Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

Magnesium-XB R1

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

1.1 Product identifier

Product Name: Magnesium-XB R1
Product code: HM929-R1 / HM729-R1

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

Relevant identified uses: For the quantitative determination of Magnesium concentration in serum.
Uses advised against: Not determined or not applicable.
Reasons why uses advised against: Not determined or not applicable.

1.3 Details of the manufacturer/supplier of the safety data sheet

Manufacturer:
United States
HORIBA Instruments Incorporated
5449 Research Drive
Canton, MI 48188
734-487-8300
horiba.com

1.4 Emergency telephone number:

United States
HORIBA Instruments Incorporated
1-800-445-9853 (24 hours per day)

France
Organisme de conseil/centre antipoison national
+33 1 45 42 59 59 (24 hours per day)

Portugal
Órgão consultor nacional/Centro Antivenenos
+351 800 250 250 (24 hours per day)

Spain
Centro de información toxicológica/organismo asesor nacional
+34 91 562 04 20 (24 hours per day)

Czech Republic
Národní poradní orgán/toxikologické středisko
+420 224 919 293 (24 hours per day)

Greece
Εθνικό συμβουλευτικό όργανο/Κέντρο Δηλητηριάσεων
+30 210 779 3777 (24 hours per day)

Italy
Organismo ufficiale di consultazione nazionale/Centro antiveleni
+39 06 305 4343 (24 hours per day)

Romania
Organism consultativ naţional/Centru pentru otrăviri
+40 21 3183606 (24 hours per day)

Poland
Krajowa instytucja doradcza/Ośrodek zatruć
+48 22 619 66 54 (24 hours per day)

SECTION 2: Hazard(s) identification

2.1 Classification of the substance or mixture:

Classification according to Regulation (EC) No. 1272/2008 (CLP):

Skin irritation, category 2
Eye Irritation, category 2
Specific target organ toxicity - single exposure, category 3, respiratory tract irritation

Hazard-determining components of labeling:

1,6-Hexanediamine
Potassium cyanide

Additional Information: None

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Hazard pictograms:

Signal Word: Warning

Hazard statements:

H315 Causes skin irritation
H319 Causes serious eye irritation
H335 May cause respiratory irritation

Precautionary statements:

P264 Wash skin thoroughly after handling.
P280 Wear protective gloves, protective clothing, eye protection and face protection.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray
P271 Use only outdoors in a well-ventilated area
P302+P352 IF ON SKIN: Wash with plenty of water and soap.
P332+P313 If skin irritation occurs: Get medical advice/attention
P362 Take off contaminated clothing and wash before reuse.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337+P313 If eye irritation persists: Get medical advice/attention.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing
P312 Call a POISON CENTER or doctor/physician if you feel unwell.
P403+P233 Store in a well-ventilated place. Keep container tightly closed
P501 Dispose of contents in accordance with local regulations.

2.3 Other hazards: None known

SECTION 3: Composition/information on ingredients

3.1 Substance: Not applicable.

3.2 Mixture:

Identification	EU REACH Registration No.	Name	Classification according to Regulation (EC) No. 1272/2008 (CLP)	Weight %
CAS number: 124-09-4 EC number: 204-679-6	–	1,6-Hexanediamine	Acute Tox. 4 (Oral); H302 Acute Tox. 4 (Dermal); H312 Skin Corr. 1B; H314 STOT SE 3 (RI); H335 Eye Dam. 1; H318	2.5
CAS number: 151-50-8 EC number: 205-792-3	–	Potassium cyanide	Acute Tox. 1 (Oral); H300 Acute Tox. 1 (Dermal); H310 Acute Tox. 1 (Inh); H330 Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT RE 1; H372 Met. Corr. 1; H290 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor: 10 Acute Toxicity Estimate: Oral ATE: 0.5 mg/kg EUH032	0.04

Additional information: None
Full Text of H and EUH statements: See section 16

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes:

Show this Safety Data Sheet to the doctor in attendance.

Following inhalation:

If inhaled, remove person to fresh air and place in a position comfortable for breathing. Keep person at rest. If breathing is difficult, administer oxygen. If breathing has stopped, provide artificial respiration. If experiencing respiratory symptoms, seek medical advice/attention.

Following skin contact:

Remove contaminated clothing and shoes. Rinse skin with copious amounts of water [shower] for several minutes. Launder contaminated clothing before reuse. If symptoms develop or persist, seek medical advice/attention.

Following eye contact:

Rinse eyes with plenty of water for several minutes. Remove contact lenses if present and easy to do so.

Protect unexposed eye. If symptoms develop or persist, seek medical advice/attention.
Rinse eyes with plenty of gently flowing lukewarm water for 15 minutes. Remove contact lenses if present and easy to do so. Protect unexposed eye. If symptoms develop or persist, seek medical advice/attention.

Following ingestion:

If swallowed, DO NOT induce vomiting unless told to do so by a physician or poison control center. Rinse mouth with water. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs, place on the left side with head down to prevent aspiration of liquid into the lungs. If symptoms develop or persist, seek medical advice/attention.

Self-Protection of the first aider:

Not determined or not available.

4.2 Most important symptoms and effects, both acute and delayed

Acute symptoms and effects:

Skin contact may result in redness, pain, burning and inflammation.
Eye contact may result in irritation, redness, pain, inflammation, itching, burning and tearing.
Inhalation may have adverse effects on the respiratory tract. Symptoms may include cough, breathing difficulties, sore throat and inflammation of the mucous membrane lining the respiratory tract.

Delayed symptoms and effects:

Effects are dependent on exposure (dose, concentration, contact time).

4.3 Indication of any immediate medical attention and special treatment needed

Specific treatment:

If respiratory symptoms persist, seek medical attention.

Notes for the doctor:

Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:

Water mist/fog, carbon dioxide, dry chemical or alcohol resistant foam.

Unsuitable extinguishing media:

Do not use water jet.

5.2 Special hazards arising from the substance or mixture:

Thermal decomposition may produce irritating/toxic fumes/gases.

5.3 Advice for firefighters

Personal protection equipment:

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full-face piece operated in positive pressure mode.

