

# SAFETY DATA SHEET

## 1. IDENTIFICATION

- 1.1 Product identifier  
 Trade name : **PSC 2304 Flexible Exterior Epoxy Hardener Part "B"**:  
 Chemical name : Blend of Phenols and Amines
- 1.2 Recommended use of the product and restrictions on use  
 Recommended use : Industrial Use  
 Non- recommended use(s) : None known
- 1.3 Details of the supplier of the safety data sheet  
 Company : Polymer Science Corporation.  
 : Unit 1133, 6027 – 79 Avenue S.E  
 : Calgary, Alberta. Canada T2C 5P1  
 Telephone : 403 287 2751  
 Fax : 403 287 2766  
 Website : www.polymersciencecorp.com
- 1.4 Emergency telephone number  
 Emergency : In case of emergency call CANUTEC: 613-996-6666

## 2. HAZARD IDENTIFICATION

- 2.1 Classification of the substance or mixture  
 Acute Toxicity oral : Category 4  
 Acute Toxicity dermal : Category 3  
 Skin Corrosion / irritation : Category 1B  
 Eye Damage / Eye Irritation : Category 1  
 Acute Aquatic toxicity : Category 3  
 Chronic Aquatic toxicity : Category 2
- 2.2 Label Elements  
 Symbol :



- Signal word : **Danger**
- Hazard statement : **Harmful if swallowed**  
**Toxic in contact with skin**  
**Causes severe skin burns and eye damage**  
**May cause an allergic skin reaction**  
**Harmful if inhaled**  
**May cause respiratory irritation**  
**Harmful to aquatic life with long lasting effects**
- Precautionary Statements : **Wear protective gloves / protective clothing / eye protection / face protection.**  
**Use only outdoors or in a well ventilated area.**  
**Do not eat, drink or smoke when using this product**  
**Wash with plenty of water and soap thoroughly after handling**  
**Avoid release to the environment**  
**Avoid breathing fume / vapors/ spray.**

## 3 COMPOSITION / INFORMATION ON INGREDIENTS

- 3.1 Substances  
 --
- 3.2 Mixtures

**Flexible Exterior / HARDENER**  
**HAZARDOUS INGREDIENTS**  
 Nonylphenol

**C.A.S.#**  
 84852153

**WEIGHT %**  
 30 - 70

Polyoxyalkyleneamine	90-46-100	10 - 40
Isophoronediamine	3236-53-1	10 - 40
N-Aminoethylpiperazine	140-31-8	5 - 25

#### 4 FIRST AID MEASURES

<b>EYE CONTACT:</b>	Small amounts splashed into the eyes can cause irreversible tissue damage and blindness. Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. If eye irritation persists: Get medical attention. Continue rinsing eyes during transport to hospital. Protect unharmed eye. Keep eye wide open while rinsing.
<b>SKIN CONTACT:</b>	If on skin or hair, take off immediately all contaminated clothing and shoes. Rinse skin, washing thoroughly with soap and water. Do not use solvents or thinners to clean skin. Get medical attention if irritation persists. Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty
<b>INHALATION:</b>	If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician.
<b>INGESTION:</b>	Clean mouth with water and drink afterwards plenty of water. Keep respiratory tract clear. Never give anything by mouth to an unconscious person. Do not induce vomiting unless directed by a physician. Do not give milk or alcoholic beverages Immediately call a POISON CENTER / Doctor

#### 5 FIRE-FIGHTING MEASURES

- 5.1 Extinguishing media**  
 Suitable extinguishing media : Dry chemical, CO2, water spray or regular foam  
 Unsuitable extinguishing media : Full water jet, because this may spread the fire.
- 5.2 Hazards**  
 Flammable properties and hazards : Product is not considered a fire hazard. Containers can build up pressure if exposed to heat.  
 Hazardous combustion products : Hazardous decomposition products formed under fire conditions are Carbon dioxide, Carbon monoxide and Nitrogen oxides. Phenol and other toxic vapors may be generated  
 Specific hazards during fire-fighting : Do not allow run-off from fire-fighting to enter drains or water courses.
- 5.3 Fire-fighting instructions:**  
 Do not inhale combustion gases. Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

