SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 8.10
Revision Date 14.02.2025
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GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : LSMLS Plate 2 (Water Soluble)

Product Number : LSMLS02
Brand : Sigma
REACH No. :

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

Identified uses : Laboratory chemicals, Manufacture of substances
Uses advised against : For R&D use only. Not for pharmaceutical, household or other uses.

1.3 Details of the supplier of the safety data sheet

Company :

1.4 Emergency telephone

Emergency Phone # : +(44)-870-8200418 (CHEMTREC (GB))
+(353)-19014670 (CHEMTREC Ireland)
001-803-017-9114 (CHEMTREC India)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Acute toxicity, (Category 4)	H302: Harmful if swallowed.
Acute toxicity, (Category 2)	H330: Fatal if inhaled.
Skin irritation, (Category 2)	H315: Causes skin irritation.
Serious eye damage, (Category 1)	H318: Causes serious eye damage.
Respiratory sensitization, (Category 1)	H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitization, (Category 1)	H317: May cause an allergic skin reaction.
Germ cell mutagenicity,	H341: Suspected of causing genetic

(Category 2)	defects.
Reproductive toxicity, (Category 1B)	H360D: May damage the unborn child.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram

Signal Word	Danger
Hazard Statements	
H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H330	Fatal if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341	Suspected of causing genetic defects.
H360D	May damage the unborn child.
Precautionary Statements	
P202	Do not handle until all safety precautions have been read and understood.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.
P302 + P352	IF ON SKIN: Wash with plenty of water.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Supplemental Hazard Statements	none
	Restricted to professional users.

Reduced Labeling (<= 125 ml)

Pictogram

Signal Word	Danger
Hazard Statements	
H330	Fatal if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.
H341	Suspected of causing genetic defects.
H318	Causes serious eye damage.
H360D	May damage the unborn child.

Precautionary Statements	
P202	Do not handle until all safety precautions have been read and understood.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P302 + P352	IF ON SKIN: Wash with plenty of water.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Supplemental Hazard Statements	none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information:
The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
Toxicological information:
The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Component		Classification	Concentration
Guanidine, N-methyl			
CAS-No. EC-No.	471-29-4 207-438-3 *	Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2; H302, H315, H319	>= 1 - < 10 %
4-ACETAMIDOBUTYRIC ACID			
CAS-No. EC-No.	3025-96-5 221-186-1 *	Eye Irrit. 2; H319	>= 1 - < 10 %
pyridine-2-carboxylic acid			
CAS-No. EC-No.	98-98-6 202-719-7 *	Acute Tox. 4; Eye Dam. 1; H302, H318	>= 1 - < 3 %
pidolic acid			
CAS-No. EC-No.	98-79-3 202-700-3	Eye Dam. 1; Aquatic Chronic 3; H318, H412	>= 1 - < 2.5 %

	*		
2-Hydroxy-2-methylpropionic acid			
CAS-No. EC-No.	594-61-6 209-848-8 *	Skin Irrit. 2; Eye Dam. 1; STOT SE 3; H315, H318, H335	>= 1 - < 3 %
3-Nitropropionic acid			
CAS-No. EC-No.	504-88-1 208-003-0 *	Acute Tox. 3; H301	>= 1 - < 10 %
(S)-Piperidine-2-carboxylic acid			
CAS-No. EC-No.	3105-95-1 221-462-1 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 10 %
Triox			
CAS-No. EC-No.	1184-78-7 214-675-6 *	Acute Tox. 4; H302, H332	>= 1 - < 10 %
1,3-diaminopropane			
CAS-No. EC-No.	109-76-2 203-702-7 *	Flam. Liq. 3; Met. Corr. 1; Acute Tox. 4; Acute Tox. 2; Skin Corr. 1B; Eye Dam. 1; Resp. Sens. 1B; Skin Sens. 1B; H226, H290, H302, H310, H314, H318, H334, H317	>= 1 - < 3 %
Nicotinamide hypoxanthinedinucleotide sodium salt			
CAS-No.	104809-38-3 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 10 %
O-Phosphoserine			
CAS-No. EC-No. Registration number	407-41-0 206-986-0 01-2120757187-46-XXXX	Skin Corr. 1B; H314	>= 1 - < 3 %
dopamine hydrochloride			
CAS-No. EC-No.	62-31-7 200-527-8 *	Skin Sens. 1; H317	>= 1 - < 10 %
3,3'-iminodi(propylamine)			
CAS-No. EC-No. Index-No.	56-18-8 200-261-2 612-063-00-7	Acute Tox. 4; Acute Tox. 1; Acute Tox. 3; Skin Corr. 1A; Skin Sens. 1A; Muta.	>= 1 - < 3 %