Special precautions:

Avoid contact with skin, eyes, hair and clothing. Do not breathe fumes/gas/mists/aerosols/vapors/dusts. Move containers from fire area if safe to do so. Use water spray/fog for cooling fire exposed containers. Avoid unnecessary run-off of extinguishing media which may cause pollution.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

Evacuate unnecessary personnel. Ventilate area. Extinguish any sources of ignition. Wear recommended personal protective equipment (see Section 8). Avoid contact with skin, eyes and clothing. Avoid breathing mist, vapor, dust, fume and spray. Do not walk through spilled material. Wash thoroughly after handling.

6.2 Environmental precautions:

Prevent further leakage or spillage if safe to do so. Prevent from reaching drains, sewers and waterways. Discharge into the environment must be avoided.

6.3 Methods and material for containment and cleaning up:

Do not touch damaged containers or spilled material unless wearing appropriate personal protective clothing. Stop leak if you can do it without risk. Contain and collect spillage and place in suitable container for future disposal. Dispose of in accordance with all applicable regulations (see Section 13).

6.4 Reference to other sections:

For personal protective equipment see Section 8. For disposal see Section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling:

Use appropriate personal protective equipment (see Section 8). Use only with adequate ventilation. Avoid breathing mist/vapor/spray/dust. Do not eat, drink, smoke, or use personal products when handling chemical substances. Avoid contact with skin, eyes and clothing. Wash affected areas thoroughly after handling. Keep away from incompatible materials (See Section 10). Keep containers tightly closed when not in use.

7.2 Conditions for safe storage, including any incompatibilities:

Store in cool, dry, well-ventilated location out of direct sunlight. Keep away from food and beverages. Protect from freezing and physical damage. Store away from heat, open flames and other sources of ignition. Keep container tightly sealed. Store away from incompatible materials (See Section 10). Store at room temperature.

7.3 Specific end use(s):

Refer to Section 1 (Recommended Use).

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Only those substances with limit values have been included below.

Occupational Exposure limit values:

Country (Legal Basis)	Substance	Identifier	Permissible concentration
Austria	1,6-Hexanediamine	124-09-4	MAK TWA: 2.3 mg/m³ (0.5 ppm)
	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³ (inhalable fraction, as CN)
	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ (inhalable fraction, as CN)
Belgium	1,6-Hexanediamine	124-09-4	8-Hour TWA: 2.3 mg/m³ (0.5 ppm)
	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ (as CN)
	Potassium cyanide	151-50-8	Ceiling Limit: 5 mg/m³ (as CN)
Bulgaria	1,6-Hexanediamine	124-09-4	TWA: 1 mg/m³
	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ (as CN)
	Potassium cyanide	151-50-8	TWA: 1 mg/m³ (as CN)
	Potassium cyanide	151-50-8	TWA: 1 mg/m³ (Potassium and sodium cyanide, as HCN)

Country (Legal Basis)	Substance	Identifier	Permissible concentration
Denmark	1,6-Hexanediamine	124-09-4	8-Hour TWA: 2.3 mg/m³ (0.5 ppm)
	1,6-Hexanediamine	124-09-4	STEL: 4.6 mg/m³ (1 ppm)
	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³ (as CN)
	Potassium cyanide	151-50-8	Ceiling Limit: 2 mg/m³ (as CN)
Hungary	1,6-Hexanediamine	124-09-4	8-Hour TWA: 2.3 mg/m³ (5 ppm)
	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³ (Cyanide salts, as CN)
	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ (Cyanide salts, as CN)
Ireland	1,6-Hexanediamine	124-09-4	8-Hour TWA: 2.3 mg/m³ (0.5 ppm)
	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³ (as CN)
	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ (as CN)
Italy	1,6-Hexanediamine	124-09-4	8-Hour TWA: 0.5 ppm
	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ (as CN)
	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³ (as CN)
Latvia	1,6-Hexanediamine	124-09-4	8-Hour TWA: 0.1 mg/m³
	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³ ([5 ppm] as CN)
Lithuania	1,6-Hexanediamine	124-09-4	8-Hour TWA: 0.1 mg/m³
	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³ (as CN)
	Potassium cyanide	151-50-8	Ceiling Limit: 5 mg/m³ (as CN)
Portugal	1,6-Hexanediamine	124-09-4	8-Hour TWA: 0.5 ppm
	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ (as CN)
	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³ (as CN)
Romania	1,6-Hexanediamine	124-09-4	15-Minute STEL: 5 mg/m³
	1,6-Hexanediamine	124-09-4	8-Hour TWA: 1 mg/m³
	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ (as CN)
	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³ (as CN)
Slovenia	1,6-Hexanediamine	124-09-4	TWA: 2.3 mg/m³
	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³ (as CN)
	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ (as CN)
Spain	1,6-Hexanediamine	124-09-4	8-Hour TWA: 2.4 mg/m³ (0.5 ppm)
	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ (as CN)
	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³ (as CN)
European Union	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ (as CN)
	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³ (as CN)
Germany (MAK)	Potassium cyanide	151-50-8	8-Hour TWA: 5 mg/m³ (inhalable fraction, as CN)

Country (Legal Basis)	Substance	Identifier	Permissible concentration
	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ (inhalable fraction, as CN)
Germany (TRGS 900)	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³ (inhalable fraction, as CN)
	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ (inhalable fraction, as CN)
Greece	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ (as CN)
	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³ (as CN)
Luxembourg	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ (as CN)
	Potassium cyanide	151-50-8	TWA: 1 mg/m³ (as CN)
Malta	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ (as CN)
	Potassium cyanide	151-50-8	TWA: 1 mg/m³ (as CN)
Poland	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³ (inhalable fraction, as CN)
	Potassium cyanide	151-50-8	Ceiling Limit: 5 mg/m³ (inhalable fraction, as CN)
Sweden	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³ (inhalable dust, as CN)
	Potassium cyanide	151-50-8	15-Minute STEL: 4 mg/m³ (inhalable dust, as CN)
United Kingdom	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³ (as CN)
	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ (as CN)
Croatia	Potassium cyanide	151-50-8	TWA: 1 mg/m³ (as CN)
	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ (as CN)
Cyprus	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³ (as CN)
	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ (as CN)
Czech Republic	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³ (as HCN)
	Potassium cyanide	151-50-8	Ceiling Limit: 5 mg/m³ (as HCN)
Estonia	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³
	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³
Slovakia	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³ (inhalable fraction, as CN)
	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ (inhalable fraction, as CN)
Finland	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³ (as CN)
	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ (as CN)
France	Potassium cyanide	151-50-8	8-Hour TWA: 1 mg/m³ (as CN)
	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ (as CN)
The Netherlands	Potassium cyanide	151-50-8	TWA: 1 mg/m³ ([0.9 ppm] Cyanides, as CN)

