

SAFETY DATA SHEET

LOCTITE EA 3801 PTB

Infosafe No.: HXSYA
ISSUED Date : 17/06/2021
ISSUED by: HENKEL AUSTRALIA PTY LTD

1. Identification

GHS Product Identifier

LOCTITE EA 3801 PTB

Company name

HENKEL AUSTRALIA PTY LTD

Address135-141 Canterbury Road Kilsyth
VIC 3137 AUSTRALIA**Telephone/Fax Number**

Tel: +61 (3) 9724 6444

Emergency phone number

24 HOUR EMERGENCY CONTACT NUMBER: 1800 032 379

Recommended use of the chemical and restrictions on use

Part B of 2-Component Epoxy Adhesive.

2. Hazard Identification

GHS classification of the substance/mixture

Skin Corrosion/Irritation: Category 1B

Sensitization - Skin: Category 1

Eye Damage/Irritation: Category 1

Toxic to Reproduction: Category 1B

Hazardous to the Aquatic Environment - Acute Hazard: Category 3

Hazardous to the Aquatic Environment - Long-Term Hazard: Category 3

Signal Word (s)

DANGER

Hazard Statement (s)

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H360 May damage fertility or the unborn child.

H412 Harmful to aquatic life with long lasting effects.

Pictogram (s)

Corrosion, Health hazard, Exclamation mark

**Precautionary statement – Prevention**

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P264 Wash contaminated skin thoroughly after handling.

P272 Contaminated work clothing should not be allowed out of the workplace.

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P280 Wear protective gloves/protective clothing/eye protection/face protection.

P273 Avoid release to the environment.

P281 Use personal protective equipment as required.

Precautionary statement – Response

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.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

P363 Wash contaminated clothing before reuse.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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.

Precautionary statement – Storage

P405 Store locked up.

Precautionary statement – Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations.

Other Information

Dangerous Goods information:

Classified as Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code).

3. Composition/information on ingredients

Information on Composition

General chemical description:

Organic amine

Resins

Type of preparation:

Accelerator for epoxy systems

Ingredients

Name	CAS	Proportion
2-Piperazin-1-ylethylamine	140-31-8	10-<30 %
2,4,6-tris(dimethylaminomethyl)phenol	90-72-2	3-<5 %
Silica, amorphous, fumed, cryst.-free	112945-52-5	<10 %
2-(2-aminoethylamino)ethanol	111-41-1	1-<3 %
2,2'-iminodiethylamine	111-40-0	1-<3 %
2-Piperazin-1-ylethanol	103-76-4	1-<3 %
Non hazardous ingredients~		60-<=100 %
3,6-diazaoctanethylenediamin	112-24-3	5-<10 %

4. First-aid measures

Inhalation

If inhaled, immediately remove the affected person to fresh air.

Keep warm and in a quiet place.

Get medical attention.

Ingestion

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Do not induce vomiting.
Have victim rinse mouth thoroughly with water.
Get medical attention.

Skin

Immediately flush skin with plenty of water (using soap, if available).
Remove contaminated clothing and footwear.
Get medical attention.
Wash clothing before reuse.

Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Get medical attention.

First Aid Facilities

Eye wash and safety shower
Normal washroom facilities

Indication of immediate medical attention and special treatment needed if necessary

Treat symptomatically and supportively.

5. Fire-fighting measures

Suitable Extinguishing Media

Water spray (fog), foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media

Water spray jet

Hazards from Combustion Products

Thermal decomposition can lead to release of irritating gases and vapors.
carbon monoxide
Carbon dioxide
Oxides of nitrogen.

Special Protective Equipment for fire fighters

Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA). Wear full protective clothing.

Specific Methods

In case of fire, keep containers cool with water spray. Collect contaminated fire fighting water separately. It must not enter drains.

Hazchem Code

2X

6. Accidental release measures

Methods And Materials For Containment And Cleaning Up

Evacuate and ventilate spill area; dike spill to prevent entry into water system; wear full protective equipment during clean-up.
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Scrape up as much material as possible.
Store in a partly filled, closed container until disposal.

Personal Precautions

Ensure adequate ventilation.
Avoid contact with skin and eyes.
Wear appropriate personal protective equipment.

Environmental Precautions

Do not allow product to enter sewer or waterways.

7. Handling and storage

Precautions for Safe Handling

Use only with adequate ventilation.

Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling.

Wear suitable protective clothing, safety glasses and gloves.

Keep container closed.

Conditions for safe storage, including any incompatibilities

Store only in the original container.

Store in a cool, dry place.