	*	2; STOT RE 2; H302, H330, H311, H314, H317, H341, H373	
succinic acid anhydride			
CAS-No. EC-No. Index-No.	108-30-5 203-570-0 607-103-00-5 *	Acute Tox. 4; Skin Corr. 1B; Eye Dam. 1; Resp. Sens. 1; Skin Sens. 1; H302, H314, H318, H334, H317	>= 1 - < 3 %
Caffeine			
CAS-No. EC-No. Index-No. Registration number	58-08-2 200-362-1 613-086-00-5 01-2119433305-48-XXXX	Acute Tox. 4; H302	>= 1 - < 10 %
1,2,3,4-Butanetetrol			
CAS-No.	2418-52-2 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 10 %
3-Dehydroshikimic acid			
CAS-No.	2922-42-1 *	Eye Irrit. 2; H319	>= 1 - < 10 %
3,7-Dihydro-1,7-dimethyl-1H-purine-2,6-dione			
CAS-No. EC-No.	611-59-6 210-271-9 *	Acute Tox. 4; H302	>= 1 - < 10 %
(-)-Tartaric acid			
CAS-No. EC-No.	147-71-7 205-695-6 *	Eye Dam. 1; H318	>= 1 - < 3 %
(2-Aminoethyl)phosphonic acid			
CAS-No. EC-No.	2041-14-7 218-043-0 *	Skin Irrit. 2; Eye Irrit. 2; H315, H319	>= 1 - < 10 %
2,5-Dihydroxybenzoic acid			
CAS-No. EC-No.	490-79-9 207-718-5 *	Acute Tox. 4; H302	>= 1 - < 10 %
(-)-Norepinephrine			
CAS-No. EC-No.	51-41-2 200-096-6	Acute Tox. 2; Acute Tox. 1; Acute Tox. 2; H300,	>= 1 - < 10 %

	*	H330, H310	
2-Aminoadipic acid			
CAS-No. EC-No.	542-32-5 208-809-2 *	Skin Sens. 1; H317	>= 1 - < 10 %
2,6-Diaminopimelic acid			
CAS-No. EC-No.	583-93-7 209-524-6 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 10 %
Theophylline			
CAS-No. EC-No. Index-No.	58-55-9 200-385-7 613-342-00-6 *	Acute Tox. 3; Repr. 1B; H301, H360D	>= 1 - < 10 %
3-Hydroxy-5-(hydroxymethyl)-2-methylisonicotinic acid			
CAS-No. EC-No.	82-82-6 201-440-8 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 10 %
pyridine-2,3-dicarboxylic acid			
CAS-No. EC-No.	89-00-9 201-874-8 *	Eye Irrit. 2; STOT SE 3; H319, H335	>= 1 - < 10 %
L-Cysteinesulfinic Acid Monohydrate			
CAS-No.	207121-48-0 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 10 %

*A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, or the annual tonnage does not require a registration.

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Consult a physician. Show this material safety data sheet to the doctor in attendance.First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 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

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

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

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Nitrogen oxides (NOx)
Sulfur oxides
Oxides of phosphorus
Hydrogen chloride gas
Potassium oxides
Sodium oxides
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Use water spray to cool unopened containers.Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.Work under hood. Do not inhale substance/mixture.

