

Section 11. Toxicological information

Reproductive toxicity

Conclusion/Summary : Triethylene tetramine In accordance with column 2 of Annex VII - X of Regulation (EC) No 1907/2006, the test for this property of the substance does not need to be conducted.

Teratogenicity

Product/ingredient name	Test	Species	Result/Result type
Triethylene tetramine	OECD 414 Prenatal Developmental Toxicity Study	Rat	Negative - Oral
	OECD 414 Prenatal Developmental Toxicity Study	Rabbit	Negative - Dermal

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

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 skin irritation. 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** : No specific data.
- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
- Ingestion** : Adverse symptoms may include the following:
stomach pains

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

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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

Product/ingredient name	Test	Endpoint	Species	Result
Triethylene tetramine	OECD 408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	Sub-chronic NOAEL Oral	Rat - 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 : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	9347.5 mg/kg
Dermal	7981.5 mg/kg

Other information : Not available.

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Toxicity

Product/ingredient name	Test	Endpoint	Exposure	Species	Result
Triethylene tetramine	No official guidelines	Acute EC50	30 minutes Static	Bacteria	800 mg/l
	EU EC C.2 Acute Toxicity for Daphnia	Acute EC50	48 hours Static	Daphnia	31.1 mg/l
	OECD 201 Alga, Growth Inhibition Test	Acute ErC50 (growth rate)	72 hours Semi-static	Algae	20 mg/l
	EPA OPPTS EPA OTS 797.1400	Acute LC50	96 hours Static	Fish	330 mg/l
	No official guidelines	Chronic EC10	30 minutes Static	Bacteria	42.5 mg/l
	OECD OECD 202:	Chronic EC10	21 days	Daphnia	1.9 mg/l

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	Part II (Daphnia sp., Reproduction Test OECD 201 Alga, Growth Inhibition Test	Chronic NOECr	Semi-static 72 hours Semi-static	Algae	<2.5 mg/l
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Persistence and degradability

Product/ingredient name	Test	Period	Result
Triethylene tetramine	OECD 302A Inherent Biodegradability: Modified SCAS Test	84 days	20 %
	OECD 301D Ready Biodegradability - Closed Bottle Test	162 days	0 %

Conclusion/Summary : Dimer fatty acid (c18) polyamidoamine resin Not readily biodegradable.
Triethylene tetramine Not biodegradable

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Triethylene tetramine	-2.65	99	low

Mobility in soil

Not available.

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

Other ecological information

BOD5 : 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 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** : TRIETHYLENETETRAMINE SOLUTION. Marine pollutant (Dimer fatty acid (c18) polyamidoamine resin)
- TDG** : TRIETHYLENETETRAMINE SOLUTION. Marine pollutant (Dimer fatty acid (c18) polyamidoamine resin)
- IMDG** : TRIETHYLENETETRAMINE SOLUTION. Marine pollutant (Dimer fatty acid (c18) polyamidoamine resin)
- IATA** : TRIETHYLENETETRAMINE SOLUTION

Regulatory information	UN number	Classes	PG*	Label	Additional information
DOT Classification	UN2259	8	II	 	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.
TDG Classification	UN2259	8	II	 	-
IMDG Classification	UN2259	8	II	 	Emergency schedules (EmS) F-A S-B

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IATA Classification	UN2259	8	II		<u>Passenger and Cargo Aircraft</u> Quantity limitation: 1 L Packaging instructions: 851 <u>Cargo Aircraft Only</u> Quantity limitation: 30 L Packaging instructions: 855
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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

	<u>Product name</u>	<u>Concentration %</u>
Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)	: Glass oxide	38.8

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

SARA 313 : No ingredients listed.

CERCLA Hazardous substances : No ingredients listed.

State regulations

PENNSYLVANIA - RTK : Triethylenetetramine, triethylenetetramine, ALUMINIUM HYDROXIDE

California Prop 65 : This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

Canadian regulations

CEPA DSL : All components are listed or exempted.

Section 15. Regulatory information

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)**: All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: All components are listed or exempted.
Korea inventory: All components are listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Taiwan inventory (CSNN): Not determined.

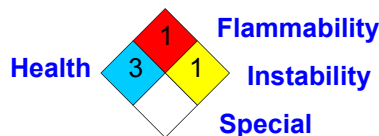
Section 16. Other information

Hazardous Material Information System (U.S.A.) :	Health	3
	Flammability	1
	Physical hazards	1
	Personal protection	

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

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

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



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Section 16. Other information

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✔ Indicates information that has changed from previously issued version.

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