#### 6 ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions, protective equipment and emergency procedures.**  
 Use personal protective equipment. Wear chemical safety glasses, rubber boots and heavy rubber gloves.  
 Ensure adequate ventilation. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform the respective authorities.
- 6.2 Environmental precautions**  
 Do not allow to enter drains, waterways, sewers, basements or confined areas.  
 Do not discharge into the subsoil / soil. Absorb spills with inert material and place in a chemical waste container.3
- 6.3 Methods and materials for containment and cleaning up**  
 Soak up with inert absorbent material (e.g. sand, silica gel, universal binder, sawdust) Keep in suitable, closed containers for disposal.

#### 7 HANDLING AND STORAGE

- 7.1 Precautions for safe handling**  
 Avoid all personal contact. Use personal protective equipment. Use adequate ventilation. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator.
- 7.2 Hygiene considerations.**  
 Wash hands before breaks and after work. Remove soiled or soaked clothing immediately. Wash contaminated clothes before reuse. Do not eat, drink or smoke when handling this product. Remove contaminated clothing and protective equipment before entering eating areas.
- 7.3 Safe storage procedures**  
 Keep away from heat. Keep containers tightly closed in a dry well ventilated place. Empty containers retain product residue and can be hazardous.

#### 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

##### 8.1 EXPOSURE LIMITS

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	OTHER LIMIST
Nonylphenol	84852153	No data	No data	No data
Polyoxyalkyleneamine	90-46-100			
Isophoronediamine	3236-53-1			
N-Aminoethylpiperazine	140-31-8	No data	No data	No data

##### 8.2 EXPOSURE CONTROLS ENGINEERING CONTROLS

Use local exhaust ventilation to maintain airborne concentrations at safe levels. Suitable respiratory equipment should be used in cases of insufficient ventilation or where demand it.

##### PERSONAL PROTECTIVE EQUIPMENT

- Respiratory Equipment : Wear a NIOSH-certified (or equivalent) organic vapour and ammonia / particulate respirator.  
 Eye Protection : Use tightly fitting chemical splash goggles. Wear face shield if splashing hazard exists.  
 Hand Protection : Use impermeable gloves. Neoprene or butyl-rubber gloves  
 Body Protection : Use impervious clothing and chemical resistant boots. Consider using resistant coveralls and aprons, if extensive exposure is possible.  
 Other Protective Equipment : Ensure that eyewash stations and safety showers are close to the workstation location.

General Hygiene Consideration : Do not breathe mist or vapor. Avoid all contact. Do not eat, drink, or smoke when using this product. Wash thoroughly after handling. Remove and wash contaminated clothing before re-use. Do not take contaminated clothes home.

Environmental Exposure Controls : Avoid runoff into storm sewers and ditches which lead to waterways. May be hazardous to the environment if released in large quantities

## 9 PHYSICAL AND CHEMICAL PROPERTIES

### Appearance:

Physical State : Liquid. (Oily liquid)  
 Color : Clear, slightly yellow.  
 Odor : Ammonia-like.

### Properties

Vapor Pressure : Not Applicable  
 Vapor Density : Not Applicable  
 Boiling Point : Not Applicable  
 Melting Point : Not available.  
 Flash Point : Not available.  
 PH : 10  
 Specific Gravity : 1.0 – 1.2 g/ cm<sup>3</sup>  
 Viscosity : 2500 cP  
 VOC content : 0  
 Evaporation rate : Slower than n-Butyl Acetate  
 Solubility in water : Negligible

## 10 STABILITY AND REACTIVITY

Chemical Stability : Stable under normal conditions

Incompatibility with various substances : Strong oxidizing agents, acids, halogenated compounds, ammonia, carbon monoxide, carbon dioxide, Aldehydes, ketones. Reacts also with copper, aluminum, zinc and their alloys.

