SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 8.10
Revision Date 22.03.2025
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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 : MSMLS Plate 3 (Water Soluble)

Product Number : MSMLS03
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

Skin corrosion, (Sub-category 1B)	H314: Causes severe skin burns and eye damage.
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.
Long-term (chronic) aquatic hazard, (Category 3)	H412: Harmful to aquatic life with long lasting effects.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram

Signal Word	Danger
Hazard Statements	
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H412	Harmful to aquatic life with long lasting effects.
Precautionary Statements	
P260	Do not breathe dust.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with 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

Reduced Labeling (<= 125 ml)

Pictogram

Signal Word	Danger
Hazard Statements	
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.
H314	Causes severe skin burns and eye damage.
H412	Harmful to aquatic life with long lasting effects.
Precautionary Statements	
P260	Do not breathe dust.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with 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.

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.
Caution: Physiologically highly active, therapeutically usable substance. The substance must be handled with the care required for hazardous materials.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Component		Classification	Concentration
2'-Deoxy-5'-uridylic acid disodium salt			
CAS-No. EC-No.	42155-08-8 255-687-1 *	Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H302, H315, H319, H335	>= 1 - < 3 %
Selenocystamine dihydrochloride			
CAS-No. Index-No.	3542-13-0 034-002-00-8 *	Acute Tox. 3; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H331, H373, H400, H410 M-Factor - Aquatic Acute: 10 M-Factor - Aquatic Chronic: 10	>= 1 - < 2.5 %
4,9-Diazoniadodecamethylenediammonium tetrachloride			
CAS-No. EC-No.	306-67-2 206-189-8 *	Skin Irrit. 2; Eye Irrit. 2; H315, H319	>= 1 - < 3 %
5-(2-Aminoethyl)-4-hydroxypyrocatechol hydrochloride			
CAS-No. EC-No.	28094-15-7 248-837-2 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 3 %
Uridine 5'-diphosphogalactose disodium			
CAS-No.	137868-52-1		>= 1 - < 3 %

	*		
Uridine 5'-diphospho-N-acetylgalactosamine disodium			
CAS-No.	108320-87-2 *		>= 1 - < 3 %
2-aminoethyl dihydrogen phosphate			
CAS-No. EC-No.	1071-23-4 213-988-5 *		>= 1 - < 5 %
Guanosine 5'-diphosphoglucose sodium salt			
CAS-No.	103301-72-0 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 3 %
2'-Deoxyguanosine 5'-diphosphate sodium salt			
CAS-No.	102783-74-4 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 3 %
Glyoxylic acid monohydrate			
CAS-No. EC-No.	563-96-2 206-058-5 *	Met. Corr. 1; Skin Irrit. 2; Eye Dam. 1; Skin Sens. 1; H290, H315, H318, H317	>= 1 - < 3 %
Orotic acid monohydrate			
CAS-No.	50887-69-9 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 3 %
1,5,10-triazadecane trihydrochloride; spermidine tetrahydrochloride			
CAS-No. EC-No.	334-50-9 206-379-0 *	Skin Irrit. 2; Eye Irrit. 2; H315, H319	>= 1 - < 3 %
β-Hydroxypyruvic acid			
CAS-No.	1113-60-6 *	Acute Tox. 4; Skin Corr. 1B; H302, H314	>= 1 - < 5 %
2'-deoxyguanosine			
CAS-No. EC-No.	961-07-9 213-505-8 *		>= 1 - < 10 %

5-aminolevulinic acid hydrochloride		
CAS-No. 5451-09-2 EC-No. 226-679-5 *		>= 1 - < 3 %
DL-Serine dihydrogen phosphate		
CAS-No. 17885-08-4 EC-No. 241-834-7 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 3 %
histamine dihydrochloride		
CAS-No. 56-92-8 EC-No. 200-298-4 *	Skin Irrit. 2; Eye Irrit. 2; Resp. Sens. 1; Skin Sens. 1; STOT SE 3; H315, H319, H334, H317, H335	>= 1 - < 3 %
1,4-diaminobutane dihydrochloride		
CAS-No. 333-93-7 EC-No. 206-375-9 *	Acute Tox. 4; Acute Tox. 2; Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; H302, H330, H311, H314, H318	>= 1 - < 3 %
L-(+)-2,5-diaminopentanoic acid monohydrochloride		
CAS-No. 3184-13-2 EC-No. 221-678-6 *		>= 1 - < 3 %
Phosphoenolpyruvic acid, trisodium salt, hydrate		
CAS-No. 5541-93-5 EC-No. 226-906-8 *	Skin Irrit. 2; STOT SE 3; H315, H335	>= 1 - < 5 %
D-MANNOSE 6-PHOSPHATE BARIUM HYDRATE		
*	Acute Tox. 4; H302, H332	>= 1 - < 10 %
ETHYL 3-UREIDOPROPIONATE		
*	Skin Irrit. 2; Eye Dam. 1; STOT SE 3; H315, H318, H335	>= 1 - < 3 %
(3-Carboxypropyl)trimethylammonium chloride		
CAS-No. 6249-56-5 EC-No. 628-362-0 *		>= 1 - < 3 %
(±)-α-(Aminomethyl)-4-hydroxy-3-methoxybenzyl alcohol hydrochloride		
CAS-No. 1011-74-1	Skin Irrit. 2; Eye Irrit. 2;	>= 1 - < 3 %

