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Not available.

### Aspiration hazard

Not available.

**Information on the likely routes of exposure** : Not available.

### Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : Causes severe burns. May cause an allergic skin reaction.
- Ingestion** : May cause burns to mouth, throat and stomach.

### Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
  - pain
  - watering
  - redness
- Inhalation** : Adverse symptoms may include the following:
  - reduced fetal weight
  - increase in fetal deaths
  - skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
  - pain or irritation
  - redness
  - blistering may occur
  - reduced fetal weight
  - increase in fetal deaths
  - skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
  - stomach pains
  - reduced fetal weight
  - increase in fetal deaths
  - skeletal malformations

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

#### Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

### Potential chronic health effects

## Section 11. Toxicological information

Product/ingredient name	Test	Endpoint	Species	Result
Polyoxypropylenediamine	OECD 411 Subchronic Dermal Toxicity: 90-day Study	Sub-chronic NOAEL Dermal	Rat - Male, Female	250 mg/kg/d
	OECD 407 Repeated Dose 28-day Oral Toxicity Study in Rodents	Sub-chronic NOAEL Oral	Rat - Male, Female	239 mg/kg/d
Diethylenetriamine	OECD	Sub-chronic NOEL Oral	Rat - Male, Female	70 to 80 mg/kg/d
	No official guidelines	Chronic NOAEL Dermal	Rat - Male, Female	114 mg/kg/d
	No official guidelines	Sub-acute NOEC Inhalation Vapor	Rat - Male, Female	550 mg/m <sup>3</sup>
Triethylenetetramine	OECD 408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	Sub-chronic NOAEL Oral	Rat - Male, Female	50 mg/kg/d
Bisphenol A	OECD 407 Repeated Dose 28-day Oral Toxicity Study in Rodents	Sub-chronic LOAEL Oral	Rat - Male, Female	600 mg/kg
	Unknown guidelines	Sub-chronic NOEC Inhalation Dusts and mists	Rat - Male, Female	10 mg/m <sup>3</sup>
Tetraethylenepentamine	No official guidelines	Sub-chronic NOAEL Oral	Rat - Male, Female	50 mg/kg/d
	OECD 410 Repeated Dose Dermal Toxicity: 21/28-day Study	Sub-acute NOAEL Dermal	Rabbit - Male, Female	50 mg/kg/d

- General** : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : Suspected of damaging fertility.

### Numerical measures of toxicity

#### Acute toxicity estimates

Route	ATE value
Oral	12035.4 mg/kg
Dermal	10217.6 mg/kg
Inhalation (dusts and mists)	5.062 mg/l

**Other information** : Not available.

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Test	Endpoint	Exposure	Species	Result
Polyoxypropylenediamine	OECD 202 <i>Daphnia</i> sp. Acute Immobilisation Test ISO	Acute EC50	48 hours Static	Daphnia	80 mg/l
		Acute EC50	48 hours Static	Daphnia	418.34 mg/l
	OECD 203 Fish, Acute Toxicity Test	Acute EC50	96 hours Semi-static	Fish	>15 mg/l
	OECD 201 Alga, Growth Inhibition Test	Acute ErC50 (growth rate)	72 hours Static	Algae	15 mg/l
	OECD 203 Fish, Acute Toxicity Test	Acute LC50	96 hours Static	Fish	772.14 mg/l
	OECD 208 Seedling Emergence and Seedling Growth Test	Chronic EC50	3 hours Static	Bacteria	750 mg/l
	OECD 201 Alga, Growth Inhibition Test	Chronic NOEC	72 hours Static	Algae	0.32 mg/l
	OECD 209 Activated Sludge, Respiration Inhibition Test	Chronic NOEC	3 hours Static	Bacteria	310 mg/l
	ISO 10253:2006 - Marine algal growth inhibition test with <i>Skeletonema costatum</i> and <i>Phaeodactylum tricornutum</i>	Chronic NOECb	72 hours Static	Algae	100 mg/l
	Diethylenetriamine	EU EC C.1 Acute Toxicity for Fish	Acute LC50	96 hours Semi-static	Fish
Triethylenetetramine	EPA OPPTS EPA OTS 797.1400	Acute LC50	96 hours Static	Fish	330 mg/l
Bisphenol A	-	Acute EC50	96 hours	Algae	2.5 to 3.1 mg/l
	-	Acute EC50	48 hours	Daphnia	3.9 to 10. mg/l
	-	Acute LC50	96 hours	Fish	7.5 mg/l
Tetraethylenepentamine	EPA OPPTS	Chronic NOEC	444 days Flow-through	Fish	0.016 mg/l
	No official guidelines	Acute EC50	2 hours Static	Bacteria	97.3 mg/l
	EU EC C.2 Acute Toxicity for <i>Daphnia</i>	Acute EC50	48 hours Static	Daphnia	24.1 mg/l
	OECD 201 Alga, Growth Inhibition Test	Acute ErC50 (growth rate)	72 hours Static	Algae	6.8 mg/l
	EU EC C.1 Acute Toxicity for Fish	Acute LC50	96 hours Semi-static	Fish	420 mg/l
	No official guidelines	Chronic EC10	2 hours Static	Bacteria	46 mg/l
	OECD 201 Alga, Growth Inhibition	Chronic NOEC	72 hours Static	Algae	0.5 mg/l

## Section 12. Ecological information

	Test				
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### Persistence and degradability

