SAFETY DATA SHEET according to the OSHA Hazard Communication Standard

Version 6.26
Revision Date 05/08/2026
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SECTION 1. IDENTIFICATION

1.1 Product identifiers

Product name : LSMLS Plate 1 (Water Soluble)

Product Number : LSMLS01
Brand : Sigma

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone number

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Hazards for the product as supplied

Skin irritation : Category 2

Serious eye damage : Category 1

Skin sensitisation : Category 1

Reproductive toxicity : Category 2

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Specific target organ toxicity - repeated exposure (Oral)	:	Category 2 (Kidney, Liver, Blood)

Other hazards

None known.

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H361 Suspected of damaging fertility or the unborn child.
H373 May cause damage to organs (Kidney, Liver, Blood) through prolonged or repeated exposure if swallowed.

Supplemental Hazard Statements : Corrosive to the respiratory tract.

Precautionary statements :

Prevention:

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust.
P264 Wash skin thoroughly after handling.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P302 + P352 IF ON SKIN: Wash with plenty of water.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

Storage:

P405 Store locked up.

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Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

CAS-No. : Not Assigned

Components

Chemical name	CAS No./Unique ID	Concentration (% w/w)	Trade secret
Diethanolamine	111-42-2*	>= 0.5 - <= 1.5	TSC
nicotinamide	98-92-0*	>= 0.5 - <= 1.5	TSC
succinic acid	110-15-6*	>= 0.5 - <= 1.5	TSC
N-[4-[[(2-Amino-1,4,5,6,7,8-hexahydro-4-oxo-6-pteridinyl)methyl]amino] benzoyl]-L-glutamic acid	135-16-0*	>= 0.5 - <= 1.5	TSC
(3R,4S,5R)-3,4,5-Trihydroxycyclohex-1-enecarboxylic acid	138-59-0*	>= 0.5 - <= 1.5	TSC
p-Hydroxyphenylacetic acid	156-38-7*	>= 0.5 - <= 1.5	TSC
Cys-Gly	19246-18-5*	>= 0.5 - <= 1.5	TSC
3,4-dihydroxy-L-phenylalanine (L-DOPA)	59-92-7*	>= 0.5 - <= 1.5	TSC
D-(+)-malic acid	636-61-3*	>= 0.5 - <= 1.5	TSC
2-Piperidone	675-20-7*	>= 0.5 - <= 1.5	TSC
γ-caprolactone	695-06-7*	>= 0.5 - <= 1.5	TSC
guanine	73-40-5*	>= 0.5 - <= 1.5	TSC
(1R)-1α,3α,4α,5ß-Tetrahydroxycyclohexane carboxylic acid-1	77-95-2*	>= 0.5 - <= 1.5	TSC
Glycolic acid	79-14-1*	>= 0.5 - <= 1.5	TSC
L-Dihydroorotic acid	5988-19-2*	>= 0.5 - <= 1.5	TSC

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5,6-Dihydroxyindole	3131-52-0*	>= 0.5 - <= 1.5	TSC
citric acid	77-92-9*	>= 0.5 - <= 1.5	TSC
nicotinic acid	59-67-6*	>= 0.5 - <= 1.5	TSC
N-acetylneuraminic acid	131-48-6*	>= 0.5 - <= 1.5	TSC
Hypotaurine	300-84-5*	>= 0.5 - <= 1.5	TSC
Pyrimidine dimer	25247-63-6*	>= 0.5 - <= 1.5	TSC

* Indicates that the identifier is a CAS No.
TSC- the actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice	:	Show this safety data sheet to the doctor in attendance.
If inhaled	:	After inhalation: fresh air.
In case of skin contact	:	In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.
In case of eye contact	:	After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.
If swallowed	:	After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.
Most important symptoms and effects, both acute and delayed	:	The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
Protection of first-aiders	:	For personal protection see section 8.
Notes to physician	:	No data available