Keep away from heat and direct sunlight.

Ensure that storage and workrooms are adequately ventilated.

8. Exposure controls/personal protection

Occupational exposure limit values

Ingredient [Regulated substance]: DIETHYLENE TRIAMINE 111-40-0

TWA (ppm): 1

TWA (mg/m³): 4.2

Ingredient [Regulated substance]: SILICA, AMORPHOUS: FUMED SILICA (RESPIRABLE DUST) 112945-52-5

form of exposure: Respirable dust

TWA (mg/m³): 2

Ingredient [Regulated substance]: FUMED SILICA (RESPIRABLE DUST) 112945-52-5

form of exposure: Respirable dust

TWA (mg/m³): 2

Ingredient [Regulated substance]: Nuisance dusts, inhalable dust 112945-52-5

form of exposure: Inhalable dust.

TWA (mg/m³): 10

Appropriate engineering controls

Ensure good ventilation/suction at the workplace.

Respiratory Protection

If inhalation risk exists, wear a respirator or air supplied mask complying with the requirements of AS/NZS 1715 and AS/NZS 1716.

Eye Protection

For eye protection, use tightly fitted safety goggles and a face-shield

Body Protection

Skin protection:

Use chemical resistant, impermeable clothing including gloves and either an apron or body suit to prevent skin contact.

The use of chemical resistant gloves such as Nitrile is recommended.

9. Physical and chemical properties

Properties	Description	Properties	Description
Form	Liquid	Appearance	Opaque Liquid
Odour	Amine-like	Boiling Point	>149°C >300.2°F
Specific Gravity	1.04	pH	> 7
Vapour Pressure	< 5 mm hg (; 20 °C (68 °F))	Density	1.04 g/cm ³
Flash Point	>93°C (Tag Closed Cup) >199.4°C (Tag Closed Cup)		

Other Information

VOC content: < 3 % (2010/75/EC)

10. Stability and reactivity

Chemical Stability

Stable under normal conditions of temperature and pressure.

Conditions to Avoid

Excessive heat.

Heat, flames, sparks and other sources of ignition.

Store away from incompatible materials.

Incompatible materials

Reaction with strong oxidants.

Reaction with strong acids.

Reaction with some curing agents may produce an exothermic reaction which in large masses could cause runaway polymerization.

Hazardous Decomposition Products

Thermal decomposition can lead to release of irritating gases and vapors.

carbon monoxide

Carbon dioxide

Oxides of nitrogen.

11. Toxicological Information

Toxicology Information

Repeated dose toxicity:

Hazardous components: 2-piperazin-1-ylethylamine

CAS-No.: 140-31-8

Result: NOAEL=2000 ppm

Route of application: oral: drinking water

Exposure time / Frequency of treatment: >= 28 ddaily

Species: rat

Method: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)

Hazardous components: 3,6-diazaoctanethylenediamine

CAS-No.: 112-24-3

Result: LOAEL=50 mg/kg

Route of application: oral: gavage

Exposure time / Frequency of treatment: 26 wdaily

Species: rat

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Method: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)

Hazardous components: 3,6-diazaoctanethylenediamine

CAS-No.: 112-24-3

Result: LOAEL=50 mg/kg

Route of application: oral: gavage

Exposure time / Frequency of treatment: 26 wdaily

Species: rat

Method: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)

Hazardous components: 2-(2-Aminoethylamino)ethanol

CAS-No.: 111-41-1

Result: LOAEL>= 250 mg/kg

Route of application: oral: gavage

Exposure time / Frequency of treatment: 28 daysdaily

Species: rat

Method: Guidelines for 28-Day Repeat Dose Toxicity Test (Japan)

Hazardous components: 2-(2-Aminoethylamino)ethanol

CAS-No.: 111-41-1

Result: NOAEL=1,000 mg/kg

Exposure time / Frequency of treatment: 4 weeks6 hours/day, 5 days/week

Species: rat

Method: EPA Guideline

Hazardous components: 2,2'-Iminodi(ethylamine)

CAS-No.: 111-40-0

Result: NOAEL=70 - 80 mg/kg

Route of application: oral: feed

Exposure time / Frequency of treatment: 90 ddaily

Species: rat

Hazardous components: 2,2'-Iminodi(ethylamine)

CAS-No.: 111-40-0

Result: NOAEL=0.55 mg/l

Route of application: inhalation: vapour

Exposure time / Frequency of treatment: 15 d6 h/d

Species: rat

Acute Toxicity - Oral

Hazardous components: 3,6-diazaoctanethylenediamine

CAS-No.: 112-24-3

Value type: LD50

Value: 1,591 mg/kg

Route of application: oral

Species: rat

Method: OECD Guideline 401 (Acute Oral Toxicity)