Country (Legal Basis)	Substance	Identifier	Permissible concentration
	Potassium cyanide	151-50-8	15-Minute STEL: 5 mg/m³ ([4.5 ppm] Cyanides, as CN)

Biological limit values:

Country (Legal Basis)	Substance	Identifier	Determinant	Specimen	Sampling time	Permissible limits
Croatia	Potassium cyanide	151-50-8	Thiocyanate	Urine	24 hr	0.11 mmol [6.5 mg]
Romania	Potassium cyanide	151-50-8	Thiocyanate	Urine	EOS	30 mg/L

Derived No Effect Level (DNEL):
Ingredient Name: 1,6-Hexanediamine
CAS #: 124-09-4

Workers - Systemic Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No hazard identified
	Chronic - Dermal	No hazard identified
Workers - Local Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	1.62 mg/m³
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	0.54 mg/m³
	Chronic - Dermal	Hazard identified but no DNEL available
General Population - Systemic Effects	Acute - Oral	Hazard identified but no DNEL available
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	0.17 mg/kg bw/day
	Chronic - Inhalation	No hazard identified
	Chronic - Dermal	No hazard identified
General Population - Local Effect	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	1.2 mg/m³
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	0.4 mg/m³
	Chronic - Dermal	No hazard identified

Ingredient Name: Potassium cyanide
CAS #: 151-50-8

Workers - Systemic Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	12.5 mg/m³
	Acute - Dermal	4.03 mg/kg bw/day
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	0.94 mg/m³
	Chronic - Dermal	0.14 mg/kg bw/day
Workers - Local Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	Not determined or not applicable.
	Acute - Dermal	Not determined or not applicable.
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	Not determined or not applicable.
	Chronic - Dermal	Not determined or not applicable.
General Population - Systemic Effects	Acute - Oral	Exposure based waiving
	Acute - Inhalation	Exposure based waiving
	Acute - Dermal	Exposure based waiving
	Chronic - Oral	Exposure based waiving
	Chronic - Inhalation	Exposure based waiving
	Chronic - Dermal	Exposure based waiving
General Population - Local Effect	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	Exposure based waiving
	Acute - Dermal	Exposure based waiving
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	Exposure based waiving
	Chronic - Dermal	Exposure based waiving

Predicted No Effect Concentration (PNEC):
Ingredient Name: 1,6-Hexanediamine
CAS #: 124-09-4

Environmental Protection Target	PNEC
Fresh water	0.42 mg/L
Freshwater sediments	65.35 mg/kg sediment dw
Marine water	0.04 mg/L
Marine sediments	6.54 mg/kg sediment dw
Microorganisms in sewage treatment	29.1 mg/L
Soil (agricultural)	3.52 mg/kg soil dw
Air	No hazard identified
Oral (Secondary Poisoning)	No exposure expected

Ingredient Name: Potassium cyanide
CAS #: 151-50-8

Environmental Protection Target	PNEC
Fresh water	1 µg/L
Freshwater sediments	0.004 mg/kg sediment dw
Marine water	0.2 µg/L
Marine sediments	0.0008 mg/kg sediment dw
Microorganisms in sewage treatment	50 µg/L

Soil (agricultural)	0.007 mg/kg soil dw
Air	No hazard identified
Oral (Secondary Poisoning)	No exposure expected

Information on monitoring procedures:

Not determined or not applicable.

8.2 Exposure controls

Appropriate engineering controls:

Emergency eye wash stations and safety showers should be available in the immediate vicinity of use or handling. Provide adequate ventilation to maintain the airborne concentrations of vapor, mists, and/or dusts below the applicable workplace exposure limits, while observing recognized national standards (or equivalent).

Personal protection equipment

Eye and face protection:

Safety glasses or goggles. Use eye protection equipment that has been tested and approved by recognized national standards (or equivalent).

Skin and body protection:

Chemical resistant, impervious gloves approved by the appropriate standards. Gloves must be inspected prior to use. Avoid skin contact with used gloves. Appropriate techniques should be used to remove used gloves and contaminated clothing. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Ensure that all personal protective equipment is approved by recognized national standards (or equivalent).

Respiratory protection:

If engineering controls do not maintain airborne concentrations below the applicable workplace exposure limits, or to an acceptable level (if exposure limits have not been established), a respirator approved by recognized national standards (or equivalent) must be worn.

General hygienic measures:

When handling chemical products, do not eat, drink or smoke. Wash hands after handling, before breaks, and at the end of the workday. Avoid contact with skin, eyes and clothing. Wash contaminated clothing before reuse. Perform routine housekeeping.

Environmental exposure controls:

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Product (substance / mixture) related measures to prevent exposure:	Not determined or not applicable.
Instruction measures to prevent exposure:	Not determined or not applicable.
Organisational measures to prevent exposure:	Not determined or not applicable.
Technical measures to prevent exposure:	Not determined or not applicable.

Risk management measures to control exposure:

Not determined or not applicable.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical State	Reagent is provided as a two part liquid.
Color	R1 is clear and colorless. R2 is clear and red to ruby in color
Odor/Odor threshold	Slight odor

pH	Reagent = R1: 11.0 R2: 6.5
Melting point/freezing point	Not Available
Initial boiling point/range	Not Available
Flash point (closed cup)	Not Available
Flammability	Not Available
Upper flammability/explosive limit	Not Available
Lower flammability/explosive limit	Not determined or not available.
Vapor pressure	Not determined or not available.
Relative vapor density	Not determined or not available.
Density	Not Available
Relative density	Not Available
Solubilities	Not Available
Partition coefficient (n-octanol/water)	Not determined or not available.
Auto/Self-ignition temperature	Not determined or not available.
Decomposition temperature	Not determined or not available.
Kinematic viscosity	Not Available
Particle characteristics	Not Available

9.2 Other information

9.2.1 Information with regard to physical hazard classes

Explosives	No data available/Not applicable
Flammable gases	No data available/Not applicable
Aerosols	No data available/Not applicable
Oxidizing gases	No data available/Not applicable
Gases under pressure	No data available/Not applicable
Flammable liquids	No data available/Not applicable
Flammable solids	No data available/Not applicable
Self-reactive substances and mixtures	No data available/Not applicable
Pyrophoric liquids	No data available/Not applicable
Pyrophoric solids	No data available/Not applicable
Self-heating substances and mixtures	No data available/Not applicable
Substances and mixtures, which emit flammable gases in contact with water	No data available/Not applicable
Oxidizing liquids	No data available/Not applicable
Oxidizing solids	No data available/Not applicable
Organic peroxides	No data available/Not applicable
Corrosive to metals	No data available/Not applicable
Desensitized explosives	No data available/Not applicable

9.2.2 Other safety characteristics

None.