Advice on protection against fire and explosion
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in cool place. Keep locked up or in an area accessible only to qualified or authorized persons.
Storage stability Recommended storage temperature
-20 °C
Storage class
Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

8.2 Exposure controls

Personal protective equipment

Eye/face protection
Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
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 protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
protective clothing

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
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 P3

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.

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Discharge into the environment must be avoided.
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Physical state	solid
b)	Color	No data available
c)	Odor	No data available
d)	Melting point/freezing point	No data available
e)	Initial boiling point and boiling range	No data available
f)	Flammability (solid, gas)	No data available
g)	Upper/lower flammability or explosive limits	No data available
h)	Flash point	No data available
i)	Autoignition temperature	No data available
j)	Decomposition temperature	No data available
k)	pH	No data available
l)	Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available
m)	Water solubility	No data available
n)	Partition coefficient: n-octanol/water	No data available
o)	Vapor pressure	No data available
p)	Density	No data available
	Relative density	No data available
q)	Relative vapor density	No data available
r)	Particle characteristics	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Violent reactions possible with:
Strong oxidizing agents

10.4 Conditions to avoid
Heat, flames and sparks.
no information available

10.5 Incompatible materials
No data available

10.6 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 - 417.1 mg/kg
(Calculation method)
Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.
Acute toxicity estimate Inhalation - 4 h - 0.4105 mg/l - dust/mist(Calculation method)

Symptoms: Possible symptoms:, mucosal irritations
Acute toxicity estimate Dermal - > 2,000 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 allergy or asthma symptoms or breathing difficulties if inhaled. Mixture may cause an allergic skin reaction.

Germ cell mutagenicity
Evidence of genetic defects.

Carcinogenicity
No data available

Reproductive toxicity
May harm the unborn child.

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

Endocrine disrupting properties

Product:

Assessment	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Other dangerous properties can not be excluded.

This substance should be handled with particular care.

Handle in accordance with good industrial hygiene and safety practice.

Components

Guanidine, N-methyl

Acute toxicity
LD50 Oral - Mouse - 680 mg/kg
Remarks: (RTECS)
The value is given in analogy to the following substances: Guanidine, 1-methyl-, hydrochloride
Acute toxicity estimate Oral - 680 mg/kg
(ATE value derived from LD50/LC50 value)
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
Remarks: Causes skin irritation.
The value is given in analogy to the following substances: Guanidine, 1-methyl-, hydrochloride

Serious eye damage/eye irritation
Remarks: Causes serious eye irritation.
The value is given in analogy to the following substances: Guanidine, 1-methyl-, hydrochloride

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

4-ACETAMIDOBUTYRIC ACID

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

Skin corrosion/irritation
Remarks: No data available

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
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

pyridine-2-carboxylic acid

Acute toxicity
LD50 Oral - Rat - female - > 300 - < 2,000 mg/kg
(OECD Test Guideline 420)
Inhalation: No data available
Dermal: No data available

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

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Irreversible effects on the eye - 10 s
(OECD Test Guideline 405)

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
Test Type: Ames test
Test system: Escherichia coli/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

pidolic acid

Acute toxicity
LD50 Oral - Rat - female - > 2,000 mg/kg
(OECD Test Guideline 420)
Inhalation: Irritating to respiratory system.
Dermal: No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Cattle
Result: Causes burns. - 4 h
(OECD Test Guideline 437)

Respiratory or skin sensitization
Local lymph node assay (LLNA) - Mouse
Result: Not a skin sensitizer.
(OECD Test Guideline 429)

Germ cell mutagenicity
Test Type: gene mutation test
Test system: mouse lymphoma cells
Result: negative
Method: OECD Test Guideline 474
Species: Mouse - 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

2-Hydroxy-2-methylpropionic acid

Acute toxicity
Oral: No data available
Inhalation: Irritating to respiratory system.
Dermal: No data available

Skin corrosion/irritation
Remarks: Causes skin irritation.