Hazardous components: 2,4,6-Tris(dimethylaminomethyl)phenol

CAS-No.: 90-72-2

Value type: LD50

Value: 1,200 mg/kg

Route of application: oral

Species: rat

Method: not specified

Hazardous components: Silica, amorphous, fumed, cryst.-free

CAS-No.: 112945-52-5

Value type: LD50

Value: >5,000 mg/kg

Route of application: oral

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Species: rat
Method: OECD Guideline 401 (Acute Oral Toxicity)

Hazardous components: 2,2'-Iminodi(ethylamine)
CAS-No.: 111-40-0
Value type: LD50
Value: 1,553 mg/kg
Route of application: oral
Species: rat
Method: OECD Guideline 401 (Acute Oral Toxicity)

Hazardous components: 2-(2-Aminoethylamino)ethanol
CAS-No.: 111-41-1
Value type: LD50
Value: 2,150 mg/kg
Route of application: oral
Species: rat
Method: BASF Test

Hazardous components: 2-Piperazin-1-ylethanol
CAS-No.: 103-76-4
Value type: LD50
Value: 4,244 mg/kg
Route of application: oral
Species: rat
Method: OECD Guideline 401 (Acute Oral Toxicity)

Acute Toxicity - Inhalation

Hazardous components: Silica, amorphous, fumed, cryst.-free
CAS-No.: 112945-52-5
Value type: LC0
Value: 0.139 mg/l
Route of application: inhalation
Exposure time: 4h
Species: rat
Method: not specified

Hazardous components: 2,2'-Iminodi(ethylamine)
CAS-No.: 111-40-0
Value type: NOEL
Value: 0.07 mg/l
Route of application: inhalation
Species: rat
Method: OECD Guideline 403 (Acute Inhalation Toxicity)

Hazardous components: 2,2'-Iminodi(ethylamine)
CAS-No.: 111-40-0
Value type: Acute toxicity estimate (ATE)
Value: 0.07 mg/l
Route of application: inhalation
Species:
Method: Expert judgement

Acute Toxicity - Dermal

Hazardous components: 2-Piperazin-1-ylethylamine
CAS-No.: 140-31-8
Value type: LD50
Value: 866 mg/kg
Route of application: dermal
Species: rabbit
Method: Draize Test

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Hazardous components: Triethylenetetramine
CAS-No.: 112-24-3
Value type: LD50
Value: 1,465 mg/kg
Route of application: dermal
Species: rabbit
Method: OECD Guideline 402 (Acute Dermal Toxicity)

Hazardous components: Silica, amorphous, fumed, cryst.-free
CAS-No.: 112945-52-5
Value type: LD50
Value: > 2,000 mg/kg
Route of application: dermal
Species: rabbit
Method: OECD Guideline 402 (Acute Dermal Toxicity)

Hazardous components: 2-(2-Aminoethylamino)ethanol
CAS-No.: 111-41-1
Value type: LD50
Value: > 2,000 mg/kg
Route of application: dermal
Species: rabbit
Method: BASF Test

Hazardous components: 2,2'-Iminodi(ethylamine)
CAS-No.: 111-40-0
Value type: LD50
Value: 1,045 mg/kg
Route of application: dermal
Species: rabbit
Method: not specified

Hazardous components: 2-Piperazin-1-ylethanol
CAS-No.: 103-76-4
Value type: LD50
Value: > 5,000 mg/kg
Route of application: dermal
Species: rabbit
Method: not specified

Ingestion

If ingested, severe burns of the mouth and throat may occur, as well as perforation of the esophagus and the stomach.

Inhalation

Can cause severe irritation and burns to the respiratory tract.

Skin

Corrosive to skin. Symptoms may include redness, burning, drying, cracking and skin burns. May cause allergic skin reaction.

Eye

Contact with this product may cause severe eye damage. Contact with the eyes may cause moderate to severe eye injury. Eye contact may result in corneal injury. Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva.