SECTION 10: Stability and reactivity

10.1 Reactivity:
Not reactive under recommended handling and storage conditions.

10.2 Chemical stability:
Stable under recommended handling and storage conditions.

10.3 Possibility of hazardous reactions:
Hazardous reactions are not anticipated under recommended conditions of handling and storage.

10.4 Conditions to avoid:
Extreme heat, open flames, hot surfaces, sparks, ignition sources and incompatible materials.

10.5 Incompatible materials:
R1: Avoid contact with acids.

10.6 Hazardous decomposition products:
R1: Decomposition with acid to liberate cyanide gas.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data:

Name	Route	Result
1,6-Hexanediamine	oral	LD50 Rat: 1160 mg/kg
	dermal	LD50 Rat: 1900 mg/kg
Potassium cyanide	Oral ATE	LD50 Rat: 0.5 mg/kg
	dermal	LD50 Rabbit: 11.26 mg/kg
	inhalation	LC50 Rat: 10 ppmV (4 hr [gas])

Skin corrosion/irritation

Assessment:
Causes skin irritation.

Product data:
No data available.

Substance data:

Name	Result
1,6-Hexanediamine	Causes severe skin burns.
Potassium cyanide	Causes skin irritation.

Serious eye damage/irritation

Assessment:
Causes serious eye irritation.

Product data:
No data available.

Substance data:

Name	Result
1,6-Hexanediamine	Causes serious eye damage.
Potassium cyanide	Causes serious eye irritation.

Respiratory or skin sensitization

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data: No data available.

Carcinogenicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data: No data available.

International Agency for Research on Cancer (IARC):

Name	Classification
1,6-Hexanediamine	Not Applicable
Potassium cyanide	Not Applicable

Germ cell mutagenicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data: No data available.

Reproductive Toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data: No data available.

Specific target organ toxicity (single exposure)

Assessment:

May cause respiratory irritation.

Product data:

No data available.

Substance data:

Name	Result
1,6-Hexanediamine	May cause respiratory irritation.

Specific target organ toxicity (repeated exposure)

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data:

Name	Result
Potassium cyanide	Causes damage to thyroid gland through prolonged or repeated exposure.

Aspiration toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data: No data available.

Information on likely routes of exposure:

No data available.

Symptoms related to the physical, chemical and toxicological characteristics:

No data available.

11.2 Information on other hazards

Endocrine disrupting properties:

Substance data: No data available.

Other information:

No data available.

SECTION 12: Ecological information

12.1 Toxicity

Acute (short-term) toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data:

Name	Result
1,6-Hexanediamine	Aquatic Plants EC50 Raphidocelis subcapitata: >100 mg/L (72 hr [growth rate])
	Fish LC50 Pimephales promelas: 1825 mg/L (96 hr)
	Aquatic Invertebrates EC50 Daphnia magna: 23.4 mg/L (48 hr [mobility])
Potassium cyanide	Aquatic Plants EC50 Algae: 0.057 mg/L (72 hr [read-across])
	Aquatic Invertebrates LC50 Daphnia pulex: 0.001 mg/L (48 hr)
	Fish LC50 Oncorhynchus mykiss: 0.053 mg/L (96 hr)

Chronic (long-term) toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data: No data available.

12.2 Persistence and degradability

Product data: No data available.

Substance data:

Name	Result
1,6-Hexanediamine	The substance is readily biodegradable. 82% degradation in water, measured by O2 consumption, after 28 days.
Potassium cyanide	Inherently biodegradable in water, not fulfilling specific criteria.

12.3 Bioaccumulative potential

Product data: No data available.

Substance data:

Name	Result
1,6-Hexanediamine	Bioaccumulation is not expected based on a log Kow <3.0.
Potassium cyanide	Bioaccumulation is not expected. Estimated BCF (aquatic species): 2.162 L/kg ww [QSAR]

12.4 Mobility in soil

Product data: No data available.

Substance data: No data available.

12.5 Results of PBT and vPvB assessment

Product data:

PBT assessment: This product does not contain any substances that are assessed to be a PBT.

vPvB assessment: This product does not contain any substances that are assessed to be a vPvB.

Substance data:

PBT assessment:

1,6-Hexanediamine	The substance is not PBT.
Potassium cyanide	The substance is not PBT.

vPvB assessment:

1,6-Hexanediamine	The substance is not vPvB.
Potassium cyanide	The substance is not vPvB.

12.6 Endocrine disrupting properties

Substance data: No data available.

12.7 Other adverse effects: No data available.

12.8 Hazard to the ozone layer

Assessment: Based on available data, the classification criteria are not met.
Product data: No data available.
Substance data: No data available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

13.1.1 Product / Packaging disposal:
Dilute with large volumes of water and dispose of into sewer system, if in accordance with local regulations.

Waste codes / waste designations according to LoW: Not determined or not available.