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

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

Aspiration hazard
No data available

3-Nitropropionic acid

Acute toxicity
LD50 Oral - Mouse - 68.1 mg/kg
Remarks: Behavioral:Ataxia.
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
Laboratory experiments have shown mutagenic effects.

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

(S)-Piperidine-2-carboxylic acid

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

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
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

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

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Triox

Acute toxicity
LD50 Oral - Rat - male and female - 766 mg/kg
(OECD Test Guideline 401)
LC50 Inhalation - Rat - male - 4 h - 8.58 mg/l - vapor
Remarks: (ECHA)
Inhalation: Irritating to respiratory system.
LD50 Dermal - Rat - male and female - > 5,000 mg/kg
(OECD Test Guideline 402)

Skin corrosion/irritation
Skin - reconstructed human epidermis (RhE)
Result: No skin irritation - 3 - 60 min

(OECD Test Guideline 431)

Serious eye damage/eye irritation
Eyes - Bovine cornea
Result: No eye irritation - 4 h
(OECD Test Guideline 437)

Respiratory or skin sensitization
KeratinoSens assay - In vitro study
Result: negative
(OECD Test Guideline 442D)
Direct Peptide Reactivity Assay (DPRA) - In vitro study
Result: negative
(OECD Test Guideline 442C)

Germ cell mutagenicity
Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Result: negative
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Human lymphocytes
Result: negative
Test Type: Ames test
Test system: Escherichia coli/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

Aspiration hazard
No data available

1,3-diaminopropane

Acute toxicity
LD50 Oral - Rat - male - 311 mg/kg
(OECD Test Guideline 401)
Acute toxicity estimate Oral - 311 mg/kg
(ATE value derived from LD50/LC50 value)
LC50 Inhalation - Rat - 4 h - > 17.63 mg/l - vapor
(OECD Test Guideline 433)
LD50 Dermal - Rabbit - male - 178 mg/kg
(OECD Test Guideline 402)
Acute toxicity estimate Dermal - 178 mg/kg
(ATE value derived from LD50/LC50 value)

Skin corrosion/irritation
Skin - In vitro study
Result: Causes burns.

(OECD Test Guideline 435)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Irreversible effects on the eye
(OECD Test Guideline 405)
Remarks: Causes serious eye damage.

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: positive
(OECD Test Guideline 406)
Remarks: The value is given in analogy to the following substances: ethylenediamine
Human experience - Human
Result: positive
Remarks: (ECHA)
The value is given in analogy to the following substances: ethylenediamine

Germ cell mutagenicity
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster lung cells
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster lung cells
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

Nicotinamide hypoxanthinedinucleotide sodium salt

Acute toxicity
Oral: No data available
Inhalation: Irritating to respiratory system.
Dermal: 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

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

O-Phosphoserine

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

Skin corrosion/irritation
Remarks: Causes skin burns.
(ECHA)

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

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
Test Type: Ames test
Test system: Escherichia coli/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

dopamine hydrochloride

Acute toxicity
LD50 Oral - Rat - 2,859 mg/kg
Remarks: (External MSDS)
Inhalation: No data available
Dermal: No data available

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

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitization
May cause allergic skin reaction.

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

3,3'-iminodi(propylamine)

Acute toxicity
LD50 Oral - Rat - 738 mg/kg
LC50 Inhalation - Rat - 4 h - 0.03 mg/l - dust/mist
LD50 Dermal - 300 mg/kg

Skin corrosion/irritation
Skin - Rabbit
Result: Causes severe burns.
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Corrosive to eyes

Respiratory or skin sensitization
in vivo assay - Mouse
The product is a skin sensitizer, sub-category 1A.
(OECD Test Guideline 429)

Germ cell mutagenicity
In vitro tests showed mutagenic effects
Result: Not mutagenic in Ames Test.