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Water Foam Carbon dioxide (CO2) Dry powder

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Unsuitable extinguishing media	:	For this substance/mixture no limitations of extinguishing agents are given.
Specific hazards during fire fighting	:	Mixture with combustible ingredients. Combustible. Development of hazardous combustion gases or vapours possible in the event of fire.
Specific extinguishing methods	:	No data available
Further information	:	Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.
Special protective equipment for fire-fighters	:	Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert. Advice for emergency responders: For personal protection see section 8.
Environmental precautions	:	Do not let product enter drains.
Methods and materials for containment and cleaning up	:	Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

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SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

Further information on storage conditions	:	Tightly closed. Dry.
Storage class	:	11, Combustible Solids
Recommended storage temperature	:	-4 °F / -20 °C

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Diethanolamine	111-42-2	TWA (Inhalable fraction and vapor)	1 mg/m3	ACGIH
		TWA	3 ppm 15 mg/m3	NIOSH REL

Engineering measures : No data available

Personal protective equipment

Respiratory protection : required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: : Filter type P2

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Hand protection

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Material	:	Nitrile rubber
Break through time	:	480 min
Glove thickness	:	0.11 mm
Protective index	:	Full contact
Manufacturer	:	KCL 741 Dermatril® L

Material	:	Nitrile rubber
Break through time	:	480 min
Glove thickness	:	0.11 mm
Protective index	:	Splash contact
Manufacturer	:	KCL 741 Dermatril® L

Remarks	:	Handle with impervious gloves. This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Eye protection	:	Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles
Skin and body protection	:	protective clothing
Hygiene measures	:	Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	solid
Color	:	No data available
Odor	:	No data available
Odor Threshold	:	No data available
pH	:	No data available
Melting point	:	No data available
Boiling point/boiling range	:	No data available
Flash point	:	No data available

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Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Flammability (liquids)	:	No data available
Burning rate	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	No data available
Relative vapour density	:	No data available
Relative density	:	No data available
Density	:	No data available
Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Flow time	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available
Particle characteristics Particle size	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion

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potential may generally be assumed.

Chemical stability	:	The product is chemically stable under standard ambient conditions (room temperature) .
Possibility of hazardous reactions	:	Violent reactions possible with: Strong oxidizing agents
Conditions to avoid	:	no information available
Incompatible materials	:	No data available
Hazardous decomposition products	:	In the event of fire: see section 5

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Mixture

Acute toxicity
Acute toxicity estimate Oral - 100 mg/kg
(Calculation method)
Acute toxicity estimate Oral - > 5,000 mg/kg
(Calculation method)
Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.
Acute toxicity estimate Inhalation - 4 h - 83.5 mg/l - dust/mist(Calculation method)

Symptoms: Possible symptoms:, mucosal irritations
Acute toxicity estimate Dermal - 300 mg/kg
(Calculation method)
Acute toxicity estimate Dermal - > 5,000 mg/kg
(Calculation method)

Skin corrosion/irritation
Remarks: Mixture causes skin irritation.

Serious eye damage/eye irritation
Remarks: Mixture causes serious eye damage.

Respiratory or skin sensitization
Mixture may cause an allergic skin reaction.

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Diethanolamine)
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

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Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Stomach - Irregularities - Based on Human Evidence

Liver - Irregularities - Based on Human Evidence

Kidney - Irregularities - Based on Human Evidence

Components

Diethanolamine

Acute toxicity
LD50 Oral - Rat - male and female - 1,600 mg/kg
(OECD Test Guideline 401)
Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.
Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: irritating
(OECD Test Guideline 404)
Remarks: (Regulation (EC) No 1272/2008, Annex VI)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Causes serious eye damage.
(OECD Test Guideline 405)
Remarks: (Regulation (EC) No 1272/2008, Annex VI)

Respiratory or skin sensitization
Maximisation Test - Guinea pig

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Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
Test Type: Ames test
Test system: Escherichia coli/Salmonella typhimurium
Result: negative
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: rat hepatocytes
Result: negative
Test Type: sister chromatid exchange assay
Test system: Chinese hamster ovary cells
Result: negative
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster ovary cells
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: Mouse lymphoma test
Result: negative
Method: OECD Test Guideline 474
Species: Mouse - male and female
Result: negative

Carcinogenicity
No data available

Reproductive toxicity
Suspected of damaging the unborn child.
Suspected of damaging fertility.