Product/ingredient name	Test	Period	Result
Polyoxypropylenediamine	OECD 301B Ready Biodegradability - CO <sub>2</sub> Evolution Test	28 days	0 %
Diethylenetriamine	OECD 301D Ready Biodegradability - Closed Bottle Test	21 days	87 %
Triethylenetetramine	OECD 302A Inherent Biodegradability: Modified SCAS Test	84 days	20 %
Bisphenol A	OECD 301D Ready Biodegradability - Closed Bottle Test	162 days	0 %
Tetraethylenepentamine	-	28 days	1 to 2 %
	OECD 302A Inherent Biodegradability: Modified SCAS Test	84 days	17 %

**Conclusion/Summary** : Polyoxypropylenediamine Not biodegradable  
 Diethylenetriamine Readily biodegradable  
 Triethylenetetramine Not biodegradable

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Polyoxypropylenediamine	Fresh water 360 days	0.02 to 0.03 day(s)	Not readily
Diethylenetriamine	-	50%; 0.11 day(s)	Readily
Bisphenol A	-	-	Not readily
Tetraethylenepentamine	-	-	Not readily

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Polyoxypropylenediamine	1.34	-	low
Diethylenetriamine	-1.58	0.3 to 6.3	low
Triethylenetetramine	-2.65	99	low
Tetraethylenepentamine	-3.16	-	low

### Mobility in soil

Not available.

**Other adverse effects** : No known significant effects or critical hazards.

### Other ecological information

**BOD<sub>5</sub>** : Not determined.  
**COD** : Not determined.  
**TOC** : Not determined.

## Section 13. Disposal considerations

**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when

## Section 13. Disposal considerations




handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.


## Section 14. Transport information

### Proper shipping name

- DOT** : POLYAMINES, SOLID, CORROSIVE, N.O.S. (POLYOXYPROPYLENEDIAMINE, DIETHYLENETRIAMINE). Marine pollutant
- TDG** : POLYAMINES, SOLID, CORROSIVE, N.O.S. (POLYOXYPROPYLENEDIAMINE, DIETHYLENETRIAMINE). Marine pollutant
- IMDG** : POLYAMINES, SOLID, CORROSIVE, N.O.S. (POLYOXYPROPYLENEDIAMINE, DIETHYLENETRIAMINE). Marine pollutant
- IATA** : POLYAMINES, SOLID, CORROSIVE, N.O.S. (POLYOXYPROPYLENEDIAMINE, DIETHYLENETRIAMINE)

Regulatory information	UN number	Classes	PG*	Label	Additional information
<b>DOT Classification</b>	UN3259	8	III		Marine pollutants are only regulated for bulk and vessel shipments, per 49CFR171.4 (c) Exceptions. Except when all or part of the transportation is by vessel, the requirements of this subchapter specific to marine pollutants do not apply to non-bulk packagings transported by motor vehicle, rail car or aircraft.
<b>TDG Classification</b>	UN3259	8	III		-
<b>IMDG Classification</b>	UN3259	8	III		<b>Emergency schedules (EmS)</b> F-A, S-B

## Section 14. Transport information

<b>IATA Classification</b>	UN3259	8	III		<b><u>Passenger and Cargo Aircraft</u></b> Quantity limitation: 25 kg Packaging instructions: 860 <b><u>Cargo Aircraft Only</u></b> Quantity limitation: 100 kg Packaging instructions: 864
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PG\* : Packing group

## Section 15. Regulatory information

### Safety, health and environmental regulations specific for the product

#### United States Regulations

**TSCA 8(b) inventory** : All components are listed or exempted.

**TSCA 5(a)2 final significant new use rule (SNUR)** : No ingredients listed.

**TSCA 5(e) substance consent order** : No ingredients listed.

**TSCA 12(b) export notification** : No ingredients listed.

**SARA 311/312** : Immediate (acute) health hazard  
Delayed (chronic) health hazard

**Clean Air Act - Ozone Depleting Substances (ODS)** : This product does not contain nor is it manufactured with ozone depleting substances.

	<u>Product name</u>	<u>Concentration %</u>
<b>SARA 313 Form R - Reporting requirements</b>	: Bisphenol A	1.7478

**CERCLA Hazardous substances** : No ingredients listed.

#### State regulations

**PENNSYLVANIA - RTK** : Bisphenol A, Diethylenetriamine, Triethylenetetramine, Amorphous silica

**California Prop 65** : **WARNING:** This product contains less than 0.1% of a chemical known to the State of California to cause cancer.  
**WARNING:** This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.



## Section 15. Regulatory information

<u>Ingredient name</u>	<u>Cancer</u>	<u>Reproductive</u>
Ethylbenzene	Yes.	No.
Toluene	No.	Yes.

### Canadian regulations

**CEPA DSL** : All components are listed or exempted.

**WHMIS Classes** : Class D-2B: Material causing other toxic effects (Toxic).  
Class E: Corrosive material

**This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.**

### Brazil Regulations

**Classification system used** : Norma ABNT-NBR 14725-2:2012

### International lists

: **Australia inventory (AICS)**: At least one component is not listed.  
**China inventory (IECSC)**: All components are listed or exempted.  
**Japan inventory**: At least one component is not listed.  
**Korea inventory**: Not determined.  
**Malaysia Inventory (EHS Register)**: Not determined.  
**New Zealand Inventory of Chemicals (NZIoC)**: At least one component is not listed.  
**Philippines inventory (PICCS)**: At least one component is not listed.  
**Taiwan inventory (CSNN)**: Not determined.

## Section 16. Other information

**Hazardous Material Information System (U.S.A.)** :

<b>Health</b>	3
<b>Flammability</b>	1
<b>Physical hazards</b>	1
<b>Personal protection</b>	

**The customer is responsible for determining the PPE code for this material.**

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**National Fire Protection Association (U.S.A.)** :



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