Result: Positive results were obtained in some in vivo tests.

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
May cause damage to organs through prolonged or repeated exposure.
- thymus

Aspiration hazard
No data available

succinic acid anhydride

Acute toxicity
LD50 Oral - Rat - male and female - 1,794.9 mg/kg
(OECD Test Guideline 401)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Acute toxicity estimate Oral - 1,794.9 mg/kg
(ATE value derived from LD50/LC50 value)
Inhalation: No data available
LD50 Dermal - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 402)

Skin corrosion/irritation
Skin - In vitro study
Result: Corrosive - 1 h
(OECD Test Guideline 431)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Corrosive - 18 - 24 h
(OECD Test Guideline 405)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Remarks: Risk of blindness!

Respiratory or skin sensitization
Local lymph node assay (LLNA) - Mouse
Result: positive
(OECD Test Guideline 429)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
May cause allergic respiratory and skin reactions Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Germ cell mutagenicity
No data available

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Corrosive to the respiratory tract.
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Caffeine

Acute toxicity
LD50 Oral - Rat - male and female - 367.7 mg/kg
(OECD Test Guideline 401)
Remarks: (Regulation (EC) No 1272/2008, Annex VI)
Acute toxicity estimate Oral - 367.7 mg/kg
(ATE value derived from LD50/LC50 value)
LC50 Inhalation - Rat - male and female - 4 h - 4.94 mg/l - aerosol
(OECD Test Guideline 403)
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: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitization
Local lymph node assay (LLNA) - Mouse
Result: negative
(OECD Test Guideline 429)

Germ cell mutagenicity
Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Result: negative
Test Type: Ames test
Test system: Escherichia coli/Salmonella typhimurium
Result: negative
Test Type: Chromosome aberration test in vitro
Test system: Human lymphocytes
Result: negative
Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster lung cells
Result: positive
Species: Mouse - male
Result: negative
Remarks: (ECHA)
Species: Mouse - male
Result: negative
Remarks: (ECHA)

Method: OECD Test Guideline 474
Species: Mouse - male and female - Red blood cells (erythrocytes)
Result: Positive results were obtained in some in vivo tests.
Species: Rat
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

Aspiration hazard
No data available

1,2,3,4-Butanetetrol

Acute toxicity
Oral: No data available
Inhalation: Irritating to respiratory system.
Dermal: 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

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

3-Dehydroshikimic acid

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

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

3,7-Dihydro-1,7-dimethyl-1H-purine-2,6-dione

Acute toxicity
LD50 Oral - Rat - female - 829.20 mg/kg
(OECD Test Guideline 423)
Acute toxicity estimate Oral - 829.2 mg/kg
(ATE value derived from LD50/LC50 value)
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
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

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

(-)-Tartaric acid

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

Skin corrosion/irritation
Remarks: No data available

Serious eye damage/eye irritation
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

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

(2-Aminoethyl)phosphonic acid

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

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

2,5-Dihydroxybenzoic acid

Acute toxicity
LD50 Oral - Rat - 800 mg/kg
Inhalation: No data available
Dermal: 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
Test Type: Human
Test system: lymphocyte
Remarks: DNA inhibition

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

(-)-Norepinephrine

Acute toxicity
LD50 Oral - 5.1 mg/kg
LC50 Inhalation - 4 h - 0.005 mg/l - dust/mist
LD50 Dermal - 51 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
Exposure during pregnancy can provoke uterine contractions which can result in fetal asphyxia.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

2-Aminoadipic acid

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

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
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

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

2,6-Diaminopimelic acid

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

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
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

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

Theophylline

Acute toxicity
LD50 Oral - Rat - 225 mg/kg
Remarks: (RTECS)
Acute toxicity estimate Oral - 225 mg/kg
(ATE value derived from LD50/LC50 value)
LC50 Inhalation - Rat - male and female - 4 h - > 6.7 mg/l - aerosol
(OECD Test Guideline 403)
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: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitization
Local lymph node assay (LLNA) - Mouse
Result: negative
(OECD Test Guideline 429)
Remarks: The value is given in analogy to the following substances: Caffeine