Specific target organ toxicity - single exposure
No data available
Acute oral toxicity - Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Specific target organ toxicity - repeated exposure
Ingestion - May cause damage to organs through prolonged or repeated exposure.
- Kidney, Liver, Blood
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Dermal - Kidney

Aspiration hazard
No data available

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nicotinamide

Acute toxicity
LD50 Oral - Rat - male and female - > 2,500 mg/kg
(OECD Test Guideline 423)
LC50 Inhalation - Rat - male and female - 4 h - > 3.8 mg/l - dust/mist
(OECD Test Guideline 436)
LD50 Dermal - Rabbit - male and female - > 2,000 mg/kg
(OECD Test Guideline 402)

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 4 h
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitization
Maximisation Test - Guinea pig
Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Human lymphocytes
Result: negative
Method: OECD Test Guideline 474
Species: Mouse - male and female - Bone marrow
Result: negative

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

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succinic acid

Acute toxicity
LD50 Oral - Rat - male and female - > 6,740 mg/kg
(OECD Test Guideline 401)
Remarks: The value is given in analogy to the following substances: Butanedioic acid, sodium salt (1:1)
LC50 Inhalation - Rat - male and female - 4 h - > 1.284 mg/l - dust/mist
(OECD Test Guideline 403)
Remarks: The value is given in analogy to the following substances: fumaric acid
Dermal: No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 4 h
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Irreversible effects on the eye - 24 h
(OECD Test Guideline 405)

Respiratory or skin sensitization
Maximisation Test - Guinea pig
Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
No data available

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure

Aspiration hazard
No data available

N-[4-[[(2-Amino-1,4,5,6,7,8-hexahydro-4-oxo-6-pteridinyl)methyl]amino]benzoyl]-L-glutamic acid

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
Remarks: No data available

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Serious eye damage/eye irritation
Remarks: No data available

Respiratory or skin sensitization
Direct Peptide Reactivity Assay (DPRA) - Skin proteins
May cause allergic skin reaction.
(OECD Test Guideline 442C)
Remarks: (ECHA)

Germ cell mutagenicity
No data available

Carcinogenicity
No data available

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

(3R,4S,5R)-3,4,5-Trihydroxycyclohex-1-enecarboxylic acid

Acute toxicity
LD50 Oral - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 423)
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
Skin - In vitro study
Result: No skin irritation
(OECD Test Guideline 439)

Serious eye damage/eye irritation
Eyes - In vitro study
Result: Corrosive - 240 min
(OECD Test Guideline 437)

Respiratory or skin sensitization
Local lymph node assay (LLNA) - Mouse

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Result: negative
(OECD Test Guideline 429)

Germ cell mutagenicity
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

p-Hydroxyphenylacetic acid

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available
LD50 Intraperitoneal - Mouse - 3,500 mg/kg

Skin corrosion/irritation
Remarks: No data available

Serious eye damage/eye irritation
Remarks: No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
No data available

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

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Cys-Gly

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
Remarks: Moderate eye irritation

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
No data available

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

3,4-dihydroxy-L-phenylalanine (L-DOPA)

Acute toxicity
LD50 Oral - Rat - 1,780 mg/kg
Remarks: Behavioral:Excitement.
Behavioral:Ataxia.
Behavioral:Aggression.
(RTECS)
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
Remarks: Causes skin irritation.

Serious eye damage/eye irritation
Remarks: Causes serious eye irritation.

