STEL: 16 mg/m <sup>3</sup> (4 ppm)
Lithuania	2,2',2''-Nitrilotriethanol	102-71-6	8-hour TWA: 5 mg/m <sup>3</sup>
	2,2',2''-Nitrilotriethanol	102-71-6	15-minute STEL: 10 mg/m <sup>3</sup>
	Piperazine	110-85-0	8-hour TWA: 0.3 mg/m <sup>3</sup> (0.1 ppm)
	Piperazine	110-85-0	15-minute STEL: 1 mg/m <sup>3</sup> (0.1 ppm)
	Phenol	108-95-2	8-hour TWA: 8 mg/m <sup>3</sup> (2 ppm)
	Phenol	108-95-2	15-minute STEL: 16 mg/m <sup>3</sup> (4 ppm)
Slovenia	2,2',2''-Nitrilotriethanol	102-71-6	8-hour TWA: 5 mg/m <sup>3</sup>
	Piperazine	110-85-0	8-hour TWA: 0.1 mg/m <sup>3</sup>
	Phenol	108-95-2	8-hour TWA: 8 mg/m <sup>3</sup> (2 ppm)
Belgium	2,2',2''-Nitrilotriethanol	102-71-6	8-hour TWA: 5 mg/m <sup>3</sup>
	Piperazine	110-85-0	8-hour TWA: 0.1 mg/m <sup>3</sup>
	Piperazine	110-85-0	15-minute STEL: 0.3 mg/m <sup>3</sup>
	Phenol	108-95-2	8-hour TWA: 8 mg/m <sup>3</sup> (2 ppm)
	Phenol	108-95-2	15-minute STEL: 16 mg/m <sup>3</sup> (4 ppm)
Denmark	2,2',2''-Nitrilotriethanol	102-71-6	TWA: 0.5 ppm (3.1 mg/m <sup>3</sup> )
	Phenol	108-95-2	TWA: 4 mg/m <sup>3</sup> (1 ppm)
Ireland	2,2',2''-Nitrilotriethanol	102-71-6	8-hour OEL (TWA): 5 mg/m <sup>3</sup>
	Piperazine	110-85-0	8-hour OEL (TWA): 0.1 mg/m <sup>3</sup>
	Piperazine	110-85-0	15-minute OEL (STEL): 0.3 mg/m <sup>3</sup>
	Phenol	108-95-2	15-minute OEL (STEL): 16 mg/m <sup>3</sup> (4 ppm)
	Phenol	108-95-2	8-hour OEL (TWA): 8 mg/m <sup>3</sup> (2 ppm)
Italy	2,2',2''-Nitrilotriethanol	102-71-6	8-hour TWA: 5 mg/m <sup>3</sup>