EC-No.	213-787-2 *	STOT SE 3; H315, H319, H335	
D-(-)-3-Phosphoglyceric acid disodium salt			
CAS-No.	80731-10-8 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 3 %
D-Ribulose 1,5-bisphosphate sodium salt hydrate			
CAS-No.	1897433-92-9 *		>= 1 - < 3 %
Barium 3,3-diethoxy-2-hydroxypropyl phosphate			
CAS-No. EC-No. Index-No.	93965-35-6 300-986-5 056-002-00-7 *	Acute Tox. 4; H302, H332	>= 1 - < 10 %
Uridine 5'-(trihydrogen diphosphate), mono[2-(acetylamino)-2-deoxy-α-D-glucopyranosyl] ester, disodium salt			
CAS-No. EC-No.	91183-98-1 293-820-5 *		>= 1 - < 3 %
DL-α-(Aminomethyl)-p-hydroxybenzylic alcohol hydrochloride			
CAS-No. EC-No.	770-05-8 212-216-4 *	Eye Irrit. 2; Aquatic Chronic 3; H319, H412	>= 1 - < 10 %
Adenosine 3′,5′-diphosphate disodium salt			
CAS-No.	75431-54-8 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 3 %
Trimethyl[2-(phosphonooxy)ethyl]ammonium chloride, calcium salt (1:1) tetrahydrate			
CAS-No. EC-No.	72556-74-2 225-403-0 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 3 %
L-(-)-Carnitine hydrochloride			
CAS-No. EC-No.	6645-46-1 229-663-6 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 3 %
calcium D-saccharate			
CAS-No. EC-No.	5793-88-4 227-334-1 *		>= 1 - < 3 %

pyridoxamine dihydrochloride			
CAS-No. EC-No.	524-36-7 208-357-6 *		>= 1 - < 3 %
Levacecarnine hydrochloride			
CAS-No. EC-No.	5080-50-2 610-570-8 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 3 %
Selenocystamine			
CAS-No.	2697-61-2 *	Acute Tox. 4; Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; H302, H332, H311, H314, H318	>= 1 - < 3 %
5-methylcytosine			
CAS-No. EC-No.	554-01-8 209-058-3 *	Eye Irrit. 2; Skin Sens. 1; H319, H317	>= 1 - < 10 %
(±)-α-(Aminomethyl)-4-hydroxy-3-methoxybenzyl alcohol hydrochloride			
CAS-No. EC-No.	1011-74-1 213-787-2 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 10 %
D-(-)-3-Phosphoglyceric acid disodium salt			
CAS-No.	80731-10-8 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 10 %
Fytic acid			
CAS-No. EC-No.	83-86-3 201-506-6 *	Met. Corr. 1; Acute Tox. 4; Skin Corr. 1B; Eye Dam. 1; H290, H302, H314, H318	>= 1 - < 3 %
DL-α-(Aminomethyl)-p-hydroxybenzylic alcohol hydrochloride			
CAS-No. EC-No.	770-05-8 212-216-4 *	Eye Irrit. 2; Aquatic Chronic 3; H319, H412	>= 1 - < 2.5 %
pivalic acid			
CAS-No. EC-No.	75-98-9 200-922-5 *	Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2; H302, H315, H319	>= 1 - < 10 %
Adenosine 3′,5′-diphosphate disodium salt			
CAS-No.	75431-54-8	Skin Irrit. 2; Eye Irrit. 2;	>= 1 - < 10

	*	STOT SE 3; H315, H319, H335	%
Trimethyl[2-(phosphonooxy)ethyl]ammonium chloride, calcium salt (1:1) tetrahydrate			
CAS-No. EC-No.	72556-74-2 225-403-0 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 10 %
L-(-)-Carnitine hydrochloride			
CAS-No. EC-No.	6645-46-1 229-663-6 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 10 %
glycineethylester monohydrochloride			
CAS-No. EC-No.	623-33-6 210-787-4 *	Eye Dam. 1; H318	>= 1 - < 3 %
Pent-4-enoic acid			
CAS-No. EC-No.	591-80-0 209-732-7 *	Acute Tox. 4; Skin Corr. 1B; Eye Dam. 1; H302, H314, H318	>= 1 - < 3 %
Levacecarnine hydrochloride			
CAS-No. EC-No.	5080-50-2 610-570-8 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 10 %
2'-Deoxy-5'-uridylic acid disodium salt			
CAS-No. EC-No.	42155-08-8 255-687-1 *	Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H302, H315, H319, H335	>= 1 - < 10 %
4,9-Diazoniadodecamethylenediammonium tetrachloride			
CAS-No. EC-No.	306-67-2 206-189-8 *	Skin Irrit. 2; Eye Irrit. 2; H315, H319	>= 1 - < 10 %
5-(2-Aminoethyl)-4-hydroxypyrocatechol hydrochloride			
CAS-No. EC-No.	28094-15-7 248-837-2 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 10 %
2'-Deoxyguanosine 5'-diphosphate sodium salt			
CAS-No.	102783-74-4 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 10 %