13.1.2 Waste treatment-relevant information: Not determined or not available.

13.1.3 Sewage disposal-relevant information: Not determined or not available.

13.1.4 Other disposal recommendations: It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities

SECTION 14: Transport information

International Carriage of Dangerous Goods by Road/Rail (ADR/RID)

UN number or ID number	Not regulated
UN proper shipping name	Not regulated
UN transport hazard class(es)	None
Packing group	None
Environmental hazards	None
Special precautions for user	None

International Carriage of Dangerous Goods by Inland Waterways (ADN)

UN number or ID number	Not regulated
UN proper shipping name	Not regulated
UN transport hazard class(es)	None
Packing group	None
Environmental hazards	None
Special precautions for user	None

International Maritime Dangerous Goods (IMDG)

UN number or ID number	Not regulated
UN proper shipping name	Not regulated
UN transport hazard class(es)	None
Packing group	None
Environmental hazards	None
Special precautions for user	None

International Air Transport Association Dangerous Goods Regulations (IATA-DGR)

UN number or ID number	Not regulated
UN proper shipping name	Not regulated
UN transport hazard class(es)	None
Packing group	None
Environmental hazards	None
Special precautions for user	None

Maritime Transport in Bulk according to IMO Instruments

Bulk Name	None
Ship type	None
Pollution category	None
IMO hazard class	None
Environmental hazards	None
Material hazardous only in bulk	None
Cargo Group	None

SECTION 15: Regulatory information

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

European regulations

Inventory listing (EINECS): All ingredients are listed or exempt.

REACH SVHC candidate list: None of the ingredients are listed.

REACH SVHC Authorizations: None of the ingredients are listed.

REACH Restriction: All ingredients are listed or exempt.

Water hazard class (WGK) (Product): Not determined.

Water hazard class (WGK) (Substance):

Ingredient Name	CAS	Class
Potassium cyanide	151-50-8	Water hazard class 3: highly hazardous to water

Other regulations

Germany TA Luft:

Ingredient Name	CAS	Class	Base Emission Rate	Max Concentration
1,6-Hexanediamine	124-09-4	Class I	0.1 kg/h	20 mg/m³
Potassium cyanide	151-50-8	Class III	5 g/h	1 mg/m³

Additional information: Not determined.

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

SECTION 16: Other information

Abbreviations and Acronyms: None

Classification procedure:

Classification according to Regulation (EC) No. 1272/2008 (CLP)	Method Used
Skin irritation, category 2	Expert judgement
Eye Irritation, category 2	Expert judgement
Specific target organ toxicity - single exposure, category 3, respiratory tract irritation	Expert judgement

Summary of classification(s) in section 3:

Acute Tox. 4 (Oral)	Acute toxicity (oral), category 4
Acute Tox. 4 (Dermal)	Acute toxicity (dermal), category 4
Skin Corr. 1B	Skin corrosion, category 1B
STOT SE 3 (RI)	Specific target organ toxicity - single exposure, category 3, respiratory tract irritation
Eye Dam. 1	Serious eye damage, category 1
Acute Tox. 1 (Oral)	Acute toxicity (oral), category 1
Acute Tox. 1 (Dermal)	Acute toxicity (dermal), category 1
Acute Tox. 1 (Inh)	Acute toxicity (inhalation), category 1
Skin Irrit. 2	Skin irritation, category 2
Eye Irrit. 2	Eye Irritation, category 2
STOT RE 1	Specific target organ toxicity - repeated exposure, category 1
Met. Corr. 1	Corrosive to metals, category 1
Aquatic Acute 1	Acute aquatic hazard, category 1
Aquatic Chronic 1	Chronic aquatic hazard, category 1

Summary of hazard statements in section 3:

H302	Harmful if swallowed
H312	Harmful in contact with skin
H314	Causes severe skin burns and eye damage
H335	May cause respiratory irritation
H318	Causes serious eye damage
H300	Fatal if swallowed
H310	Fatal in contact with skin
H330	Fatal if inhaled
H315	Causes skin irritation
H319	Causes serious eye irritation
H372	Causes damage to organs (state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
H290	May be corrosive to metals
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

Summary of EUH Statement(s) in section 3:

EUH032	Contact with acids liberates very toxic gas

Disclaimer:

This product has been classified in accordance with EC No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and EC No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878. The information provided in this SDS is correct, to the best of our knowledge, based on information available. The information given is designed only as a guidance for safe handling, use, storage, transportation, and disposal and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials, unless specified in the text. The responsibility to provide a safe workplace remains with the user.

Initial preparation date: 2023-11-20

End of Safety Data Sheet

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

Magnesium-XB R2

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

1.1 Product identifier

Product Name: Magnesium-XB R2
Product code: HM929-R2 / HM729-R2

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

Relevant identified uses: For the quantitative determination of Magnesium concentration in serum.
Uses advised against: Not determined or not applicable.
Reasons why uses advised against: Not determined or not applicable.

1.3 Details of the manufacturer/supplier of the safety data sheet

Manufacturer:
United States
HORIBA Instruments Incorporated
5449 Research Drive
Canton, MI 48188
734-487-8300
horiba.com

1.4 Emergency telephone number:

United States
HORIBA Instruments Incorporated
1-800-445-9853 (24 hours per day)

France
Organisme de conseil/centre antipoison national
+33 1 45 42 59 59 (24 hours per day)

Portugal
Órgão consultor nacional/Centro Antivenenos
+351 800 250 250 (24 hours per day)

Spain
Centro de información toxicológica/organismo asesor nacional
+34 91 562 04 20 (24 hours per day)

Czech Republic
Národní poradní orgán/toxikologické středisko
+420 224 919 293 (24 hours per day)

Greece
Εθνικό συμβουλευτικό όργανο/Κέντρο Δηλητηριάσεων
+30 210 779 3777 (24 hours per day)

Italy
Organismo ufficiale di consultazione nazionale/Centro antiveleni
+39 06 305 4343 (24 hours per day)

Romania
Organism consultativ naţional/Centru pentru otrăviri
+40 21 3183606 (24 hours per day)

Poland
Krajowa instytucja doradcza/Ośrodek zatruć
+48 22 619 66 54 (24 hours per day)

SECTION 2: Hazard(s) identification

2.1 Classification of the substance or mixture:

Classification according to Regulation (EC) No. 1272/2008 (CLP):

Skin irritation, category 2
Eye Irritation, category 2

Hazard-determining components of labeling:

Dimethyl sulfoxide

Additional Information: None

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Hazard pictograms:

Signal Word: Warning

Hazard statements:

H315 Causes skin irritation
H319 Causes serious eye irritation

Precautionary statements:

P264 Wash skin thoroughly after handling.
P280 Wear protective gloves, protective clothing, eye protection and face protection.
P302+P352 IF ON SKIN: Wash with plenty of water and soap.
P332+P313 If skin irritation occurs: Get medical advice/attention
P362 Take off contaminated clothing and wash before reuse.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337+P313 If eye irritation persists: Get medical advice/attention.