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

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
Species: Mouse - male and female - Red blood cells (erythrocytes)
Result: negative
Remarks: (ECHA)
Species: Rat - male - sperm
Result: negative
Remarks: (ECHA)
Species: Mouse - male - Bone marrow
Result: negative
Remarks: (ECHA)

Carcinogenicity
No data available

Reproductive toxicity
May damage the unborn child.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure

Aspiration hazard
No data available

3-Hydroxy-5-(hydroxymethyl)-2-methylisonicotinic acid

Acute toxicity
LD50 Oral - Rat - 7,500 mg/kg
Inhalation: Irritating to respiratory system.
Dermal: 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

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

pyridine-2,3-dicarboxylic acid

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

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
The preceding data, or interpretation of data, was determined using Quantitative Structure Activity Relationship (QSAR) modeling. Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

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

L-Cysteinesulfinic Acid Monohydrate

Acute toxicity
Oral: No data available
Inhalation: Irritating to respiratory system.
Dermal: 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

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

SECTION 12: Ecological information

12.1 Toxicity

Mixture
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties
Product:

Assessment	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects
Very toxic to aquatic life with long lasting effects.

Components

Guanidine, N-methyl

No data available

4-ACETAMIDOBUTYRIC ACID
No data available

pyridine-2-carboxylic acid

Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata (green

	algae) - 13 mg/l - 72 h (OECD Test Guideline 201)
	static test NOEC - Pseudokirchneriella subcapitata (green algae) - 3.2 mg/l - 72 h (OECD Test Guideline 201)

pidolic acid

Toxicity to fish	semi-static test NOEC - Oncorhynchus mykiss (rainbow trout) - 100 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	semi-static test EC50 - Daphnia magna (Water flea) - > 94.14 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test NOEC - Raphidocelis subcapitata (freshwater green alga) - > 0.66 mg/l - 72 h (OECD Test Guideline 201)

2-Hydroxy-2-methylpropionic acid

No data available

3-Nitropropionic acid
No data available

(S)-Piperidine-2-carboxylic acid

No data available

Triox

Toxicity to fish	semi-static test LC50 - Oryzias latipes - > 100 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 139.95 mg/l - 48 h Remarks: (ECHA)
Toxicity to algae	static test ErC50 - Desmodesmus subspicatus (green algae) - 150 mg/l - 72 h (DIN 38412)

1,3-diaminopropane

Toxicity to fish	static test LC50 - Leuciscus idus (Golden orfe) - > 100 mg/l - 96 h (DIN 38412 part 15)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia - 27 mg/l - 48 h (Directive 67/548/EEC, Annex V, C.2.)
Toxicity to algae	static test ErC50 - Desmodesmus subspicatus (green algae) - 175.1 mg/l - 72 h (DIN 38412)
	static test NOEC - Desmodesmus subspicatus (green algae) -

	>= 500 mg/l - 72 h (DIN 38412)
Toxicity to bacteria	static test EC50 - activated sludge - > 1,000 mg/l - 0.5 h (OECD Test Guideline 209)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - Daphnia magna (Water flea) - >= 10 mg/l - 21 d (OECD Test Guideline 211)

Nicotinamide hypoxanthinedinucleotide sodium salt
No data available

O-Phosphoserine

Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata (green algae) - > 100 mg/l - 72 h (OECD Test Guideline 201)

dopamine hydrochloride

Toxicity to fish	static test LC50 - Leuciscus idus (Golden orfe) - 2,200 - 4,600 mg/l - 96 h (DIN 38412 part 15)

3,3'-iminodi(propylamine)