Skin corrosion/irritation

Hazardous components: 2-Piperazin-1-ylethylamine
CAS-No.: 140-31-8
Result: corrosive
Exposure time: 20 min
Species: rabbit
Method: not specified

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Hazardous components: Triethylenetetramine
CAS-No.: 112-24-3
Result: corrosive
Species: rabbit
Method: OECD Guideline 404 (Acute Dermal Irritation / Corrosion)

Hazardous components: 2,4,6-Tris(dimethylaminomethyl)phenol
CAS-No.: 90-72-2
Result: corrosive
Exposure time: 4 h
Species: rabbit
Method: OECD Guideline 404 (Acute Dermal Irritation / Corrosion)

Hazardous components: Silica, amorphous, fumed, cryst.-free
CAS-No.: 112945-52-5
Result: not irritating
Exposure time: 4 h
Species: rabbit
Method: OECD Guideline 404 (Acute Dermal Irritation / Corrosion)

Hazardous components: 2-(2-Aminoethylamino)ethanol
CAS-No.: 111-41-1
Result: corrosive
Species: rabbit
Method: BASF Test

Hazardous components: 2,2'-Iminodi(ethylamine)
CAS-No.: 111-40-0
Result: corrosive
Exposure time: 15 min
Species: rabbit
Method: BASF Test

Serious eye damage/irritation

Hazardous components: Silica, amorphous, fumed, cryst.-free
CAS-No.: 112945-52-5
Result: not irritating
Species: rabbit
Method: OECD Guideline 405 (Acute Eye Irritation / Corrosion)

Hazardous components: 2-(2-Aminoethylamino)ethanol
CAS-No.: 111-41-1
Result: irritating
Species: rabbit
Method: BASF Test

Hazardous components: 2,2'-Iminodi(ethylamine)
CAS-No.: 111-40-0
Result: corrosive
Exposure time: 30 s
Species: rabbit
Method: BASF Test

Skin Sensitisation

Hazardous components: 2-Piperazin-1-ylethylamine
CAS-No.: 140-31-8
Result: sensitising
Test type: Guinea pig maximisation test
Species: guinea pig
Method: Magnusson and Kligman Method

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Hazardous components: Triethylenetetramine
CAS-No.: 112-24-3
Result: sensitising
Test type: Guinea pig maximisation test
Species: guinea pig
Method: Magnusson and Kligman Method

Hazardous components: 2,4,6-Tris(dimethylaminomethyl)phenol
CAS-No.: 90-72-2
Result: not sensitising
Test type: Buehler test
Species: guinea pig
Method: OECD Guideline 406 (Skin Sensitisation)

Hazardous components: 2,4,6-Tris(dimethylaminomethyl)phenol
CAS-No.: 90-72-2
Result: not sensitising
Test type: Guinea pig maximisation test
Species: guinea pig
Method: OECD Guideline 406 (Skin Sensitisation)

Hazardous components: 2-(2-Aminoethylamino)ethanol
CAS-No.: 111-41-1
Result: sensitising
Test type: Patch-Test
Species: guinea pig
Method: Patch Test

Hazardous components: 2,2'-Iminodi(ethylamine)
CAS-No.: 111-40-0
Result: sensitising
Test type: Mouse local lymphnode assay (LLNA)
Species: mouse
Method: OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)

Germ cell mutagenicity

Hazardous components: 2-piperazin-1-ylethylamine
CAS-No.: 140-31-8
Result: negative
Type of study / Route of administration: bacterial reverse mutation assay (e.g Ames test)
Metabolic activation / Exposure : with and without
Method: OECD Guideline 471 (Bacterial Reverse Mutation Assay)

Result: negative
Type of study / Route of administration: DNA damage and repair assay, unscheduled DNA synthesis in mammalian cells in vitro
Metabolic activation / Exposure : with and without
Method: not specified

Result: negative
Type of study / Route of administration: mammalian cell gene mutation assay
Metabolic activation / Exposure : with and without
Method: not specified

Hazardous components: 2-piperazin-1-ylethylamine
CAS-No.: 140-31-8
Result: negative
Type of study / Route of administration: intraperitoneal
Species: Mouse
Method: not specified

Hazardous components: 3,6-diazaoctanethylenediamine

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CAS-No.: 112-24-3

Result: positive

Type of study / Route of administration: bacterial reverse mutation assay (e.g Ames test)

Metabolic activation / Exposure : with and without

Method: OECD Guideline 471 (Bacterial Reverse Mutation Assay)

Result: negative

Type of study / Route of administration: DNA damage and repair assay, unscheduled DNA synthesis in mammalian cells in vitro

Metabolic activation / Exposure : with and without

Method: OECD Guideline 482 (Genetic Toxicology: DNA Damage and Repair, Unscheduled DNA Synthesis in Mammalian Cells In Vitro)

Hazardous components: 3,6-diazaoctanethylenediamine

CAS-No.: 112-24-3

Result: negative

Type of study / Route of administration: intraperitoneal

Species: Mouse

Method: OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)