Hazardous Polymerization : Will not occur under normal conditions

Conditions to avoid : High temperatures, Direct sunlight.

Hazardous decomposition products : Carbon dioxide, Carbon monoxide, nitrogen oxides.

## 11 TOXICOLOGICAL INFORMATION

### 11.1 Acute toxicity

Ingredient Name	Test	Species	Result	Exposure
Nonyl Phenol	LD50 Dermal	Rabbit	2140 mg/Kg	
	LD50 Oral	Rat	580 mg/Kg	
	Sub-acute NOAEL Oral	Rat –Male, Female	100 mg/Kg	28 days; 7 days per week
Polyoxyalkyleneamine	Sub-chronic NOAEL Oral	Rat – Male, Female	50 mg/Kg	28 days;
	LD50 Dermal	Rabbit- Male, Female	2980 mg/Kg	
Isophoronediamine	LD50 Oral	Rat – Male, Female	2885 mg/Kg	
	LD50 Oral	Rat	1030 mg/Kg	
N-Aminoethylpiperazine	Dermal		No data available	
	LD50 Oral	Rat	2000 – 5000 mg/Kg	
	LD50 Dermal	Rabbit	200 – 1000 mg/Kg	

### 11.2 Skin Corrosion and / or irritation

Nonylphenol	Corrosive to the skin. Causes burns
Polyoxyalkyleneamine	Corrosive to the skin. Causes burns
Isophoronediamine	Corrosive to the skin.
N-Aminoethylpiperazine	Symptoms may be delayed. Toxic in contact with skin. May cause an allergic skin reaction. Causes severe skin burns.

### 11.3 Eye Damage or irritation

Nonylphenol	
Polyoxyalkyleneamine	Corrosive to eyes. Causes burns
Isophoronediamine	Species: Rabbit. Result: Risk of serious damage to eyes. Method: OECD guideline 405
N-Aminoethylpiperazine	Causes serious eye damage

### 11.4 Respiratory and skin sensitization.

Nonylphenol	Route: Skin. Species: Guinea pig. Result: Not sensitizing.
Polyoxyalkyleneamine	Route: Skin. Species: Guinea pig. Result: Not sensitizing.
Isophoronediamine	Guinea pig sensitization test. Species: Guinea pig. Result: Sensitizing. Method: OECD guideline 406
N-Aminoethylpiperazine	May cause sensitization by skin contact

### 11.5 Germ cell mutagenicity

Nonylphenol	Test: OECD 476 in vitro Mammalian cell gene Mutation test Experiment: In vitro. Subject: Mammalian animal Metabolic activation:+/- Result: Negative.
Polyoxyalkyleneamine	No known significant effects or critical hazards.
Isophoronediamine	Experimental / calculated data: Ames-test. No mutagenic effects reported. Micronucleus assay: No mutagenic effects reported.
N-Aminoethylpiperazine	Genotoxicity in vitro: Ames test result: Negative. Genotoxicity in vivo: Result: No evidence of genotoxic effects in vivo.

### 11.6 Carcinogenicity

For the ingredients in this product, No known significant effects or critical hazards.

### 11.7 Reproductive Toxicity

No known significant effects or critical hazards

### 11.8 Specific Target Organs Effect

May cause damage to the kidneys

### 11.9 Aspiration hazards

No aspiration hazard expected.

## 12 ECOLOGICAL INFORMATION

### 12.1 Environmental Effects

:Very toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment. It is biodegradable, but has a lot of potential for bioaccumulation. Water polluting material. May be harmful to the environment if released in large quantities.