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Country (Legal Basis)	Substance	Identifier	Permissible concentration
	Piperazine	110-85-0	8-hour TWA: 0.1 mg/m <sup>3</sup>
	Piperazine	110-85-0	15-min. STEL : 0.3 mg/m <sup>3</sup>
	Phenol	108-95-2	8-hour TWA: 8 mg/m <sup>3</sup> (2 ppm)
	Phenol	108-95-2	15-minute STEL: 16 mg/m <sup>3</sup> (4 ppm)
Portugal	2,2',2''-Nitrilotriethanol	102-71-6	8-hour exposure limit: 5 mg/m <sup>3</sup>
	Piperazine	110-85-0	8-hour TWA: 0.1 mg/m <sup>3</sup>
	Piperazine	110-85-0	15-minute STEL: 0.3 mg/m <sup>3</sup>
	Phenol	108-95-2	8-hour TWA: 8 mg/m <sup>3</sup> (2 ppm)
	Phenol	108-95-2	15-minute STEL: 16 mg/m <sup>3</sup> (4 ppm)
Spain	2,2',2''-Nitrilotriethanol	102-71-6	8-hour daily exposure limit (VLA_ED): 5 mg/m <sup>3</sup>
	Piperazine	110-85-0	8-hour daily exposure limit (VLA_ED): 0.1 mg/m <sup>3</sup>
	Piperazine	110-85-0	15-minute STEL (VLA-EC): 0.3 mg/m <sup>3</sup>
	Phenol	108-95-2	8-hour daily exposure limit (VLA_ED): 8 mg/m <sup>3</sup> (2 ppm)
	Phenol	108-95-2	15-minute STEL (VLA-EC): 16 mg/m <sup>3</sup>
Sweden	2,2',2''-Nitrilotriethanol	102-71-6	Level Limit Value (NGV): 0.8 ppm (5 mg/m <sup>3</sup> )
	2,2',2''-Nitrilotriethanol	102-71-6	Short Term Limit (KTV): 1.6 ppm (10 mg/m <sup>3</sup> )
	Piperazine	110-85-0	Level Limit Value (NGV): 0.1 mg/m <sup>3</sup> (0.003 ppm)
	Piperazine	110-85-0	Ceiling Limit Value (TGV): 0.3 mg/m <sup>3</sup> (0.006 ppm)
	Phenol	108-95-2	Level Limit Value (NGV): 4 mg/m <sup>3</sup> (1 ppm)
	Phenol	108-95-2	Ceiling Limit Value (TGV): 16 mg/m <sup>3</sup> (4 ppm)
Brazil	2,2',2''-Nitrilotriethanol	102-71-6	8-hour Exposure Limit (TLV-TWA): 5 mg/m <sup>3</sup>
	Piperazine	110-85-0	8-Hour Exposure Limit (TLV-TWA): 0.03 ppm
	Phenol	108-95-2	8-Hour Exposure Limit (TLV-TWA): 15 mg/m <sup>3</sup> (4 ppm)
Canada	2,2',2''-Nitrilotriethanol	102-71-6	Alberta OELs - 8-Hour TWA Exposure Limit: 5 mg/m <sup>3</sup>
	2,2',2''-Nitrilotriethanol	102-71-6	British Columbia OELs - 8-Hour TWA Exposure Value: 5 mg/m <sup>3</sup>
	2,2',2''-Nitrilotriethanol	102-71-6	Manitoba OELs - 8-Hour Exposure Limit (TLV-TWA): 5 mg/m <sup>3</sup>
	2,2',2''-Nitrilotriethanol	102-71-6	Ontario OELs - 8-Hour TWA Exposure Value (TWA): 0.5 ppm (3.1 mg/m <sup>3</sup> )

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Country (Legal Basis)	Substance	Identifier	Permissible concentration
	2,2',2''-Nitrilotriethanol	102-71-6	Quebec OELs - 8-Hour TWA Exposure Value: 5 mg/m <sup>3</sup>
	2,2',2''-Nitrilotriethanol	102-71-6	Saskatchewan OELs - 8 Hour Average Contamination Limit: 5 mg/m <sup>3</sup>
	2,2',2''-Nitrilotriethanol	102-71-6	Saskatchewan OELs - 15 Minute Average Contamination Limit: 10 mg/m <sup>3</sup>
	Piperazine	110-85-0	British Columbia OELs - 8-Hour TWA Exposure Value: 0.3 mg/m <sup>3</sup>
	Piperazine	110-85-0	British Columbia OELs - 15-minute STEL: 1 mg/m <sup>3</sup>
	Piperazine	110-85-0	Manitoba OELs - 8-Hour Exposure Limit (TLV-TWA): 0.03 ppm
	Piperazine	110-85-0	Ontario OELs - 8-Hour TWA Exposure Value (TWA): 0.03 ppm
	Phenol	108-95-2	Alberta OELs - 8-Hour TWA Exposure Limit is: 19 mg/m <sup>3</sup> (5 ppm)
	Phenol	108-95-2	Manitoba OELs - 8-Hour Exposure Limit (TLV-TWA): 5 ppm
	Phenol	108-95-2	Ontario OELs - 8-Hour TWA Exposure Value (TWA): 5 ppm
	Phenol	108-95-2	Quebec OELs - 8-Hour TWA Exposure Value: 19 mg/m <sup>3</sup> (5 ppm)
	Phenol	108-95-2	Saskatchewan OELs - 8 hour average contamination limit: 5 ppm
	Phenol	108-95-2	15 minute average contamination limit: 7.5 ppm
Mexico	2,2',2''-Nitrilotriethanol	102-71-6	NOM-010-STPS-2014: Time Weighted Average Exposure Limit Value (VLE-PPT): 5 mg/m <sup>3</sup>
	Piperazine	110-85-0	Time Weighted Average Exposure Limit Value (VLE-PPT): 0.03 ppm
	Phenol	108-95-2	Time Weighted Average Exposure Limit Value (VLE-PPT): 5 ppm
Croatia	Piperazine	110-85-0	Maximum (8 hr) allowable concentration: 0.1 mg/m <sup>3</sup>
	Piperazine	110-85-0	Short-term (15 min) allowable concentration: 0.3 mg/m <sup>3</sup>
	Phenol	108-95-2	Maximum (8 hr) allowable concentration: 8 mg/m <sup>3</sup> (2 ppm)
	Phenol	108-95-2	Short-term (15 min) allowable concentration: 6 mg/m <sup>3</sup> (4 ppm)
Hungary	Piperazine	110-85-0	8-Hour TWA (ÁK Value): 0.1 mg/m <sup>3</sup>
	Piperazine	110-85-0	60-Minute STEL (CK Value): 0.3 mg/m <sup>3</sup>
	Phenol	108-95-2	8-Hour TWA (ÁK Value): 8 mg/m <sup>3</sup>