2.3 Other hazards: None known

SECTION 3: Composition/information on ingredients

3.1 Substance: Not applicable.

3.2 Mixture:

Identification	EU REACH Registration No.	Name	Classification according to Regulation (EC) No. 1272/2008 (CLP)	Weight %
CAS number: 67-68-5 EC number: 200-664-3	–	Dimethyl sulfoxide	Skin Irrit. 2; H315 Eye Irrit. 2; H319	20

CAS number: 14936-97-1 EC number: 239-012-8	–	Sodium 3-[[3-[[(2,4-dimethylphenyl)amino]carbonyl]-2-hydroxy-1-naphthyl]azo]-4-hydroxybenzenesulphonate	Not classified;	0.01

Additional information: None
Full Text of H and EUH statements: See section 16

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes:

Show this Safety Data Sheet to the doctor in attendance.

Following inhalation:

If inhaled, remove person to fresh air and place in a position comfortable for breathing. Keep person at rest. If breathing is difficult, administer oxygen. If breathing has stopped, provide artificial respiration. If experiencing respiratory symptoms, seek medical advice/attention.

Following skin contact:

Remove contaminated clothing and shoes. Rinse skin with copious amounts of water [shower] for several minutes. Launder contaminated clothing before reuse. If symptoms develop or persist, seek medical advice/attention.

Following eye contact:

Rinse eyes with plenty of water for several minutes. Remove contact lenses if present and easy to do so. Protect unexposed eye. If symptoms develop or persist, seek medical advice/attention.
Rinse eyes with plenty of gently flowing lukewarm water for 15 minutes. Remove contact lenses if present and easy to do so. Protect unexposed eye. If symptoms develop or persist, seek medical advice/attention.

Following ingestion:

If swallowed, DO NOT induce vomiting unless told to do so by a physician or poison control center. Rinse mouth with water. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs, place on the left side with head down to prevent aspiration of liquid into the lungs. If symptoms develop or persist, seek medical advice/attention.

Self-Protection of the first aider:

Not determined or not available.

4.2 Most important symptoms and effects, both acute and delayed

Acute symptoms and effects:

Skin contact may result in redness, pain, burning and inflammation.
Eye contact may result in irritation, redness, pain, inflammation, itching, burning and tearing.

Delayed symptoms and effects:

Effects are dependent on exposure (dose, concentration, contact time).

4.3 Indication of any immediate medical attention and special treatment needed

Specific treatment:

Not determined or not available.

Notes for the doctor:

Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:

Water mist/fog, carbon dioxide, dry chemical or alcohol resistant foam.

Unsuitable extinguishing media:
Do not use water jet.

5.2 Special hazards arising from the substance or mixture:
Thermal decomposition may produce irritating/toxic fumes/gases.

5.3 Advice for firefighters

Personal protection equipment:
Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full-face piece operated in positive pressure mode.

Special precautions:
Avoid contact with skin, eyes, hair and clothing. Do not breathe fumes/gas/mists/aerosols/vapors/dusts. Move containers from fire area if safe to do so. Use water spray/fog for cooling fire exposed containers. Avoid unnecessary run-off of extinguishing media which may cause pollution.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:
Evacuate unnecessary personnel. Ventilate area. Extinguish any sources of ignition. Wear recommended personal protective equipment (see Section 8). Avoid contact with skin, eyes and clothing. Avoid breathing mist, vapor, dust, fume and spray. Do not walk through spilled material. Wash thoroughly after handling.

6.2 Environmental precautions:
Prevent further leakage or spillage if safe to do so. Prevent from reaching drains, sewers and waterways. Discharge into the environment must be avoided.

6.3 Methods and material for containment and cleaning up:
Do not touch damaged containers or spilled material unless wearing appropriate personal protective clothing. Stop leak if you can do it without risk. Contain and collect spillage and place in suitable container for future disposal. Dispose of in accordance with all applicable regulations (see Section 13).

6.4 Reference to other sections:
For personal protective equipment see Section 8. For disposal see Section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling:
Use appropriate personal protective equipment (see Section 8). Use only with adequate ventilation. Avoid breathing mist/vapor/spray/dust. Do not eat, drink, smoke, or use personal products when handling chemical substances. Avoid contact with skin, eyes and clothing. Wash affected areas thoroughly after handling. Keep away from incompatible materials (See Section 10). Keep containers tightly closed when not in use.

7.2 Conditions for safe storage, including any incompatibilities:
Store in cool, dry, well-ventilated location out of direct sunlight. Keep away from food and beverages. Protect from freezing and physical damage. Store away from heat, open flames and other sources of ignition. Keep container tightly sealed. Store away from incompatible materials (See Section 10). Store at room temperature.

7.3 Specific end use(s):
Refer to Section 1 (Recommended Use).

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Only those substances with limit values have been included below.

Occupational Exposure limit values:

Country (Legal Basis)	Substance	Identifier	Permissible concentration
Austria	Dimethyl sulfoxide	67-68-5	MAK TWA: 160 mg/m³ (50 ppm)
Denmark	Dimethyl sulfoxide	67-68-5	STEL: 320 mg/m³ (100 ppm)
	Dimethyl sulfoxide	67-68-5	8-Hour TWA: 160 mg/m³ (50 ppm)
Estonia	Dimethyl sulfoxide	67-68-5	15-Minute STEL: 500 mg/m³ (150 ppm)
	Dimethyl sulfoxide	67-68-5	8-Hour TWA: 150 mg/m³ (50 ppm)
Finland	Dimethyl sulfoxide	67-68-5	8-Hour TWA: 50 ppm
Germany (MAK)	Dimethyl sulfoxide	67-68-5	8-Hour TWA: 160 mg/m³ (50 ppm)
Germany (TRGS 900)	Dimethyl sulfoxide	67-68-5	Limit Value: 160 mg/m³ (50 ppm)
Lithuania	Dimethyl sulfoxide	67-68-5	15-Minute STEL: 500 mg/m³ (150 ppm)
	Dimethyl sulfoxide	67-68-5	8-Hour TWA: 150 mg/m³ (50 ppm)
Slovenia	Dimethyl sulfoxide	67-68-5	8-Hour TWA: 160 mg/m³ (50 ppm)
	Dimethyl sulfoxide	67-68-5	15-Minute STEL: 320 mg/m³ (100 ppm)
Sweden	Dimethyl sulfoxide	67-68-5	Level Limit Value: 150 mg/m³ (50 ppm)
	Dimethyl sulfoxide	67-68-5	15-Minute STEL: 500 mg/m³ (150 ppm)

Biological limit values:

No biological exposure limits noted for the ingredient(s).