### 12.2 Aquatic Ecotoxicity

Substance	Test	Result	Species	Exposure
NonylPhenol		Acute EbC50 (biomass)0.0563 mg/L Fresh water	Algae	72 hours Static
		Acute EC50 0.085 mg/L Fresh water	Daphnia	48 hours Static
		Chronic EbC10 0.0033 mg/L Fresh water	Algae	72 hours Static
		Chronic NOEC 0.0047 mg/L Fresh water	Fish	33 days
		Chronic NOEC 0.024 mg/L Fresh water	Daphnia	21 days Semi-static
Polyoxyalkyleneamine		Acute LC50>220 mg/L	Fish	96 hours
Isophoronediamine	Acute. Directive 84/449/EEC	LC50 :110 mg/L	Leuciscus idus	96 hours Semistatic
	Chronic	Study scientifically not justified	Fish	
	Acute OECD Guideline 202	EC50: 23 mg/L	Daphnia magna	48 hours Static
		EC50: 388 mg/L	Chaetogammarus marinus	48 hours Semi-static
	Chronic Directive: OECD Guideline202	NOEC: 3 mg/L	Daphnia magna	21 days
	Directive 88/301/EEC	EC50 > 50 mg/L	Green Algae	72 hours
	DIN 28412	EC10: 1120 mg/L	Bacterium	18 hours
N-Aminoethylpiperazine		LC50:>100 mg/L	Pimephales prometas (fathead minnow)	96 hours
		EC50> 10-100 mg/L	Daphnia magna (water flea)	48 hours
		EC50:> 100 mg/L	Pseudokirchneriella subcapitata (green algae)	72 hours

### 12.3 Persistence and degradability

Substance	Result	Method	Dose
Nonylphenol	62% inherent- 28 days	OECD Ready Biodegradability- Manometric Respirometry test	31 mg/L Oxygen consumption
	53% Inherent -28 days	OECD 301B Ready Biodegradability CO2 Evolution test	12.2 mg/L Carbon dioxide production
Polyoxyalkyleneamine	7.23% Inherent-28 days	OECD 301B Biodegradability-CO2 Evolution Test	Inoculum: Activated sludge
Isophoronediamine	Not readily biodegradable by OECD Criteria	Directive 92/69 EEC, C.4-A (aerobic) DOC Reduction.	Degree of elimination: 8% (28 days)
N-Aminoethylpiperazine	Not readily biodegradable	OECD Test Guideline 301D	

### 12.4 Bioaccumulation

Substance	LogPow: 3.8 to 4.77	Potential: High
Nonylphenol		
Polyoxyalkyleneamine	No data available	
Isophoronediamine	Based on the Log Pow	Accumulation in organisms is not to be expected.
N-Aminoethylpiperazine	No data available	

### 12.5 Mobility in Soil

Nonylphenol	No Data Available
-------------	-------------------

Polyoxyalkyleneamine	No Data Available
Isophoronediamine	Transport between environmental compartments: Calculated Adsorption/water – soil KOC: 928 log KOC: 2.97
N-Aminoethylpiperazine	No Data Available

## 12.6 Other Adverse effects

Substance	
Isophoronediamine	Due to the pH-value of the product, neutralization is generally required before discharging sewage into treatment plants. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.
N-AminoEthylpiperazine	Biochemical Oxygen Demand (BOD) <60 % BOD, 28 days, Closed Bottle Test (OECD 301D)

## 13 DISPOSAL CONSIDERATIONS

### Waste Disposal Method

Incinerate or dispose of unused material, residues and containers in a licensed facility in accordance with all applicable local, state and federal regulations. Do not discharge substance/product into sewage system. Do not contaminate pond, waterways or ditches with chemical or used container. The product should not be allowed to enter drains, water courses or the soil.

## 14 TRANSPORTATION INFORMATION

14.1 Identification, UN number	: UN 2735
14.2 Shipping Name	: Amines Liquid, Corrosive, N.O.S
14.3 Hazard Class	: 8
14.4 Packing Group	: III

## 15 OTHER INFORMATION

Preparation Date	: March 10, 2017
SDS prepared by	: Polymer Science Corp. 403 287 2751

The information is furnished without warranty, representation, inducement, license of any kind, except that it is accurate to the best of Polymer Science Corporation's knowledge or obtained from sources believed by to be accurate and Polymer Science Corporation does not assume any legal responsibility for use or reliance on same. Customers are encouraged to do their own tests.