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	Phenol	108-95-2	60-Minute STEL (CK Value): 16 mg/m <sup>3</sup>
Malta	Piperazine	110-85-0	TWA: 0.1 mg/m <sup>3</sup>
	Piperazine	110-85-0	STEL: 0.3 mg/m <sup>3</sup>
	Phenol	108-95-2	TWA: 8 mg/m <sup>3</sup> (2 ppm)
	Phenol	108-95-2	STEL: 16 mg/m <sup>3</sup> (4 ppm)
Romania	Piperazine	110-85-0	8-hour TWA: 0.1 mg/m <sup>3</sup>
	Piperazine	110-85-0	15-minute STEL: 0.3 mg/m <sup>3</sup>
	Phenol	108-95-2	8-hour TWA: 8 mg/m <sup>3</sup> (2 ppm)
	Phenol	108-95-2	15-minute STEL: 16 mg/m <sup>3</sup> (4 ppm)
Slovakia	Piperazine	110-85-0	8-hour TWA (NPEL): 0.1 mg/m <sup>3</sup>
	Piperazine	110-85-0	15-minute STEL (NPEL): 0.3 mg/m <sup>3</sup>
	Phenol	108-95-2	8-hour TWA (NPEL): 8 mg/m <sup>3</sup> (2 ppm)
	Phenol	108-95-2	15-minute STEL (NPEL): 16 mg/m <sup>3</sup> (4 ppm)
European Union	Piperazine	110-85-0	Threshold limit: 0.1 mg/m <sup>3</sup>
	Piperazine	110-85-0	STEL: 0.3 mg/m <sup>3</sup>
	Phenol	108-95-2	15-minute STEL: 16 mg/m <sup>3</sup> (4 ppm)
	Phenol	108-95-2	8-hour TWA: 8 mg/m <sup>3</sup> (2 ppm)
Austria	Piperazine	110-85-0	TWA: 0.1 mg/m <sup>3</sup>
	Piperazine	110-85-0	STEL: 0.3 mg/m <sup>3</sup>
	Phenol	108-95-2	TWA: 8 mg/m <sup>3</sup> (2 ppm)
	Phenol	108-95-2	STEL: 16 mg/m <sup>3</sup> (4 ppm)
France	Piperazine	110-85-0	Time weighted average (VME): 0.1 mg/m <sup>3</sup>
	Piperazine	110-85-0	Short term exposure limit: 0.3 mg/m <sup>3</sup>
	Phenol	108-95-2	TWA (VME): 7.8 mg/m <sup>3</sup> (2 ppm)
	Phenol	108-95-2	STEL: 15.6 mg/m <sup>3</sup> (4 ppm)
Germany	Piperazine	110-85-0	Limit value: 0.1 mg/m <sup>3</sup>
Greece	Piperazine	110-85-0	8-hour TWA: 0.1 mg/m <sup>3</sup>
	Piperazine	110-85-0	15-minute STEL: 0.3 mg/m <sup>3</sup>
	Phenol	108-95-2	8-hour TWA: 8 mg/m <sup>3</sup> (2 ppm)
	Phenol	108-95-2	15-minute STEL: 16 mg/m <sup>3</sup> (4 ppm)
Luxembourg	Piperazine	110-85-0	TWA: 0.1 mg/m <sup>3</sup>
	Piperazine	110-85-0	STEL: 0.3 mg/m <sup>3</sup>
	Phenol	108-95-2	TWA: 8 mg/m <sup>3</sup> (2 ppm)
	Phenol	108-95-2	STEL: 16 mg/m <sup>3</sup> (4 ppm)
Netherlands	Piperazine	110-85-0	Binding 8-hour TWA: 0.1 mg/m <sup>3</sup>
	Piperazine	110-85-0	15-min. Binding STEL: 0.3 mg/m <sup>3</sup>