Hazardous components: 2,4,6-Tris(dimethylaminomethyl)phenol

CAS-No.: 90-72-2

Result: negative

Type of study / Route of administration: bacterial reverse mutation assay (e.g Ames test)

Metabolic activation / Exposure : with and without

Method: OECD Guideline 471 (Bacterial Reverse Mutation Assay)

Result: negative

Type of study / Route of administration: in vitro mammalian chromosome aberration test

Metabolic activation / Exposure : with and without

Method: OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)

Result: negative

Type of study / Route of administration: mammalian cell gene mutation assay

Metabolic activation / Exposure : with and without

Method: OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)

Hazardous components: Silica, amorphous, fumed, cryst.-free

CAS-No.: 112945-52-5

Result: negative

Type of study / Route of administration: bacterial reverse mutation assay (e.g Ames test)

Method: not specified

Result: negative

Type of study / Route of administration: in vitro mammalian chromosome aberration test

Method: not specified

Result: negative

Type of study / Route of administration: DNA damage and repair assay, unscheduled DNA synthesis in mammalian cells in vitro

Method: not specified

Hazardous components: 2-(2-Aminoethylamino)ethanol

CAS-No.: 111-41-1

Result: negative

Type of study / Route of administration: bacterial reverse mutation assay (e.g Ames test)

Metabolic activation / Exposure : with and without

Method: OECD Guideline 471 (Bacterial Reverse Mutation Assay)

Hazardous components: 2,2'-Iminodi(ethylamine)

CAS-No.: 111-40-0

Result: positive

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Type of study / Route of administration: bacterial reverse mutation assay (e.g Ames test)
Metabolic activation / Exposure : with and without
Method: OECD Guideline 471 (Bacterial Reverse Mutation Assay)

Result: negative

Type of study / Route of administration: in vitro mammalian chromosome aberration test
Metabolic activation / Exposure : with and without
Method: Chromosome Aberration Test

Hazardous components: 2,2'-Iminodi(ethylamine)

CAS-No.: 111-40-0

Result: negative

Type of study / Route of administration: oral: gavage

Metabolic activation / Exposure : mouse

Method: OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)

Result: negative

Type of study / Route of administration: oral: gavage

Metabolic activation / Exposure : mouse

Reproductive Toxicity

May damage fertility or the unborn child.

12. Ecological information

Ecological information

General ecological information:

Do not empty into drains, soil or bodies of water.

Persistence and degradability

Hazardous components: 2-Piperazin-1-ylethylamine

CAS-No.: 140-31-8

Result: under test conditions no biodegradation observed

Route of application: aerobic

Degradability: 0 %

Method: OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)

Hazardous components: Triethylenetetramine

CAS-No.: 112-24-3

Route of application: aerobic

Degradability: 0 %

Method: OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)

Hazardous components: 2-(2-Aminoethylamino)ethanol

CAS-No.: 111-41-1

Route of application: aerobic

Degradability: 13 - 29 %

Method: EU Method C.4-E (Determination of the "Ready" Biodegradability Closed Bottle Test)

Hazardous components: 2,2'-Iminodi(ethylamine)

CAS-No.: 111-40-0

Result: readily biodegradable

Route of application: aerobic

Degradability: 87 %

Method: OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)

Hazardous components: Triethylenetetramine

CAS-No.: 112-24-3

Result: under test conditions no biodegradation observed

Route of application: aerobic

Degradability: 0 %

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Method: OECD Guideline 302 B (Inherent biodegradability: Zahn-Wellens/EMPA Test)

Hazardous components: 2,4,6-Tris(dimethylaminomethyl)phenol

CAS-No.: 90-72-2

Result: Not readily biodegradable.

Degradability: 4.000000 %

Method: OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)

Hazardous components: 2,2'-Iminodi(ethylamine)

CAS-No.: 111-40-0

Result: inherently biodegradable

Route of application: aerobic

Degradability: 83 %

Method: EU Method C.9 (Biodegradation: Zahn-Wellens Test)

Bioaccumulative Potential

Hazardous components: 2-Piperazin-1-ylethylamine

CAS-No.: 140-31-8

LogKow: -1.48

Method: OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)

Hazardous components: 3,6-diazaoctanethylenediamine

CAS-No.: 112-24-3

LogKow: -2.65

Method: OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)

Hazardous components: 2,4,6-Tris(dimethylaminomethyl)phenol

CAS-No.: 90-72-2

LogKow: -0.66

Temperature: 21.5 °C

Method: EPA OPPTS 830.7550 (Partition Coefficient, n-octanol / H₂O, Shake Flask Method)