Glyoxylic acid monohydrate			
CAS-No. EC-No.	563-96-2 206-058-5 *	Met. Corr. 1; Skin Irrit. 2; Eye Dam. 1; Skin Sens. 1; H290, H315, H318, H317	>= 1 - < 3 %
Orotic acid monohydrate			
CAS-No.	50887-69-9 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 10 %
4-Butyl-α, α, α-trifluoroacetophenone			
CAS-No.	40739-44-4 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 10 %
8-Bromooctanoic acid			
CAS-No. EC-No.	17696-11-6 605-788-5 *	Skin Corr. 1B; Eye Dam. 1; H314, H318	>= 1 - < 3 %
DL-Serine dihydrogen phosphate			
CAS-No. EC-No.	17885-08-4 241-834-7 *	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	>= 1 - < 10 %
1,4-diaminobutane dihydrochloride			
CAS-No. EC-No.	333-93-7 206-375-9 *	Acute Tox. 4; Acute Tox. 2; Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; H302, H330, H311, H314, H318	>= 1 - < 3 %
Thiamine hydrochloride			
CAS-No. EC-No. Registration number	67-03-8 200-641-8 01-2120773699-31-XXXX	Eye Irrit. 2; H319	>= 1 - < 10 %
histamine dihydrochloride			
CAS-No. EC-No.	56-92-8 200-298-4 *	Skin Irrit. 2; Eye Irrit. 2; Resp. Sens. 1; Skin Sens. 1; STOT SE 3; H315, H319, H334, H317, H335	>= 1 - < 10 %
4-chlorotoluene			
CAS-No. EC-No. Index-No.	106-43-4 203-397-0 602-040-00-X *	Flam. Liq. 3; Acute Tox. 4; Skin Sens. 1; Aquatic Chronic 2; H226, H332, H317, H411	>= 1 - < 2.5 %

Cyclohexane			
CAS-No. EC-No. Index-No. Registration number	110-82-7 203-806-2 601-017-00-1 01-2119463273-41-XXXX	Flam. Liq. 2; Skin Irrit. 2; STOT SE 3; Asp. Tox. 1; Aquatic Acute 1; Aquatic Chronic 1; H225, H315, H336, H304, H400, H410 Concentration limits: 20 %: STOT SE 3, H336; M-Factor - Aquatic Acute: 1 - Aquatic Chronic: 1	>= 1 - < 2.5 %

*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. Call in physician.

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

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
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

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
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.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
Lithium oxides
Calcium oxide
Barium oxide
Selenium/selenium oxides
Mixture with combustible ingredients.
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

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

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.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.
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

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.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 formation of dust and aerosols.Work under hood. Do not inhale substance/mixture.

Advice on protection against fire and explosion
Provide appropriate exhaust ventilation at places where dust is formed.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.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.
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
Face shield and safety glasses 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, 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 particle respirator type N100 (US) or type P3 (EN 143) 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) . Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Violent reactions possible with:
Oxidizing agents

10.4 Conditions to avoid
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 - 100 mg/kg
(Calculation method)
Acute toxicity estimate Oral - > 2,000 mg/kg
(Calculation method)
Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.
Acute toxicity estimate Inhalation - 4 h - 3 mg/l - vapor(Calculation method)

Acute toxicity estimate Inhalation - 4 h - > 5 mg/l - dust/mist(Calculation method)

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract
Acute toxicity estimate Dermal - 300 mg/kg
(Calculation method)
Acute toxicity estimate Dermal - > 2,000 mg/kg
(Calculation method)

Skin corrosion/irritation
Remarks: Mixture causes burns.

Serious eye damage/eye irritation
Remarks: Mixture causes serious eye damage.
Risk of blindness!

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
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

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.

Handle in accordance with good industrial hygiene and safety practice.

Components

2'-Deoxy-5'-uridylic acid disodium salt

Acute toxicity
Oral: No data available
LD50 Oral - 500.1 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

Selenocystamine dihydrochloride

Acute toxicity
Oral: No data available
LD50 Oral - 100 mg/kg
LC50 Inhalation - 4 h - 0.51 mg/l - dust/mist
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
May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

4,9-Diazoniadodecamethylenediammonium tetrachloride

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
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

5-(2-Aminoethyl)-4-hydroxypyrocatechol hydrochloride

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

Uridine 5'-diphosphogalactose disodium

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

Uridine 5'-diphospho-N-acetylgalactosamine disodium

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-aminoethyl dihydrogen phosphate

Acute toxicity
LD50 Oral - Rat - 5,820 mg/kg
Remarks: (RTECS)
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