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	Phenol	108-95-2	The binding 8-hour TWA: 8 mg/m <sup>3</sup>
United Kingdom	Piperazine	110-85-0	TWA: 0.1 mg/m <sup>3</sup>
	Piperazine	110-85-0	STEL: 0.3 mg/m <sup>3</sup>
	Phenol	108-95-2	TWA: 7.8 mg/m <sup>3</sup> (2 ppm)
	Phenol	108-95-2	STEL: 16 mg/m <sup>3</sup> (4 ppm)
United States (OSHA)	Phenol	108-95-2	OSHA PEL TWA 19 mg/m <sup>3</sup> [skin]
	Phenol	108-95-2	OSHA PEL TWA 5 ppm [skin]
NIOSH	Phenol	108-95-2	NIOSH REL TWA 5 ppm [skin]
	Phenol	108-95-2	NIOSH REL TWA 19 mg/m <sup>3</sup> [skin]
	Phenol	108-95-2	NIOSH REL C 15.6 ppm [15-minute] [skin]
	Phenol	108-95-2	NIOSH REL C 60 mg/m <sup>3</sup> [15-minute] [skin]
China	Phenol	108-95-2	8-hour Time weighted average: 10 mg/m <sup>3</sup>
Japan	Phenol	108-95-2	TWA: 19 mg/m <sup>3</sup> (5 ppm)

### Biological limit values:

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

### Information on monitoring procedures:

Not determined or not applicable.

### Appropriate engineering controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor and mists below the applicable workplace exposure limits (Occupational Exposure Limits-OELs) indicated above.

### Personal protection equipment

#### Eye and face protection:

Safety goggles or glasses, or appropriate eye protection.

#### Skin and body protection:

Select glove material impermeable and resistant to the substance.

#### Respiratory protection:

When necessary, use NIOSH-approved breathing equipment.

### General hygienic measures:

Wash hands before breaks and at the end of work.

Avoid contact with skin, eyes and clothing.

Perform routine housekeeping.

Wash contaminated clothing before reusing.

## SECTION 9: Physical and chemical properties

### Information on basic physical and chemical properties

<b>Appearance (physical state, color):</b>	Amber colored viscous liquid
<b>Odor:</b>	Characteristic
<b>Odor threshold:</b>	Not determined or not available.

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<b>pH-value:</b>	Not determined or not available.
<b>Melting/Freezing point:</b>	Not determined or not available.
<b>Boiling point/range:</b>	Not determined or not available.
<b>Flash point:</b>	> 100 °C (> 212 °F)
<b>Evaporation rate:</b>	Not determined or not available.
<b>Flammability (solid, gaseous):</b>	Not determined or not available.
<b>Explosion limit upper:</b>	Not determined or not available.
<b>Explosion limit lower:</b>	Not determined or not available.
<b>Vapor pressure:</b>	Not determined or not available.
<b>Vapor density:</b>	Not determined or not available.
<b>Density:</b>	0.97 - 1.2 g/cm <sup>3</sup> @ 20 °C
<b>Relative density:</b>	Not determined or not available.
<b>Solubilities:</b>	Not determined or not available.
<b>Partition coefficient (n-octanol/water):</b>	Not determined or not available.
<b>Auto/Self-ignition temperature:</b>	> 200 °C (> 392 °F)
<b>Decomposition temperature:</b>	Not determined or not available.
<b>Dynamic viscosity:</b>	Not determined or not available.
<b>Kinematic viscosity:</b>	Not determined or not available.
<b>Explosive properties</b>	Not determined or not available.
<b>Oxidizing properties</b>	Not determined or not available.