Respiratory or skin sensitization
No data available

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Germ cell mutagenicity
No data available

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

D-(+)-malic acid

Acute toxicity
LDLO Oral - Rat - 5,500 mg/kg
Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
Remarks: No data available

Serious eye damage/eye irritation
Remarks: No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
No data available

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

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2-Piperidone

Acute toxicity
LD50 Oral - Rat - 6,400 mg/kg
Remarks: (External MSDS)
LDLo Oral - Rat - 11,000 mg/kg
Remarks: (RTECS)
Inhalation: No data available
Dermal: No data available
LD50 Intravenous - Rat - > 3,000 mg/kg

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation
Remarks: (External MSDS)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Eye irritation
Remarks: (External MSDS)

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

γ-caprolactone

Acute toxicity
LD50 Oral - Rat - > 5,000 mg/kg
Inhalation: No data available
LD50 Dermal - Rabbit - > 5,000 mg/kg
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Mild skin irritation - 24 h

Serious eye damage/eye irritation
Remarks: Irritating to eyes.

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Remarks: No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
No data available

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

guanine

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
Remarks: Causes skin irritation.

Serious eye damage/eye irritation
Remarks: Causes serious eye irritation.

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

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(1R)-1α,3α,4α,5ß-Tetrahydroxycyclohexane carboxylic acid-1

Acute toxicity
LD50 Oral - Rat - male and female - 3,265 mg/kg
Remarks: (ECHA)
The value is given in analogy to the following substances: cyclohexanecarboxylic acid
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
Eyes - Bovine cornea
Result: Moderate eye irritation
(OECD Test Guideline 437)

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative
Remarks: (ECHA)

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Glycolic acid

Acute toxicity
LD50 Oral - Rat - male and female - 2,040 mg/kg
(US EPA Test Guideline OPP 81-1)
Acute toxicity estimate Inhalation - 4 h - 1.6 mg/l - dust/mist
(Expert judgement)
Dermal: No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Corrosive - 4 h

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(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Irreversible effects on the eye - 24 h
(OECD Test Guideline 405)
Remarks: (as aqueous solution)

Respiratory or skin sensitization
Buehler Test - Guinea pig
Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
Test Type: Ames test
Test system: Escherichia coli/Salmonella typhimurium
Result: negative
Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Result: negative
Method: OECD Test Guideline 474
Species: Mouse - male and female - Bone marrow
Result: negative

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure

Aspiration hazard
No data available

L-Dihydroorotic acid

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
Remarks: No data available

Serious eye damage/eye irritation
Remarks: No data available

Respiratory or skin sensitization
No data available

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Germ cell mutagenicity
No data available

Carcinogenicity
No data available

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

5,6-Dihydroxyindole

Acute toxicity
Oral: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

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citric acid

Acute toxicity
LD50 Oral - Mouse - male and female - 5,400 mg/kg
(OECD Test Guideline 401)
Inhalation: No data available
LD50 Dermal - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 402)

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 4 h
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Irritating to eyes.
(OECD Test Guideline 405)
Remarks: (ECHA)

Respiratory or skin sensitization
Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

Germ cell mutagenicity
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative
Test Type: Mutagenicity (mammal cell test): micronucleus.
Test system: Human lymphocytes
Result: positive
Method: OECD Test Guideline 475
Species: Rat - male - Bone marrow
Result: negative
Method: Regulation (EC) No. 440/2008, Annex, B.22
Species: Rat - male and female
Result: negative

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

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nicotinic acid

Acute toxicity
LD50 Oral - Rat - female - 6,450 mg/kg
(OECD Test Guideline 401)
Inhalation: No data available
LD50 Dermal - Rat - > 2,000 mg/kg
(OECD Test Guideline 402)
LD50 Intraperitoneal - Rat - 730 mg/kg
LD50 Subcutaneous - Rat - 5,000 mg/kg

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 4 h
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Irritating to eyes.
(OECD Test Guideline 405)

Respiratory or skin sensitization
Maximisation Test - Guinea pig
Did not cause sensitisation on laboratory animals.
(OECD Test Guideline 406)

Germ cell mutagenicity
Test Type: Ames test
Test system: S. typhimurium
Result: negative
Method: OECD Test Guideline 475
Species: Rat - male and female
Result: negative

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

N-acetylneuraminic acid

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available

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Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
Remarks: Causes serious eye irritation.
(External MSDS)

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Hypotaurine

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
Remarks: Causes skin irritation.