Guanosine 5'-diphosphoglucose 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

2'-Deoxyguanosine 5'-diphosphate 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

Glyoxylic acid monohydrate

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
Eyes - Rabbit
Result: Risk of serious damage to eyes.
(OECD Test Guideline 405)

Respiratory or skin sensitization
- Mouse
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

Orotic 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

1,5,10-triazadecane trihydrochloride; spermidine tetrahydrochloride

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
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

β-Hydroxypyruvic acid

Acute toxicity
Oral: No data available
LD50 Oral - 500.1 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
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'-deoxyguanosine

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available
LD50 Intraperitoneal - Mouse - > 800 mg/kg

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
Test Type: Mammal
Test system: lymphocyte
Remarks: DNA damage
Test Type: Hamster
Test system: Lungs
Remarks: DNA inhibition
Test Type: Hamster
Test system: Lungs
Remarks: Mutation in mammalian somatic cells.
Test Type: Hamster
Test system: fibroblast
Remarks: Cytogenetic analysis
Test Type: Hamster
Test system: fibroblast
Remarks: Sister chromatid exchange

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

5-aminolevulinic acid hydrochloride

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

DL-Serine dihydrogen phosphate

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
Inhalation - May cause respiratory irritation.
Remarks: No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

histamine dihydrochloride

Acute toxicity
LD50 Oral - Mouse - 2,534 mg/kg
Remarks: (RTECS)
Inhalation: Irritating to respiratory system.
Dermal: No data available

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

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

Respiratory or skin sensitization
May cause allergic respiratory and skin reactions (ECHA)

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

1,4-diaminobutane dihydrochloride

Acute toxicity
LD50 Oral - Rat - male and female - 740 mg/kg
(ATC METHODE)
Remarks: (ECHA)
The value is given in analogy to the following substances: 1,4-Diaminobutane

Acute toxicity estimate Oral - 740 mg/kg
(ATE value derived from LD50/LC50 value)
Acute toxicity estimate Oral - 740 mg/kg
(ATE value derived from LD50/LC50 value)
LC50 Inhalation - Rat - male and female - 4 h - 1.131 mg/l - vapor
Remarks: (ECHA)
The value is given in analogy to the following substances: 1,4-Diaminobutane
Acute toxicity estimate Inhalation - 1.131 mg/l - vapor
(ATE value derived from LD50/LC50 value)
Acute toxicity estimate Inhalation - 1.131 mg/l - vapor
(ATE value derived from LD50/LC50 value)
LD50 Dermal - Rabbit - male and female - 614 - 1,228 mg/kg
(OECD Test Guideline 402)
Remarks: The value is given in analogy to the following substances: 1,4-Diaminobutane
Acute toxicity estimate Dermal - 614 mg/kg
(ATE value derived from LD50/LC50 value)
Acute toxicity estimate Dermal - 614 mg/kg
(ATE value derived from LD50/LC50 value)

Skin corrosion/irritation
Skin - Rabbit
Result: Causes burns. - 24 h
(Draize Test)
Remarks: The value is given in analogy to the following substances: 1,4-Diaminobutane

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

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative
(OECD Test Guideline 406)
Remarks: The value is given in analogy to the following substances: 1,4-Diaminobutane

Germ cell mutagenicity
Test Type: In vitro mammalian cell gene mutation test
Test system: Mouse lymphoma test
Result: negative
Remarks: The value is given in analogy to the following substances: 1,4-Diaminobutane
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Human lymphocytes
Result: negative
Remarks: The value is given in analogy to the following substances: 1,4-Diaminobutane
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative
Remarks: The value is given in analogy to the following substances: 1,4-Diaminobutane

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-(+)-2,5-diaminopentanoic acid monohydrochloride

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

Skin corrosion/irritation
Skin - reconstructed human epidermis (RhE)
Result: No skin irritation - 1 h
(OECD Test Guideline 439)

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

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster fibroblasts
Result: negative
Remarks: (ECHA)
Test Type: Ames test
Test system: Escherichia coli/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

Phosphoenolpyruvic acid, trisodium salt, hydrate

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

D-MANNOSE 6-PHOSPHATE BARIUM HYDRATE

Acute toxicity
LD50 Oral - 500.01 mg/kg
LC50 Inhalation - 4 h - 1.5 mg/l - dust/mist
(Acute toxicity estimate)
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

ETHYL 3-UREIDOPROPIONATE

Acute toxicity
LD50 Oral - 2,500 mg/kg
Remarks: No data available
Inhalation: Irritating to respiratory system.
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.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

(3-Carboxypropyl)trimethylammonium chloride

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

(±)-α-(Aminomethyl)-4-hydroxy-3-methoxybenzyl alcohol hydrochloride

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: 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

D-(-)-3-Phosphoglyceric acid disodium 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

D-Ribulose 1,5-bisphosphate sodium salt hydrate

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

Barium 3,3-diethoxy-2-hydroxypropyl phosphate

Acute toxicity
Oral: No data available
LD50 Oral - 500.1 mg/kg
LC50 Inhalation - 4 h - 1.5 mg/l - dust/mist
(Acute toxicity estimate)
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