Derived No Effect Level (DNEL):

Ingredient Name: Dimethyl sulfoxide

CAS #: 67-68-5

Workers - Systemic Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	75 mg/m³
	Chronic - Dermal	356 mg/kg bw/day
Workers - Local Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	17.67 mg/m³
	Chronic - Dermal	No hazard identified

General Population - Systemic Effects	Acute - Oral	No hazard identified
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	1.67 mg/kg bw/day
	Chronic - Inhalation	56 mg/m³
	Chronic - Dermal	178 mg/kg bw/day
General Population - Local Effect	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	3.13 mg/m³
	Chronic - Dermal	No hazard identified

Predicted No Effect Concentration (PNEC):
Ingredient Name: Dimethyl sulfoxide
CAS #: 67-68-5

Environmental Protection Target	PNEC
Fresh water	17 mg/L
Freshwater sediments	61.4 mg/kg sediment dw
Marine water	1.7 mg/L
Marine sediments	6.14 mg/kg sediment dw
Microorganisms in sewage treatment	11 mg/L
Soil (agricultural)	2.32 mg/kg soil dw
Air	No hazard identified

Information on monitoring procedures:
Not determined or not applicable.

8.2 Exposure controls

Appropriate engineering controls:
Emergency eye wash stations and safety showers should be available in the immediate vicinity of use or handling. Provide adequate ventilation to maintain the airborne concentrations of vapor, mists, and/or dusts below the applicable workplace exposure limits, while observing recognized national standards (or equivalent).

Personal protection equipment

Eye and face protection:
Safety glasses or goggles. Use eye protection equipment that has been tested and approved by recognized national standards (or equivalent).

Skin and body protection:
Chemical resistant, impervious gloves approved by the appropriate standards. Gloves must be inspected prior to use. Avoid skin contact with used gloves. Appropriate techniques should be used to remove used gloves and contaminated clothing. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Ensure that all personal protective equipment is approved by recognized national standards (or equivalent).

Respiratory protection:
If engineering controls do not maintain airborne concentrations below the applicable workplace exposure limits, or to an acceptable level (if exposure limits have not been established), a respirator approved by recognized national standards (or equivalent) must be worn.

General hygienic measures:

When handling chemical products, do not eat, drink or smoke. Wash hands after handling, before breaks, and at the end of the workday. Avoid contact with skin, eyes and clothing. Wash contaminated clothing before reuse. Perform routine housekeeping.

Environmental exposure controls:
Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Product (substance / mixture) related measures to prevent exposure:	Not determined or not applicable.
Instruction measures to prevent exposure:	Not determined or not applicable.
Organisational measures to prevent exposure:	Not determined or not applicable.
Technical measures to prevent exposure:	Not determined or not applicable.

Risk management measures to control exposure:
Not determined or not applicable.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical State	Reagent is provided as a two part liquid.
Color	R1 is clear and colorless. R2 is clear and red to ruby in color.
Odor/Odor threshold	Slight odor
pH	Reagent = R1: 11.0 R2: 6.5
Melting point/freezing point	Not Available
Initial boiling point/range	Not Available
Flash point (closed cup)	Not determined or not available.
Flammability	Not Available
Upper flammability/explosive limit	Not Available
Lower flammability/explosive limit	Not Available
Vapor pressure	Not Available
Relative vapor density	Not Available
Density	Not determined or not available.
Relative density	Not Available
Solubilities	Not Available
Partition coefficient (n-octanol/water)	Not Available
Auto/Self-ignition temperature	Not Available
Decomposition temperature	Not Available
Kinematic viscosity	Not Available
Particle characteristics	Not Available

9.2 Other information

9.2.1 Information with regard to physical hazard classes

Explosives	No data available/Not applicable
Flammable gases	No data available/Not applicable
Aerosols	No data available/Not applicable
Oxidizing gases	No data available/Not applicable
Gases under pressure	No data available/Not applicable

Flammable liquids	No data available/Not applicable
Flammable solids	No data available/Not applicable
Self-reactive substances and mixtures	No data available/Not applicable
Pyrophoric liquids	No data available/Not applicable
Pyrophoric solids	No data available/Not applicable
Self-heating substances and mixtures	No data available/Not applicable
Substances and mixtures, which emit flammable gases in contact with water	No data available/Not applicable
Oxidizing liquids	No data available/Not applicable
Oxidizing solids	No data available/Not applicable
Organic peroxides	No data available/Not applicable
Corrosive to metals	No data available/Not applicable
Desensitized explosives	No data available/Not applicable

9.2.2 Other safety characteristics

None.

SECTION 10: Stability and reactivity

10.1 Reactivity:

Not reactive under recommended handling and storage conditions.

10.2 Chemical stability:

Stable under recommended handling and storage conditions.

10.3 Possibility of hazardous reactions:

Hazardous reactions are not anticipated under recommended conditions of handling and storage.

10.4 Conditions to avoid:

Extreme heat, open flames, hot surfaces, sparks, ignition sources and incompatible materials.

10.5 Incompatible materials:

R1: Avoid contacts with acids.

10.6 Hazardous decomposition products:

R1: Decomposition with acid to liberate cyanide gas

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data:

Name	Route	Result
Dimethyl sulfoxide	oral	LD50 Rat: 28,300 mg/kg
	dermal	LD50 Rat: 40,000 mg/kg

Skin corrosion/irritation

Assessment:

Causes skin irritation.

Product data:
No data available.
Substance data:

Name	Result
Dimethyl sulfoxide	Causes skin irritation.

Serious eye damage/irritation
Assessment:
Causes serious eye irritation.
Product data:
No data available.
Substance data:

Name	Result
Dimethyl sulfoxide	Causes serious eye irritation.