Hazardous components: 2-(2-Aminoethylamino)ethanol

CAS-No.: 111-41-1

LogKow: -1.37

Temperature: 25 °C

Method: EU Method A.8 (Partition Coefficient)

Hazardous components: 2,2'-Iminodi(ethylamine)

CAS-No.: 111-40-0

Bioconcentration factor (BCF): > 0.3 - < 6.3

Exposure time: 42 d

Species: Cyprinus carpio

Method: OECD Guideline 305 C (Bioaccumulation: Test for the Degree of Bioconcentration in Fish)

Hazardous components: 2,2'-Iminodi(ethylamine)

CAS-No.: 111-40-0

LogKow: -1.58

Temperature: 20 °C

Method: QSAR (Quantitative Structure Activity Relationship)

Hazardous components: 2-Piperazin-1-ylethano

CAS-No.: 103-76-4

LogKow: -1.56

Temperature: 25 °C

Method: not specified

Acute Toxicity - Fish

Hazardous components: 2-Piperazin-1-ylethylamine

CAS-No.: 140-31-8

Value type: LC50

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Value: > 100 mg/l
Acute Toxicity Study: Fish
Exposure time: 96 h
Species: *Salmo gairdneri* (new name: *Oncorhynchus mykiss*)
Method: OECD Guideline 203 (Fish, Acute Toxicity Test)

Hazardous components: 3,6-diazo octanethylenediamine
CAS-No.: 112-24-3
Value type: LC50
Value: 570 mg/l
Acute Toxicity Study: Fish
Exposure time: 96 h
Species: *Poecilia reticulata*
Method: OECD Guideline 203 (Fish, Acute Toxicity Test)

Hazardous components: 2,4,6-Tris(dimethylaminomethyl)phenol
CAS-No.: 90-72-2
Value type: LC50
Value: 153 mg/l
Acute Toxicity Study: Fish
Exposure time: 96 h
Species: *Brachydanio rerio* (new name: *Danio rerio*)
Method: ISO 7346-1 (Determination of the Acute Lethal Toxicity of Substances to a Freshwater Fish [*Brachydanio rerio* Hamilton-Buchanan (Teleostei, Cyprinidae)])

Hazardous components: Silica, amorphous, fumed, cryst.-free
CAS-No.: 112945-52-5
Value type: LC50
Value: > 10,000 mg/l
Acute Toxicity Study: Fish
Exposure time: 96 h
Species: *Brachydanio rerio* (new name: *Danio rerio*)
Method: OECD Guideline 203 (Fish, Acute Toxicity Test)

Hazardous components: 2-(2-Aminoethylamino)ethanol
CAS-No.: 111-41-1
Value type: LC50
Value: > 243 mg/l
Acute Toxicity Study: Fish
Exposure time: 48 h
Species: *Leuciscus idus*
Method: DIN 38412-15

Hazardous components: 2,2'-Iminodi(ethylamine)
CAS-No.: 111-40-0
Value type: LC50
Value: 430 mg/l
Acute Toxicity Study: Fish
Exposure time: 96 h
Species: *Poecilia reticulata*
Method: EU Method C.1 (Acute Toxicity for Fish)

Hazardous components: 2,2'-Iminodi(ethylamine)
CAS-No.: 111-40-0
Value type: NOEC
Value: > 10 mg/l
Acute Toxicity Study: Fish
Exposure time: 28 d
Species: *Gasterosteus aculeatus*
Method: OECD 210 Guideline (fish early life stage toxicity test)

Acute Toxicity - Daphnia

Hazardous components: 2-piperazin-1-ylethylamine
CAS-No.: 140-31-8
Value type: EC50
Value: 32 mg/l
Acute Toxicity Study: Daphnia
Exposure time: 48 h
Species: Daphnia magna
Method: OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)

Hazardous components: 3,6-diazaoct anethylenediamine
CAS-No.: 112-24-3
Value type: EC50
Value: 31 mg/l
Acute Toxicity Study: Daphnia
Exposure time: 48 h
Species: Daphnia magna
Method: OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)

Hazardous components: 2,2'-Iminodi(ethylamine)
CAS-No.: 111-40-0
Value type: EC50
Value: 64.6 mg/l
Acute Toxicity Study: Daphnia
Exposure time: 48 h
Species: Daphnia magna
Method: EU Method C.2 (Acute Toxicity for Daphnia)