Uridine 5'-(trihydrogen diphosphate), mono[2-(acetylamino)-2-deoxy-α-D-glucopyranosyl] ester, disodium salt

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

DL-α-(Aminomethyl)-p-hydroxybenzylic alcohol hydrochloride

Acute toxicity
LD50 Oral - Rat - female - 5,000 mg/kg
(OECD Test Guideline 423)
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
Skin - In vitro study
Result: non-corrosive
(OECD Test Guideline 431)
Skin - In vitro study
Result: negative
(OECD Test Guideline 439)

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
In Chemico Skin Sensitisation: Direct Peptide Reactivity Assay (DPRA)
Result: negative
(OECD Test Guideline 442C)
In vitro study
Result: negative
(OECD Test Guideline 442D)

Germ cell mutagenicity
No data available
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

Adenosine 3′,5′-diphosphate disodium 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

Trimethyl[2-(phosphonooxy)ethyl]ammonium chloride, calcium salt (1:1) tetrahydrate

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

L-(-)-Carnitine hydrochloride

Acute toxicity
LD50 Oral - Rat - 6,890 mg/kg
Remarks: (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

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

calcium D-saccharate

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

pyridoxamine dihydrochloride

Acute toxicity
LD50 Oral - Rat - 7,500 mg/kg
Remarks: Behavioral:Convulsions or effect on seizure threshold.
Behavioral:Excitement.
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

Levacecarnine hydrochloride

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 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

Aspiration hazard
No data available

Selenocystamine

Acute toxicity
Acute toxicity estimate Oral - 500.1 mg/kg
(Expert judgment)
Acute toxicity estimate Inhalation - 1.51 mg/l - dust/mist
(Expert judgment)
Acute toxicity estimate Dermal - 300.1 mg/kg
(Expert judgment)

Skin corrosion/irritation
Remarks: Expert judgment

Serious eye damage/eye irritation
Remarks: Expert judgment

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

5-methylcytosine

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: Causes serious eye irritation.

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

(±)-α-(Aminomethyl)-4-hydroxy-3-methoxybenzyl alcohol hydrochloride

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: 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

D-(-)-3-Phosphoglyceric acid disodium 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

Fytic acid

Acute toxicity
LD50 Oral - Rat - male - 405 mg/kg
Remarks: (ECHA)
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
Remarks: Causes skin burns.

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

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

Germ cell mutagenicity
Test Type: Ames test
Test system: S. 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

DL-α-(Aminomethyl)-p-hydroxybenzylic alcohol hydrochloride

Acute toxicity
LD50 Oral - Rat - female - 5,000 mg/kg
(OECD Test Guideline 423)
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
Skin - In vitro study
Result: non-corrosive
(OECD Test Guideline 431)
Skin - In vitro study
Result: negative
(OECD Test Guideline 439)

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
In Chemico Skin Sensitisation: Direct Peptide Reactivity Assay (DPRA)
Result: negative
(OECD Test Guideline 442C)
In vitro study
Result: negative
(OECD Test Guideline 442D)

Germ cell mutagenicity
No data available
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

pivalic acid

Acute toxicity
LD50 Oral - Rat - male - 2,000 mg/kg
(OECD Test Guideline 420)
Inhalation: No data available
LD50 Dermal - Rabbit - male and female - 3,160 mg/kg
(OECD Test Guideline 402)

Skin corrosion/irritation
Skin - Rabbit
Result: 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
Maximization Test - Guinea pig
Result: Not a skin sensitizer.
(OECD Test Guideline 406)

Germ cell mutagenicity
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative
Test Type: gene mutation test
Test system: lymphocyte
Result: negative
Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary 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

Adenosine 3’,5’-diphosphate disodium 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

Trimethyl[2-(phosphonooxy)ethyl]ammonium chloride, calcium salt (1:1) tetrahydrate

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

L-(-)-Carnitine hydrochloride

Acute toxicity
LD50 Oral - Rat - 6,890 mg/kg
Remarks: (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

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

glycineethylester monohydrochloride

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available
LD50 Intraperitoneal - Mouse - 750 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

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Pent-4-enoic acid

Acute toxicity
LD50 Oral - Rat - 470 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity).
Behavioral:Convulsions or effect on seizure threshold.
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

Levacecarnine hydrochloride

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 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

Aspiration hazard
No data available

2'-Deoxy-5'-uridylic acid disodium salt

Acute toxicity
Oral: No data available
LD50 Oral - 500.1 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

4,9-Diazoniadodecamethylenediammonium tetrachloride

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
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

5-(2-Aminoethyl)-4-hydroxypyrocatechol hydrochloride

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

2'-Deoxyguanosine 5'-diphosphate 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

Glyoxylic acid monohydrate

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
Eyes - Rabbit
Result: Risk of serious damage to eyes.
(OECD Test Guideline 405)

Respiratory or skin sensitization
- Mouse
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

Orotic 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

4-Butyl-α, α, α-trifluoroacetophenone

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
Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

8-Bromooctanoic acid

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

Skin corrosion/irritation
Remarks: Causes skin burns.