Respiratory or skin sensitization
Assessment: Based on available data, the classification criteria are not met.
Product data:
No data available.
Substance data: No data available.

Carcinogenicity
Assessment: Based on available data, the classification criteria are not met.
Product data: No data available.
Substance data: No data available.
International Agency for Research on Cancer (IARC):

Name	Classification
Dimethyl sulfoxide	Not Applicable
Sodium 3-[[3-[[(2,4-dimethylphenyl)amino]carbonyl]-2-hydroxy-1-naphthyl]azo]-4-hydroxybenzenesulphonate	Not Applicable

Germ cell mutagenicity
Assessment: Based on available data, the classification criteria are not met.
Product data: No data available.
Substance data: No data available.

Reproductive Toxicity
Assessment: Based on available data, the classification criteria are not met.
Product data:
No data available.
Substance data: No data available.

Specific target organ toxicity (single exposure)
Assessment: Based on available data, the classification criteria are not met.
Product data:
No data available.
Substance data: No data available.

Specific target organ toxicity (repeated exposure)
Assessment: Based on available data, the classification criteria are not met.
Product data:
No data available.
Substance data: No data available.

Aspiration toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data: No data available.

Information on likely routes of exposure:

No data available.

Symptoms related to the physical, chemical and toxicological characteristics:

No data available.

11.2 Information on other hazards

Endocrine disrupting properties:

Substance data: No data available.

Other information:

No data available.

SECTION 12: Ecological information

12.1 Toxicity

Acute (short-term) toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data:

Name	Result
Dimethyl sulfoxide	Fish LC50 Danio rerio: > 25,000 mg/L (96 hr)
	Aquatic Invertebrates EC50 Daphnia magna: 24,600 mg/L (48 hr)
	Aquatic Plants EC50 Pseudokirchneriella subcapitata: 17,000 mg/L (72 hr [growth rate])

Chronic (long-term) toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data: No data available.

12.2 Persistence and degradability

Product data: No data available.

Substance data:

Name	Result
Dimethyl sulfoxide	Under test conditions, no biodegradation was observed (31% degradation measured by after 28 days).

12.3 Bioaccumulative potential

Product data: No data available.

Substance data:

Name	Result
Dimethyl sulfoxide	Substance is not expected to bioaccumulated (calculated BCF: 3.16 L/kg). [QSAR]

12.4 Mobility in soil

Product data: No data available.

Substance data:

Name	Result
Dimethyl sulfoxide	Substance is expected to be highly mobile (calculated Koc: 4.41) [QSAR]. Therefore, adsorption to soil is not expected.

12.5 Results of PBT and vPvB assessment

Product data:

PBT assessment: This product does not contain any substances that are assessed to be a PBT.

vPvB assessment: This product does not contain any substances that are assessed to be a vPvB.

Substance data:

PBT assessment:

Dimethyl sulfoxide	This substance is not PBT.

vPvB assessment:

Dimethyl sulfoxide	This substance is not vPvB.

12.6 Endocrine disrupting properties

Substance data: No data available.

12.7 Other adverse effects: No data available.

12.8 Hazard to the ozone layer

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data: No data available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

13.1.1 Product / Packaging disposal:

Dilute with large volumes of water and dispose of into sewer system, if in accordance with local regulations.

Waste codes / waste designations according to LoW: Not determined or not available.

13.1.2 Waste treatment-relevant information: Not determined or not available.

13.1.3 Sewage disposal-relevant information: Not determined or not available.

13.1.4 Other disposal recommendations: It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities

SECTION 14: Transport information

International Carriage of Dangerous Goods by Road/Rail (ADR/RID)

UN number or ID number	Not regulated
UN proper shipping name	Not regulated
UN transport hazard class(es)	None
Packing group	None
Environmental hazards	None
Special precautions for user	None

International Carriage of Dangerous Goods by Inland Waterways (ADN)

UN number or ID number	Not regulated
UN proper shipping name	Not regulated
UN transport hazard class(es)	None

Packing group	None
Environmental hazards	None
Special precautions for user	None

International Maritime Dangerous Goods (IMDG)

UN number or ID number	Not regulated
UN proper shipping name	Not regulated
UN transport hazard class(es)	None
Packing group	None
Environmental hazards	None
Special precautions for user	None

International Air Transport Association Dangerous Goods Regulations (IATA-DGR)

UN number or ID number	Not regulated
UN proper shipping name	Not regulated
UN transport hazard class(es)	None
Packing group	None
Environmental hazards	None
Special precautions for user	None

Maritime Transport in Bulk according to IMO Instruments

Bulk Name	None
Ship type	None
Pollution category	None
IMO hazard class	None
Environmental hazards	None
Material hazardous only in bulk	None
Cargo Group	None

SECTION 15: Regulatory information

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

European regulations

Inventory listing (EINECS): All ingredients are listed or exempt.

REACH SVHC candidate list: None of the ingredients are listed.

REACH SVHC Authorizations: None of the ingredients are listed.

REACH Restriction: None of the ingredients are listed.

Water hazard class (WGK) (Product): Not determined.

Water hazard class (WGK) (Substance):

Ingredient Name	CAS	Class
Dimethyl sulfoxide	67-68-5	Water hazard class 1: slightly hazardous to water

Other regulations

Germany TA Luft: None of the ingredients are listed.

Additional information: Not determined.

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

SECTION 16: Other information

Abbreviations and Acronyms: None

Classification procedure:

Classification according to Regulation (EC) No. 1272/2008 (CLP)	Method Used
Skin irritation, category 2	Expert judgement
Eye Irritation, category 2	Expert judgement

Summary of classification(s) in section 3:

Skin Irrit. 2	Skin irritation, category 2
Eye Irrit. 2	Eye Irritation, category 2

Summary of hazard statements in section 3:

H315	Causes skin irritation
H319	Causes serious eye irritation

Disclaimer:

This product has been classified in accordance with EC No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and EC No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878. The information provided in this SDS is correct, to the best of our knowledge, based on information available. The information given is designed only as a guidance for safe handling, use, storage, transportation, and disposal and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials, unless specified in the text. The responsibility to provide a safe workplace remains with the user.

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End of Safety Data Sheet