### Other information

## SECTION 10: Stability and reactivity

### Reactivity:

Does not react under normal conditions of use and storage.

### Chemical stability:

Stable under normal conditions of use and storage.

### Possibility of hazardous reactions:

None under normal conditions of use and storage.

### Conditions to avoid:

None known.

### Incompatible materials:

None known.

### Hazardous decomposition products:

None known.

## SECTION 11: Toxicological information

### Acute toxicity

**Assessment:** Harmful if swallowed Harmful in contact with skin Harmful if inhaled

**Product data:** No data available.

**Substance data:**

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## CLX Hardener

Name	Route	Result
1-Piperazineethanamine	oral	LD50 - Chicken - 1,500 mg/kg
Isophorone diamine	oral	LD50 - Rat - 1,030 mg/kg
Benzyl Alcohol	oral	LD50 - Rat - 1,230 mg/kg
	inhalation	LD50 - Rat - > 4,178 mg/m <sup>3</sup>
1,3-Cyclohexanedimethanamine	oral	LD50 - Rat - 880 mg/kg
Phenol	oral	LD50 - Mouse - 270 mg/kg
	dermal	LD50 - Rabbit - 630 mg/kg
Nonyl phenol	oral	LD50 - Rat - 1,300 mg/kg

### Skin corrosion/irritation

**Assessment:** Causes severe skin burns and eye damage

**Product data:**

No data available.

**Substance data:**

Name	Result
Piperazine	Causes skin damage
1-Piperazineethanamine	Corrosive to the skin.
Isophorone diamine	Corrosive to the skin.
1,3-Cyclohexanedimethanamine	Corrosive to the skin.
1-Nonene	Irritating to the skin.
Phenol	Corrosive to the skin.
Nonyl phenol	Corrosive to the skin.

### Serious eye damage/irritation

**Assessment:** Causes serious eye damage

**Product data:**

No data available.

**Substance data:**

Name	Result
1-Nonene	Irritating effect on the eyes.
Nonyl phenol	Corrosive to the eyes.
Disodium 2,2'-([1,1'-biphenyl]-4,4'-diyldivethylene)bis(benzenesulphonate)	Irritating effect on the eyes.

### Respiratory or skin sensitization

**Assessment:** May cause an allergic skin reaction May cause allergy or asthma symptoms or breathing difficulties if inhaled

**Product data:**

No data available.

**Substance data:**

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## CLX Hardener

Name	Result
Piperazine	Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals
1-Piperazineethanamine	Sensitization possible through skin contact.
Isophorone diamine	Sensitization possible through skin contact.

### Carcinogenicity

**Assessment:** Based on available data, the classification criteria are not met.

**Product data:** No data available.

**Substance data:** No data available.

#### International Agency for Research on Cancer (IARC):

Name	Classification
2,2',2''-Nitrilotriethanol	Group 3 - Not classifiable as to its carcinogenicity to humans

**National Toxicology Program (NTP):** None of the ingredients are listed.

### Germ cell mutagenicity

**Assessment:** Suspected of causing genetic defects

**Product data:**

No data available.

**Substance data:**

Name	Result
Phenol	In vitro tests showed mutagenic effects.

### Reproductive toxicity

**Assessment:** Suspected of damaging fertility or the unborn child

**Product data:**

No data available.

**Substance data:**

Name	Result
Piperazine	Suspected of damaging fertility or the unborn child.
Nonyl phenol	Suspected human reproductive toxicant.

### Specific target organ toxicity (single exposure)

**Assessment:** Based on available data, the classification criteria are not met.

**Product data:**

No data available.

**Substance data:**

Name	Result
1-Nonene	Component affects the respiratory system.
Phenol	May cause damage to organs through prolonged or repeated exposure.