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
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

DL-Serine dihydrogen phosphate

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
Inhalation - May cause respiratory irritation.
Remarks: No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

1,4-diaminobutane dihydrochloride

Acute toxicity
LD50 Oral - Rat - male and female - 740 mg/kg
(ATC METHODE)
Remarks: (ECHA)
The value is given in analogy to the following substances: 1,4-Diaminobutane
Acute toxicity estimate Oral - 740 mg/kg
(ATE value derived from LD50/LC50 value)
Acute toxicity estimate Oral - 740 mg/kg
(ATE value derived from LD50/LC50 value)
LC50 Inhalation - Rat - male and female - 4 h - 1.131 mg/l - vapor
Remarks: (ECHA)
The value is given in analogy to the following substances: 1,4-Diaminobutane
Acute toxicity estimate Inhalation - 1.131 mg/l - vapor
(ATE value derived from LD50/LC50 value)
Acute toxicity estimate Inhalation - 1.131 mg/l - vapor
(ATE value derived from LD50/LC50 value)
LD50 Dermal - Rabbit - male and female - 614 - 1,228 mg/kg
(OECD Test Guideline 402)
Remarks: The value is given in analogy to the following substances: 1,4-Diaminobutane
Acute toxicity estimate Dermal - 614 mg/kg
(ATE value derived from LD50/LC50 value)
Acute toxicity estimate Dermal - 614 mg/kg
(ATE value derived from LD50/LC50 value)

Skin corrosion/irritation
Skin - Rabbit
Result: Causes burns. - 24 h
(Draize Test)
Remarks: The value is given in analogy to the following substances: 1,4-Diaminobutane

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

Respiratory or skin sensitization
Maximization Test - Guinea pig

Result: negative
(OECD Test Guideline 406)
Remarks: The value is given in analogy to the following substances: 1,4-Diaminobutane

Germ cell mutagenicity
Test Type: In vitro mammalian cell gene mutation test
Test system: Mouse lymphoma test
Result: negative
Remarks: The value is given in analogy to the following substances: 1,4-Diaminobutane
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Human lymphocytes
Result: negative
Remarks: The value is given in analogy to the following substances: 1,4-Diaminobutane
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative
Remarks: The value is given in analogy to the following substances: 1,4-Diaminobutane

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

Thiamine hydrochloride

Acute toxicity
LD50 Oral - Mouse - male and female - 13,347 mg/kg
Remarks: (ECHA)
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
Skin - reconstructed human epidermis (RhE)
Result: No skin irritation - 15 min
(OECD Test Guideline 439)

Serious eye damage/eye irritation
Eyes - In vitro study
Result: Causes serious eye irritation. - 6 h
(OECD Test Guideline 492)

Respiratory or skin sensitization
KeratinoSens assay - In vitro study

Result: negative
(OECD Test Guideline 442D)

Germ cell mutagenicity
Test Type: Ames test
Test system: Escherichia coli/Salmonella typhimurium
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Result: negative
Test Type: Micronucleus test
Test system: Human lymphocytes
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

histamine dihydrochloride

Acute toxicity
LD50 Oral - Mouse - 2,534 mg/kg
Remarks: (RTECS)
Inhalation: Irritating to respiratory system.
Dermal: No data available

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

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

Respiratory or skin sensitization
May cause allergic respiratory and skin reactions (ECHA)

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

4-chlorotoluene

Acute toxicity
LD50 Oral - Rat - male - 2,273 mg/kg
(OECD Test Guideline 401)
Inhalation: absorption
Acute toxicity estimate Inhalation - 11.1 mg/l - vapor
(Expert judgment)
LD50 Dermal - Rat - > 5,000 mg/kg
Remarks: (External MSDS)

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

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
Remarks: (External MSDS)

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: positive
Remarks: (ECHA)

Germ cell mutagenicity
No data available
Test Type: Ames test
Test system: Escherichia coli/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

Cyclohexane

Acute toxicity
LD50 Oral - Rat - male and female - > 5,000 mg/kg
(OECD Test Guideline 401)
Symptoms: gastric pain, Stomach/intestinal disorders

LC50 Inhalation - Rat - male and female - 4 h - > 32,800 mg/l - vapor
(OECD Test Guideline 403)
Symptoms: Possible damages:, Irritation symptoms in the respiratory tract., Inhalation may lead to the formation of oedemas in the respiratory tract.
LD50 Dermal - Rabbit - male and female - > 2,000 mg/kg
(OECD Test Guideline 402)

Skin corrosion/irritation
Remarks: Causes skin irritation.
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Serious eye damage/eye irritation
Remarks: No data available

Respiratory or skin sensitization
Buehler Test - Guinea pig
Result: negative
(Regulation (EC) No. 440/2008, Annex, B.6)

Germ cell mutagenicity
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: Mouse lymphoma test
Result: negative
Method: OECD Test Guideline 475
Species: Rat - male and female - Bone marrow
Result: negative

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
May cause drowsiness or dizziness.
Acute oral toxicity - gastric pain, Stomach/intestinal disorders
Acute inhalation toxicity - Possible damages:, Irritation symptoms in the respiratory tract., Inhalation may lead to the formation of oedemas in the respiratory tract.