Hazardous components: 2-(2-Aminoethylamino)ethanol
CAS-No.: 111-41-1
Value type: EC50
Value: 22 mg/l
Acute Toxicity Study: Daphnia
Exposure time: 48 h
Species: Daphnia magna
Method: OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)

Hazardous components: 2-Piperazin-1-ylethanol
CAS-No.: 103-76-4
Value type: EC50
Value: 384 mg/l
Acute Toxicity Study: Daphnia
Exposure time: 48 h
Species: Daphnia magna
Method: not specified

Acute Toxicity - Algae

Hazardous components: 2-Piperazin-1-ylethylamine
CAS-No.: 140-31-8
Value type: NOEC
Value: 31 mg/l
Acute Toxicity Study: Algae
Exposure time: 72 h
Species: Selenastrum capricornutum (new name: Pseudokirchnerella subcapitata)
Method: OECD Guideline 201 (Alga, Growth Inhibition Test)

Hazardous components: 2-Piperazin-1-ylethylamine
CAS-No.: 140-31-8
Value type: EC50
Value: 495 mg/l

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Acute Toxicity Study: Algae
Exposure time: 72 h
Species: *Selenastrum capricornutum* (new name: *Pseudokirchnerella subcapitata*)
Method: OECD Guideline 201 (Alga, Growth Inhibition Test)

Hazardous components: 2-(2-Aminoethylamino)ethanol
CAS-No.: 111-41-1
Value type: EC50
Value: 210 mg/l
Acute Toxicity Study: Algae
Exposure time: 72 h
Species: *Scenedesmus subspicatus* (new name: *Desmodesmus subspicatus*)
Method: OECD Guideline 201 (Alga, Growth Inhibition Test)

Hazardous components: Triethylenetetramine
CAS-No.: 112-24-3
Value type: EC50
Value: 20 mg/l
Acute Toxicity Study: Algae
Exposure time: 72 h
Species: *Selenastrum capricornutum* (new name: *Pseudokirchnerella subcapitata*)
Method: OECD Guideline 201 (Alga, Growth Inhibition Test)

Hazardous components: Triethylenetetramine
CAS-No.: 112-24-3
Value type: EC10
Value: < 2.5 mg/l
Acute Toxicity Study: Algae
Exposure time: 72 h
Species: *Selenastrum capricornutum* (new name: *Pseudokirchnerella subcapitata*)
Method: OECD Guideline 201 (Alga, Growth Inhibition Test)

Hazardous components: 2-Piperazin-1-ylethylamine
CAS-No.: 140-31-8
Value type: EC50
Value: 495 mg/l
Acute Toxicity Study: Algae
Exposure time: 72 h
Species: *Selenastrum capricornutum* (new name: *Pseudokirchnerella subcapitata*)
Method: OECD Guideline 201 (Alga, Growth Inhibition Test)

Hazardous components: 2,4,6-Tris(dimethylaminomethyl)phenol
CAS-No.: 90-72-2
Value type: EC50
Value: 84 mg/l
Acute Toxicity Study: Algae
Exposure time: 72 h
Species: *Scenedesmus subspicatus* (new name: *Desmodesmus subspicatus*)
Method: OECD Guideline 201 (Alga, Growth Inhibition Test)

Hazardous components: 2,4,6-Tris(dimethylaminomethyl)phenol
CAS-No.: 90-72-2
Value type: NOEC
Value: 6.25 mg/l
Acute Toxicity Study: Algae
Exposure time: 72 h
Species: *Desmodesmus subspicatus*
Method: OECD Guideline 201 (Alga, Growth Inhibition Test)

Hazardous components: 2-(2-aminoethylamino)ethanol

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CAS-No.: 111-41-1
Value type: EC50
Value: 358 mg/l
Acute Toxicity Study: Algae
Exposure time: 72 h
Species: *Desmodesmus subspicatus*
Method: DIN 38412-09

Hazardous components: 2-(2-aminoethylamino)ethanol
CAS-No.: 111-41-1
Value type: EC10
Value: 156 mg/l
Acute Toxicity Study: Algae
Exposure time: 72 h
Species: *Desmodesmus subspicatus*
Method: DIN 38412-09

Hazardous components: 2,2'-Iminodi(ethylamine)
CAS-No.: 111-40-0
Value type: EC50
Value: 1,164 mg/l
Acute Toxicity Study: Algae
Exposure time: 72 h
Species: *Selenastrum capricornutum* (new name: *Pseudokirchnerella subcapitata*)
Method: OECD Guideline 201 (Alga, Growth Inhibition Test)