### Specific target organ toxicity (repeated exposure)

**Assessment:** May cause damage to organs through prolonged or repeated exposure

**Product data:**

No data available.

**Substance data:** No data available.

### Aspiration toxicity

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**Assessment:** Based on available data, the classification criteria are not met.

**Product data:**

No data available.

**Substance data:** No data available.

**Information on likely routes of exposure:**

No data available.

**Symptoms related to the physical, chemical and toxicological characteristics:**

No data available.

**Other information:**

No data available.

## SECTION 12: Ecological information

### Acute (short-term) toxicity

**Assessment:** Toxic to aquatic life

**Product data:** No data available.

**Substance data:**

Name	Result
Isophorone diamine	LC50 - Daphnia magna (Water flea) - 17.4 mg/L - 48 h
1,3-Cyclohexanedimethanamine	static test EC50 - Daphnia magna (Water flea) - 33.1 mg/l - 48 h
	static test EC50 - Pseudokirchneriella subcapitata (green algae) - 56.7 mg/l - 72h
Nonyl phenol	flow-through test LC50 - Lepomis macrochirus - 0.209 mg/l - 96 h
	semi-static test EC50 - Daphnia magna (Water flea) - 0.0844 mg/l - 48 h
	static test EC50 - Selenastrum capricornutum (green algae) - 0.33 mg/l - 72 h

### Chronic (long-term) toxicity

**Product data:** No data available.

**Substance data:** No data available.

### Persistence and degradability

**Product data:** No data available.

**Substance data:** No data available.

### Bioaccumulative potential

**Product data:** No data available.

**Substance data:** No data available.

### Mobility in soil

**Product data:** No data available.

**Substance data:** No data available.

**Other adverse effects:** No data available.

## SECTION 13: Disposal considerations

### Disposal methods:

It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities (US 40CFR262.11)

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## CLX Hardener

### SECTION 14: Transport information



#### Canadian Transportation of Dangerous Goods (TDG)

UN number	2735
UN proper shipping name	Amines, liquid, corrosive, n.o.s. (Isophorone diamine)
UN transport hazard class(es)	8  
Packing group	III
Environmental hazards	Marine Pollutant
Special precautions for user	None

#### International Maritime Dangerous Goods (IMDG)

UN number	2735
UN proper shipping name	Amines, liquid, corrosive, n.o.s. (Isophorone diamine)
UN transport hazard class(es)	8  
Packing group	III
Environmental hazards	Marine Pollutant
Special precautions for user	None
EmS number	F-A, S-B
Excepted quantities	30mL inner pckg; 1L outer pckg
Limited quantity	5L

#### International Air Transport Association Dangerous Goods Regulations (IATA-DGR)

UN number	2735
UN proper shipping name	Amines, liquid, corrosive, n.o.s. (Isophorone diamine)
UN transport hazard class(es)	8  
Packing group	III
Environmental hazards	Marine Pollutant
Special precautions for user	None
Excepted quantities	30mL inner pckg; 1L outer pckg
Limited quantity	1L

### SECTION 15: Regulatory information

#### Canada regulations

##### Domestic substances list (DSL):

102-71-6	2,2',2''-Nitrilotriethanol	Listed
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110-85-0	Piperazine	Listed
140-31-8	1-Piperazineethanamine	Listed
2855-13-2	Isophorone diamine	Listed
100-51-6	Benzyl Alcohol	Listed
2579-20-6	1,3-Cyclohexanedimethanamine	Listed
124-11-8	1-Nonene	Not Listed
108-95-2	Phenol	Listed
84852-15-3	Nonyl phenol	Listed
27344-41-8	Disodium 2,2'-([1,1'-biphenyl]-4,4'-diyldivinylene)bis(benzenesulphonate)	Listed

### Non-domestic substances list (NDSL):

124-11-8	1-Noene	Listed
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## SECTION 16: Other information

**Abbreviations and Acronyms:** None

### Disclaimer:

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations. The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

**NFPA:** 3-0-0

**HMIS:** 3-0-0

**Initial preparation date:** 03.02.2018

**End of Safety Data Sheet**