Specific target organ toxicity - repeated exposure

Aspiration hazard
May be fatal if swallowed and enters airways.Aspiration hazard, Aspiration may cause pulmonary edema and pneumonitis.

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.

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

Toxic to aquatic life with long lasting effects.

Components

2'-Deoxy-5'-uridylic acid disodium salt

No data available

Selenocystamine dihydrochloride

No data available

4,9-Diazoniadodecamethylenediammonium tetrachloride

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 120 mg/l - 96 h Remarks: (ECOTOX Database)
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - 2.1 mg/l - 48 h Remarks: (ECOTOX Database)

5-(2-Aminoethyl)-4-hydroxypyrocatechol hydrochloride

No data available

Uridine 5'-diphosphogalactose disodium

No data available

Uridine 5'-diphospho-N-acetylgalactosamine disodium

No data available

2-aminoethyl dihydrogen phosphate

No data available

Guanosine 5'-diphosphoglucose sodium salt

No data available

2'-Deoxyguanosine 5'-diphosphate sodium salt
No data available

Glyoxylic acid monohydrate
No data available

Orotic acid monohydrate
No data available

1,5,10-triazadecane trihydrochloride; spermidine tetrahydrochloride

No data available

β-Hydroxypyruvic acid
No data available

2'-deoxyguanosine
No data available

5-aminolevulinic acid hydrochloride

No data available

DL-Serine dihydrogen phosphate
No data available

histamine dihydrochloride

No data available

1,4-diaminobutane dihydrochloride

Toxicity to fish	static test LC50 - Poecilia reticulata (guppy) - 730 mg/l - 96 h Remarks: (ECHA) The value is given in analogy to the following substances: 1,4-Diaminobutane
Toxicity to bacteria	Remarks: The value is given in analogy to the following substances: 1,4-Diaminobutane
Toxicity to fish(Chronic toxicity)	NOEC - Gasterosteus aculeatus - > 10 mg/l - 28 d Remarks: (in analogy to similar products)

L-(+)-2,5-diaminopentanoic acid monohydrochloride

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 - > 100 mg/l - 72 h

(OECD Test Guideline 201)

static test NOEC - Pseudokirchneriella subcapitata - >= 100 mg/l - 72 h
(OECD Test Guideline 201)

Toxicity to bacteria: static test EC50 - activated sludge - 7.8 mg/l - 3 h
(OECD Test Guideline 209)

Phosphoenolpyruvic acid, trisodium salt, hydrate

No data available

D-MANNOSE 6-PHOSPHATE BARIUM HYDRATE

No data available

ETHYL 3-UREIDOPROPIONATE
No data available

(3-Carboxypropyl)trimethylammonium chloride

No data available

(±)-α-(Aminomethyl)-4-hydroxy-3-methoxybenzyl alcohol hydrochloride
No data available

D-(-)-3-Phosphoglyceric acid disodium salt
No data available

D-Ribulose 1,5-bisphosphate sodium salt hydrate
No data available

Barium 3,3-diethoxy-2-hydroxypropyl phosphate
No data available

Uridine 5'-(trihydrogen diphosphate), mono[2-(acetylamino)-2-deoxy-α-D-glucopyranosyl] ester, disodium salt
No data available

DL-α-(Aminomethyl)-p-hydroxybenzylic alcohol hydrochloride

Toxicity to fish: semi-static test LC50 - Cyprinus carpio (Carp) - > 100 mg/l - 96 h
(OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates: static test EC50 - Daphnia magna (Water flea) - ca. 35 mg/l - 48 h
(OECD Test Guideline 202)

Toxicity to algae: static test EC10 - Pseudokirchneriella subcapitata (green algae) - > 90 mg/l - 72 h
(OECD Test Guideline 201)

Toxicity to bacteria: EC10 - activated sludge - ca. 235 mg/l - 3 h
(OECD Test Guideline 209)

Adenosine 3′,5′-diphosphate disodium salt
No data available

Trimethyl[2-(phosphonooxy)ethyl]ammonium chloride, calcium salt (1:1) tetrahydrate
No data available

L-(-)-Carnitine hydrochloride

No data available

calcium D-saccharate
No data available

pyridoxamine dihydrochloride
No data available

Levacecarnine hydrochloride

No data available

Components

Selenocystamine

No data available

5-methylcytosine
No data available

(±)-α-(Aminomethyl)-4-hydroxy-3-methoxybenzyl alcohol hydrochloride
No data available