Serious eye damage/eye irritation
Remarks: Causes serious eye irritation.

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

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Aspiration hazard
No data available

Pyrimidine dimer

Acute toxicity
LD50 Oral - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 401)
Remarks: The value is given in analogy to the following substances: pyrimidine
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Corrosive to eyes - 24 h
(OECD Test Guideline 405)
Remarks: The value is given in analogy to the following substances: pyrimidine

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
Test Type: Ames test
Test system: S. typhimurium
Result: negative
Remarks: The value is given in analogy to the following substances: pyrimidine

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Diethanolamine:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 460 mg/l End point: mortality

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Exposure time: 96 h
Test Type: static test
Analytical monitoring: yes
Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates : EC50 (Ceriodaphnia dubia (water flea)): 30.1 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Remarks: (ECHA)

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 9.5 mg/l
Exposure time: 96 h
Test Type: static test
Method: US-EPA
GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC10 (Daphnia magna (Water flea)): 1.05 mg/l
End point: reproduction rate
Exposure time: 21 d
Test Type: semi-static test
Analytical monitoring: yes
GLP: yes
Remarks: (ECHA)

Toxicity to microorganisms : EC10 (activated sludge): > 1,000 mg/l
Exposure time: 30 min
Test Type: static test
Method: OECD Test Guideline 209

nicotinamide:

Toxicity to fish : LC50 (Poecilia reticulata (guppy)): > 1,000 mg/l
End point: mortality
Exposure time: 96 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 203
GLP: yes

Toxicity to algae/aquatic plants : NOEC (Desmodesmus subspicatus (green algae)): 560 mg/l
End point: Growth inhibition
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

Toxicity to microorganisms : NOEC (Pseudomonas putida): 4,235 mg/l
End point: Growth rate
Exposure time: 18 h

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Test Type: static test
Method: OECD Test Guideline 209
GLP: yes

succinic acid:

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): > 100 mg/l End point: mortality Exposure time: 96 h Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 203 GLP: yes
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 100 mg/l End point: Immobilization Exposure time: 48 h Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): 46.8 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes
Toxicity to microorganisms	:	EC50 (activated sludge): > 300 mg/l Exposure time: 3 h Test Type: static test Method: OECD Test Guideline 209 GLP: yes

N-[4-[[(2-Amino-1,4,5,6,7,8-hexahydro-4-oxo-6-pteridinyl)methyl]amino]benzoyl]-L-glutamic acid:

Toxicity to fish	:	Remarks: No data available

(3R,4S,5R)-3,4,5-Trihydroxycyclohex-1-enecarboxylic acid:

Toxicity to fish	:	LC50 (Cyprinus carpio (Carp)): > 100 mg/l Exposure time: 96 h Test Type: flow-through test Analytical monitoring: yes Method: OECD Test Guideline 203 GLP: yes
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Exposure time: 72 h

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Test Type: static test
Analytical monitoring: yes
Method: ISO 8692
GLP: yes

p-Hydroxyphenylacetic acid:

Toxicity to fish : Remarks: No data available

Cys-Gly:

Toxicity to fish : Remarks: No data available

D-(+)-malic acid:

Toxicity to fish : Remarks: No data available

2-Piperidone:

Toxicity to fish : Remarks: No data available

γ-caprolactone:

Toxicity to fish : Remarks: No data available

(1R)-1α,3α,4α,5ß-Tetrahydroxycyclohexane carboxylic acid-1:

Toxicity to algae/aquatic plants : NOEC (Microcystis aeruginosa (blue-green algae)): > 10 mg/l
Exposure time: 10 d
Test Type: static test
Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): >= 5,000 mg/l
End point: Immobilization
Exposure time: 48 d
Test Type: static test
Method: OECD Test Guideline 202
GLP: yes

Glycolic acid:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l
End point: mortality
Exposure time: 96 h
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
End point: Immobilization
Exposure time: 48 h

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		Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata): > 100 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): >= 89.6 mg/l End point: reproduction rate Exposure time: 21 d Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 211 GLP: yes
Toxicity to microorganisms	:	NOEC (activated sludge): 100 mg/l Exposure time: 3 h Test Type: static test Method: OECD Test Guideline 209 GLP: yes

Ecotoxicology Assessment

Acute aquatic toxicity	:	This product has no known ecotoxicological effects.
Chronic aquatic toxicity	:	This product has no known ecotoxicological effects.

L-Dihydroorotic acid:

Toxicity to fish	:	Remarks: No data available

5,6-Dihydroxyindole:

Ecotoxicology Assessment

Chronic aquatic toxicity	:	Toxic to aquatic life with long lasting effects.

citric acid:

Toxicity to fish	:	LC50 (Leuciscus idus (Golden orfe)): 440 - 760 mg/l Exposure time: 96 h Remarks: (IUCLID)
Toxicity to algae/aquatic plants	:	NOEC (Scenedesmus quadricauda (Green algae)): 425 mg/l Exposure time: 8 h Test Type: static test Remarks: (ECHA)

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Toxicity to microorganisms	:	EC5 (Pseudomonas putida): > 10,000 mg/l Exposure time: 16 h Remarks: (maximum permissible toxic concentration) (Lit.)

nicotinic acid:

Toxicity to fish	:	LC50 (Salmo trutta): 520 mg/l Exposure time: 96 h Test Type: static test Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 77 mg/l Exposure time: 48 h Test Type: Immobilization Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	EC50 (Desmodesmus subspicatus (green algae)): 105.6 mg/l Exposure time: 72 h Test Type: Growth inhibition Method: OECD Test Guideline 201
Toxicity to microorganisms	:	IC50 (Pseudomonas putida): 120 mg/l Exposure time: 72 h Test Type: Growth inhibition

Persistence and degradability

Components:

Diethanolamine:

Biodegradability	:	aerobic Inoculum: activated sludge Concentration: 100 mg/l Result: Readily biodegradable. Biodegradation: 93 % Exposure time: 28 d Method: OECD Test Guideline 301F GLP: yes
Biochemical Oxygen Demand (BOD)	:	885 mg/g Incubation time: 5 d Remarks: (External MSDS)
Chemical Oxygen Demand (COD)	:	1,352 mg/g Remarks: (External MSDS)

nicotinamide:

Biodegradability	:	aerobic Inoculum: activated sludge, non-adapted

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Concentration: 34 mg/l
Result: Readily biodegradable.
Biodegradation: 96 %
Exposure time: 14 d
Method: OECD Test Guideline 301E
GLP: yes

succinic acid:

Biodegradability : aerobic
Concentration: 20 mg/l
Result: Readily biodegradable.
Biodegradation: 96.55 %
Exposure time: 28 d
Method: OECD Test Guideline 301E
GLP: yes

N-[4-[[(2-Amino-1,4,5,6,7,8-hexahydro-4-oxo-6-pteridinyl)methyl]amino]benzoyl]-L-glutamic acid:

Biodegradability : Remarks: No data available

(3R,4S,5R)-3,4,5-Trihydroxycyclohex-1-enecarboxylic acid:

Biodegradability : aerobic
Inoculum: activated sludge
Result: Readily biodegradable.
Biodegradation: 80 %
Exposure time: 28 d
Method: OECD Test Guideline 301B
GLP: yes

p-Hydroxyphenylacetic acid:

Biodegradability : Remarks: No data available

Cys-Gly:

Biodegradability : Remarks: No data available

D-(+)-malic acid:

Biodegradability : Remarks: No data available

2-Piperidone:

Biodegradability : Remarks: No data available

γ-caprolactone:

Biodegradability : Remarks: No data available

(1R)-1α,3α,4α,5ß-Tetrahydroxycyclohexane carboxylic acid-1:

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Biodegradability	:	aerobic Inoculum: activated sludge, non-adapted Concentration: 20 mg/l Biodegradation: ca. 89.7 % Exposure time: 29 d Method: OECD Test Guideline 301B GLP: yes

Glycolic acid:

Biodegradability	:	aerobic Inoculum: activated sludge, non-adapted Concentration: 31.7 mg/l Result: Readily biodegradable. Biodegradation: 83.9 % Exposure time: 28 d Method: OECD Test Guideline 310 GLP: yes

L-Dihydroorotic acid:

Biodegradability	:	Remarks: No data available

citric acid:

Biodegradability	:	aerobic Result: Readily biodegradable. Biodegradation: 97 % Exposure time: 28 d Method: OECD Test Guideline 301B
Biochemical Oxygen Demand (BOD)	:	526 mg/g Incubation time: 5 d Remarks: (IUCLID)
Chemical Oxygen Demand (COD)	:	728 mg/g Remarks: (IUCLID)

nicotinic acid:

Biodegradability	:	aerobic Inoculum: activated sludge Concentration: 32 mg/l Result: Readily biodegradable. Biodegradation: 100 % Exposure time: 14 d

Bioaccumulative potential

Components:

Diethanolamine:

Partition coefficient: n-	:	log Pow: -2.46 (77 °F / 25 °C)

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octanol/water		pH: 6.8 - 7.3 Method: OECD Test Guideline 107 Remarks: Bioaccumulation is not expected.

nicotinamide:

Partition coefficient: n-octanol/water	:	log Pow: -0.38 (70 °F / 21 °C) Method: OECD Test Guideline 117 GLP: yes Remarks: Bioaccumulation is not expected.

N-[4-[[(2-Amino-1,4,5,6,7,8-hexahydro-4-oxo-6-pteridinyl)methyl]amino]benzoyl]-L-glutamic acid:

Bioaccumulation	:	Remarks: No data available

p-Hydroxyphenylacetic acid:

Bioaccumulation	:	Remarks: No data available

Cys-Gly:

Bioaccumulation	:	Remarks: No data available

D-(+)-malic acid:

Bioaccumulation	:	Remarks: No data available

2-Piperidone:

Bioaccumulation	:	Remarks: No data available

γ-caprolactone:

Bioaccumulation	:	Remarks: No data available
Partition coefficient: n-octanol/water	:	log Pow: 0.341

Glycolic acid:

Partition coefficient: n-octanol/water	:	log Pow: < -1.2 (68 °F / 20 °C) pH: 7 Method: OECD Test Guideline 117 GLP: yes Remarks: Bioaccumulation is not expected.

L-Dihydroorotic acid:

Bioaccumulation	:	Remarks: No data available

citric acid:

Partition coefficient: n-	:	log Pow: -1.72 (68 °F / 20 °C)

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octanol/water		Method: OECD Test Guideline 117 Remarks: Bioaccumulation is not expected.

nicotinic acid:

Bioaccumulation	:	Remarks: No data available
Partition coefficient: n-octanol/water	:	log Pow: -0.590 (77 °F / 25 °C) pH: 4 Method: OECD Test Guideline 117

Mobility in soil

Components:

N-[4-[[(2-Amino-1,4,5,6,7,8-hexahydro-4-oxo-6-pteridinyl)methyl]amino]benzoyl]-L-glutamic acid:

Stability in soil	:	Remarks: No data available

p-Hydroxyphenylacetic acid:

Stability in soil	:	Remarks: No data available

Cys-Gly:

Stability in soil	:	Remarks: No data available

D-(+)-malic acid:

Stability in soil	:	Remarks: No data available

2-Piperidone:

Stability in soil	:	Remarks: No data available

γ-caprolactone:

Stability in soil	:	Remarks: No data available

L-Dihydroorotic acid:

Stability in soil	:	Remarks: No data available

nicotinic acid:

Stability in soil	:	Remarks: No data available

Other adverse effects

Product:

Ozone-Depletion Potential	:	Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances Remarks: This product neither contains, nor was

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manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Components:

Diethanolamine:

Results of PBT and vPvB assessment : Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

Additional ecological information : Biological effects:

Harmful effect due to pH shift.

When discharged properly, no impairments in the function of adapted biological wastewater treatment plants are to be expected.

Discharge into the environment must be avoided.

nicotinamide:

Results of PBT and vPvB assessment : Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

N-[4-[[(2-Amino-1,4,5,6,7,8-hexahydro-4-oxo-6-pteridinyl)methyl]amino]benzoyl]-L-glutamic acid:

Additional ecological information : No data available

(3R,4S,5R)-3,4,5-Trihydroxycyclohex-1-enecarboxylic acid:

Additional ecological information : We have no quantitative data concerning the ecological effects of this product.

Further information on ecology

p-Hydroxyphenylacetic acid:

Additional ecological information : No data available

Cys-Gly:

Additional ecological information : No data available

D-(+)-malic acid:

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Additional ecological information	:	No data available

2-Piperidone:

Additional ecological information	:	We have no quantitative data concerning the ecological effects of this product. Further information on ecology Discharge into the environment must be avoided.

γ-caprolactone:

Additional ecological information	:	No data available

Glycolic acid:

Results of PBT and vPvB assessment	:	Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.
Additional ecological information	:	May be harmful to aquatic organisms due to the shift of the pH. Avoid release to the environment.

L-Dihydroorotic acid:

Additional ecological information	:	No data available

nicotinic acid:

Additional ecological information	:	No data available

Endocrine disrupting properties

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14. TRANSPORT INFORMATION

International Regulations

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IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

Transport in bulk according to IMO instruments
Not applicable for product as supplied.

National Regulations

49 CFR
Not regulated as a dangerous good
Poison Inhalation Hazard : No

Special precautions for user
Remarks : Not classified as dangerous in the meaning of transport regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Diethanolamine	111-42-2	100	8399

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Diethanolamine 111-42-2 >= 1 - < 5 %

Clean Air Act
This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):
Diethanolamine 111-42-2 >= 1 - < 5 %
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

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The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489):

glycine	56-40-6	>= 1 - < 5 %
Diethanolamine	111-42-2	>= 1 - < 5 %
succinic acid	110-15-6	>= 1 - < 5 %

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.
This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.
This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307
This product does not contain any priority pollutants related to the U.S. Clean Water Act

US State Regulations

Massachusetts Right To Know

3-phenyl-L-alanine	63-91-2
L-aspartic acid	56-84-8
Diethanolamine	111-42-2
L-proline	147-85-3

Pennsylvania Right To Know

Diethanolamine	111-42-2

Maine Chemicals of High Concern

L-proline	147-85-3

Vermont Chemicals of High Concern

L-proline	147-85-3

Washington Chemicals of High Concern

L-proline	147-85-3

California Prop. 65

WARNING: This product can expose you to chemicals including Diethanolamine, which is/are known to the State of California to cause cancer, and 3,4-dihydroxy-L-phenylalanine (L-DOPA), which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov. **The components of this product are reported in the following inventories:**

US TSCA : Product contains substance(s) not active and not listed on TSCA inventory.

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

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SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
ACGIH / TWA	:	8-hour, time-weighted average
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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