Toxicity to fish	LC50 - Leuciscus idus (Golden orfe) - 230 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 37.35 mg/l - 48 h
Toxicity to algae	EC50 - Desmodesmus subspicatus (green algae) - 599.2 mg/l - 72 h

succinic acid anhydride

Toxicity to fish	semi-static test LC50 - Danio rerio (zebra fish) - > 100 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	semi-static test EC50 - Daphnia magna (Water flea) - > 102 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata (green algae) - > 100 mg/l - 72 h (OECD Test Guideline 201) static test NOEC - Pseudokirchneriella subcapitata (green algae) - 100 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	static test EC50 - activated sludge - > 300 mg/l - 3 h (OECD Test Guideline 209)

Caffeine

Toxicity to fish	static test LC50 - Leuciscus idus (Golden orfe) - ca. 87 mg/l - 96 h (DIN 38412 part 15) static test NOEC - Leuciscus idus (Golden orfe) - 46 mg/l - 96 h (DIN 38412 part 15)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 182 mg/l - 48 h (DIN 38412)
Toxicity to algae	static test ErC50 - Desmodesmus subspicatus (green algae) - > 100 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	EC50 - activated sludge - > 1,000 mg/l - 3 h (OECD Test Guideline 209)

1,2,3,4-Butanetetrol
No data available

3-Dehydroshikimic acid

No data available

3,7-Dihydro-1,7-dimethyl-1H-purine-2,6-dione

No data available

(-)-Tartaric acid
No data available

(2-Aminoethyl)phosphonic acid
No data available

2,5-Dihydroxybenzoic acid

No data available

(-)-Norepinephrine
No data available

2-Aminoadipic acid

No data available

2,6-Diaminopimelic acid

No data available

Theophylline

Toxicity to fish	static test LC50 - Leuciscus idus (Golden orfe) - 100 mg/l - 96 h (DIN 38412 part 15)
Toxicity to daphnia	static test EC50 - Daphnia magna (Water flea) - 178 mg/l - 48

and other aquatic invertebrates	h (Directive 67/548/EEC, Annex V, C.2.)
Toxicity to algae	ErC50 - Desmodesmus subspicatus (green algae) - > 100 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	EC50 - activated sludge - > 1,000 mg/l - 3 h (OECD Test Guideline 209)

3-Hydroxy-5-(hydroxymethyl)-2-methylisonicotinic acid
No data available

pyridine-2,3-dicarboxylic acid
No data available

L-Cysteinesulfinic Acid Monohydrate
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number
ADR/RID: 2811 IMDG: 2811 IATA: 2811

14.2 UN proper shipping name
ADR/RID: TOXIC SOLID, ORGANIC, N.O.S. (1,3-diaminopropane)
IMDG: TOXIC SOLID, ORGANIC, N.O.S. (1,3-diaminopropane)
IATA: Toxic solid, organic, n.o.s. (1,3-diaminopropane)

14.3 Transport hazard class(es)
ADR/RID: 6.1 IMDG: 6.1 IATA: 6.1

14.4 Packaging group
ADR/RID: II IMDG: II IATA: II

14.5 Environmental hazards
ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 Special precautions for user

Further information : No data available

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Authorisations and/or restrictions on use

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	: Theophylline

National legislation

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	H2	ACUTE TOXIC

Other regulations

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements

H226	Flammable liquid and vapor.
H290	May be corrosive to metals.
H300	Fatal if swallowed.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H310	Fatal in contact with skin.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H341	Suspected of causing genetic defects.

H360D	May damage the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; 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; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; 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 Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; 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; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; 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

Classification of the mixture		**Classification procedure:**
Acute Tox.4	H302	Calculation method
Acute Tox.2	H330	Calculation method
Skin Irrit.2	H315	Calculation method
Eye Dam.1	H318	Calculation method
Resp. Sens.1	H334	Calculation method
Skin Sens.1	H317	Calculation method
Muta.2	H341	Calculation method
Repr.1B	H360D	Calculation method

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.
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