Hazardous components: 2,2'-Iminodi(ethylamine)
CAS-No.: 111-40-0
Value type: NOEC
Value: 10 mg/l
Acute Toxicity Study: Algae
Exposure time: 72 h
Species: *Selenastrum capricornutum* (new name: *Pseudokirchnerella subcapitata*)
Method: OECD Guideline 201 (Alga, Growth Inhibition Test)

Acute Toxicity - Bacteria

Hazardous components: 2-Piperazin-1-ylethylamine
CAS-No.: 140-31-8
Value type: EC10
Value: 100 mg/l
Acute Toxicity Study: Bacteria
Exposure time: 17 h

Hazardous components: Triethylenetetramine
CAS-No.: 112-24-3
Value type: EC0
Value: 137 mg/l
Acute Toxicity Study: Bacteria
Exposure time: 30 min

Hazardous components: 2,4,6-Tris(dimethylaminomethyl)phenol
CAS-No.: 90-72-2
Value type: EC0
Value: 27 mg/l
Acute Toxicity Study: Bacteria
Exposure time: 16 h

Hazardous components: 2,2'-Iminodi(ethylamine)
CAS-No.: 111-40-0
Value type: NOEC
Value: 6 mg/l

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Acute Toxicity Study: Bacteria
Exposure time: 3 h
Species: anaerobic bacteria
Method: not specified

Hazardous components: 2-(2-Aminoethylamino)ethanol
CAS-No.: 111-41-1
Value type: ECO
Value: 82.2 mg/l
Acute Toxicity Study: Bacteria
Exposure time: 17 h
Species: Pseudomonas putida
Method: DIN 38412, part 8 (Pseudomonas Zellvermehrungshemm-test)

13. Disposal considerations

Disposal considerations

Disposal for uncleaned package:
Packaging that cannot be cleaned are to be disposed of in the same manner as the product.

Waste Disposal

Dispose of according to Federal, State and local governmental regulations.

14. Transport information

U.N. Number

3267

UN proper shipping name

CORROSIVE LIQUID, BASIC, ORGANIC, NOS(Triethylenetetramine,Aminoethylpiperazine)

Transport hazard class(es)

8

Packing Group

II

Hazchem Code

2X

IERG Number

37

UN Number (Air Transport, ICAO)

3267

IATA/ICAO Proper Shipping Name

CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.(Triethylenetetramine,Aminoethylpiperazine)

IATA/ICAO Hazard Class

8

IATA/ICAO Packing Group

II

IMDG UN No

3267

IMDG Proper Shipping Name

CORROSIVE LIQUID BASIC, ORGANIC, N.O.S(Triethylenetetramine,Aminoethylpiperazine)

IMDG Hazard Class

8

IMDG Pack. Group

II

Other Information

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Road and Rail Transport:

Dangerous Goods information: Classified as Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code).

UN no.: 3267

Proper shipping name: CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (Triethylenetetramine,Aminoethylpiperazine)

Class or division: 8

Packing group: II

Hazchem code: 2X

Emergency information: Refer to the Dangerous Goods - Initial Emergency Response Guide HB 76.

Marine transport IMDG:

UN no.: 3267

Proper shipping name: CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (Triethylenetetramine,Aminoethylpiperazine)

Class or division: 8

Packing group: II

EmS: F-A ,S-B

Seawater pollutant: -

Air transport IATA:

UN no.: 3267

Proper shipping name: Corrosive liquid, basic, organic, n.o.s. (Triethylenetetramine,Aminoethylpiperazine)

Class or division: 8

Packing group: II

Packing instructions (passenger): 851

Packing instructions (cargo): 855

15. Regulatory information

Poisons Schedule

S5

16. Other Information

User Codes

User Title Label	User Codes
Wis Numbers	00699958

Revisions Highlighted

Reason for issue: New information added in Section(s): involved chapters: 1(Identification)-16(Other Information)

Other Information

Abbreviations/acronyms:

ADGC -Australian Dangerous Goods CodeGHS: Globally Harmonized Sy stem

CAS: Chemical Abstracts Service

NOAEL: No Observed Adverse Effect Level

LD 50: Lethal Dose 50%

OECD: Organization for Economic Coop eration and Develop ment

LC 50: Lethal Concentration 50%

IM DG: International M aritime Dangerous Goods code

IATA-DGR: International Air Transp ort Association –Dangerous Goods Regulations

STEL -Short term exp osure limit

TWA -Time weighted average

AIIC-Australian Inventory of Industrial Chemicals (AIIC)

AICIS-Australian Industrial Chemicals Introduction Scheme

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