D-(-)-3-Phosphoglyceric acid disodium salt
No data available

Fytic acid

Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - > 0.3 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - Desmodesmus subspicatus (green algae) - 28.13 mg/l - 72 h (OECD Test Guideline 201)

DL-α-(Aminomethyl)-p-hydroxybenzylic alcohol hydrochloride

Toxicity to fish	semi-static test LC50 - Cyprinus carpio (Carp) - > 100 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - ca. 35 mg/l - 48 h (OECD Test Guideline 202)

Toxicity to algae	static test EC10 - Pseudokirchneriella subcapitata (green algae) - > 90 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	EC10 - activated sludge - ca. 235 mg/l - 3 h (OECD Test Guideline 209)

pivalic acid

Toxicity to fish	static test NOEC - Oncorhynchus mykiss (rainbow trout) - 300 mg/l - 96 h (OECD Test Guideline 203) LC50 - Carassius auratus (goldfish) - 380 mg/l - 96 h
Toxicity to algae	static test EC50 - Pseudokirchneriella subcapitata - > 979 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	

Adenosine 3',5'-diphosphate disodium salt
No data available

Trimethyl[2-(phosphonooxy)ethyl]ammonium chloride, calcium salt (1:1) tetrahydrate
No data available

L-(-)-Carnitine hydrochloride

No data available

glycineethylester monohydrochloride
No data available

Pent-4-enoic acid
No data available

Levacecarnine hydrochloride

No data available

2'-Deoxy-5'-uridylic acid disodium salt
No data available

4,9-Diazoniadodecamethylenediammonium tetrachloride

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 120 mg/l - 96 h Remarks: (ECOTOX Database)
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - 2.1 mg/l - 48 h Remarks: (ECOTOX Database)

5-(2-Aminoethyl)-4-hydroxypyrocatechol hydrochloride
No data available

2'-Deoxyguanosine 5'-diphosphate sodium salt
No data available

Glyoxylic acid monohydrate
No data available

Orotic acid monohydrate
No data available

4-Butyl-α, α, α-trifluoroacetophenone

No data available

8-Bromooctanoic acid

No data available

DL-Serine dihydrogen phosphate
No data available

1,4-diaminobutane dihydrochloride

Toxicity to fish	static test LC50 - Poecilia reticulata (guppy) - 730 mg/l - 96 h Remarks: (ECHA) The value is given in analogy to the following substances: 1,4-Diaminobutane
Toxicity to bacteria	Remarks: The value is given in analogy to the following substances: 1,4-Diaminobutane
Toxicity to fish(Chronic toxicity)	NOEC - Gasterosteus aculeatus - > 10 mg/l - 28 d Remarks: (in analogy to similar products)

Thiamine hydrochloride

Toxicity to fish	static test LC50 - Oncorhynchus mykiss (rainbow trout) - > 100 mg/l - 96 h (OECD Test Guideline 203)
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 EC50 - Desmodesmus subspicatus (green algae) - > 100 mg/l - 72 h (OECD Test Guideline 201)
	static test NOEC - Desmodesmus subspicatus (green algae) - 100 mg/l - 72 h (OECD Test Guideline 201)

histamine dihydrochloride

No data available

4-chlorotoluene

Toxicity to fish	semi-static test LC50 - Poecilia reticulata (guppy) - 5.92 mg/l - 14 d Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Ceriodaphnia dubia (water flea) - 1.7 mg/l - 48 h (US-EPA)
Toxicity to algae	EC50 - Pseudokirchneriella subcapitata (algae) - 6.1 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	static test EC10 - Pseudomonas putida - > 25 mg/l - 18 h (DIN 38421 TEIL 8)
Toxicity to fish(Chronic toxicity)	NOEC - Danio rerio (zebra fish) - 1.9 mg/l (OECD Test Guideline 210)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	NOEC - Daphnia magna (Water flea) - 0.32 mg/l - 21 d (OECD Test Guideline 211)

Cyclohexane

Toxicity to fish	flow-through test LC50 - Pimephales promelas (fathead minnow) - 4.53 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 0.9 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	ErC50 - Pseudokirchneriella subcapitata (green algae) - > 4.425 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	IC50 - Bacteria - 29 mg/l - 15 h Remarks: (ECHA)

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

ADR/RID: 3261 IMDG: 3261 IATA: 3261

14.2 UN proper shipping name

ADR/RID: CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (1,4-diaminobutane dihydrochloride)
IMDG: CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (1,4-diaminobutane dihydrochloride)
IATA: Corrosive solid, acidic, organic, n.o.s. (1,4-diaminobutane dihydrochloride)

14.3 Transport hazard class(es)

ADR/RID: 8 IMDG: 8 IATA: 8

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) : Cyclohexane

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

H225	Highly flammable liquid and vapor.
H226	Flammable liquid and vapor.
H290	May be corrosive to metals.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
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.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
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:**
Skin Corr.1B	H314	Calculation method
Eye Dam.1	H318	Calculation method
Resp. Sens.1	H334	Calculation method
Skin Sens.1	H317	Calculation method
Aquatic Chronic3	H412	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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