




SAFETY DATA SHEET

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by UK REACH Regulation SI 2019/758

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

1.1 Product identifier

| | | |
|-------------------------------|---|---|
| Product name | ActiPRO™, with Poloxamer-188, without Insulin, without L-Glutamine, 100L | |
| Catalogue Number | SH31037.04 |  9 0 S H 3 1 0 3 7 . 0 4 |
| Product description | Not available. | |
| Product type | Solid. | |
| Other means of identification | Not available. | |

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

For Further Manufacturing or Research Use. Not for Diagnostic or Therapeutic Use.

1.3 Details of the supplier of the safety data sheet

Supplier

Cytiva Austria
Krempstr. 5
4061 Pasching
AUSTRIA
Phone: +43 7229 64865

HyClone Laboratories
925 West 1800 South
Logan, Utah 84321
Phone: (435) 792-8000

Cytiva Singapore
1 Maritime Square #13-01
Harbourfront Centre
Singapore 099253

Hours of operation

Mo. - Fr.
08.30 - 17.00

Person who prepared the SDS: sds_author@cytiva.com

United Kingdom (UK)

Cytiva Austria
Krempstr. 5
4061 Pasching
AUSTRIA
Phone: +43 7229 64865

1.4 Emergency telephone number

Call INFOTRAC 24 Hour number:
001-352-323-3500 (Call Collect).

National advisory body/Poison Centre

United Kingdom (UK)

National Poison Information Centre
Medical Toxicology Unit
Avalonley Road
London SE14 5ER
Tel.: +44 (171)635 91 91

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition Mixture

Classification according to UK CLP/GHS

Eye Irrit. 2, H319

The product is classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.

Ingredients of unknown toxicity 14.4 percent of the mixture consists of component(s) of unknown acute oral toxicity
71.7 percent of the mixture consists of component(s) of unknown acute dermal toxicity
81.8 percent of the mixture consists of component(s) of unknown acute inhalation toxicity

Ingredients of unknown ecotoxicity Contains 43.8% of components with unknown hazards to the aquatic environment

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms



Signal word Warning

Hazard statements Causes serious eye irritation.

Precautionary statements

General Not applicable.

Prevention Wear eye or face protection.

Response IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.

Storage Not applicable.

Disposal Not applicable.

Supplemental label elements Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles Not applicable.

Special packaging requirements

Containers to be fitted with child-resistant fastenings Not applicable.

Tactile warning of danger Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Mixture

| Product/ingredient name | Identifiers | % | Classification | Type |
|--|---|-------------|--|---------|
| succinic acid | EC: 203-740-4 CAS: 110-15-6 | <5.95 | Skin Corr. 1, H314 Eye Dam. 1, H318 | [1] |
| ammonium iron(III) citrate | EC: 214-686-6 CAS: 1185-57-5 | <2.3 | Not classified. | [2] |
| copper sulphate pentahydrate | EC: 231-847-6 CAS: 7758-99-8 Index: 029-023-00-4 | <0.002 | Acute Tox. 4, H302 Eye Dam. 1, H318 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1) | [1] [2] |
| Sulfuric acid, manganese(2+) salt, hydrate (1:1:1) | EC: 232-089-9 CAS: 10034-96-5 Index: 025-003-00-4 | <0.0005 | STOT RE 2, H373 Aquatic Chronic 2, H411 | [1] [2] |
| Molybdate (Mo7O246-), ammonium, hydrate (1:6:4) | EC: 234-722-4 CAS: 12054-85-2 | <0.0002 | Aquatic Chronic 3, H412 | [1] [2] |
| sodium selenite | EC: 233-267-9 CAS: 10102-18-8 Index: 034-003-00-3 | <0.00015 | Acute Tox. 2, H300 Acute Tox. 3, H331 Skin Sens. 1, H317 Aquatic Acute 1, H400 (M=100) Aquatic Chronic 2, H411 EUH031 | [1] [2] |
| Tin chloride (SnCl2), dihydrate | EC: 231-868-0 CAS: 10025-69-1 | <0.00002 | Acute Tox. 4, H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 | [1] [2] |
| Sulfuric acid, nickel(2+) salt, hydrate (1:1:6) | EC: 232-104-9 CAS: 10101-97-0 Index: 028-009-00-5 | <0.00000085 | Acute Tox. 4, H302 Acute Tox. 4, H332 Skin Irrit. 2, H315 Resp. Sens. 1, H334 Skin Sens. 1, H317 Muta. 2, H341 Carc. 1A, H350i Repr. 1B, H360D STOT RE 1, H372 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1) | [1] [2] |

See Section 16 for the full text of the H statements declared above.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a physical, health or environmental hazard

[2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

| | |
|-----------------------------------|--|
| Ingestion | Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |
| Protection of first-aiders | No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. |

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

| | |
|---------------------|--|
| Eye contact | Adverse symptoms may include the following: pain or irritation watering redness |
| Inhalation | No specific data. |
| Skin contact | No specific data. |
| Ingestion | No specific data. |

4.3 Indication of any immediate medical attention and special treatment needed

| | |
|----------------------------|---|
| Notes to physician | In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. |
| Specific treatments | No specific treatment. |

SECTION 5: Firefighting measures

5.1 Extinguishing media

| | |
|-------------------------------------|---|
| Suitable extinguishing media | Use an extinguishing agent suitable for the surrounding fire. |
|-------------------------------------|---|

| | |
|---------------------------------------|-------------|
| Unsuitable extinguishing media | None known. |
|---------------------------------------|-------------|

5.2 Special hazards arising from the substance or mixture

| | |
|--|---|
| Hazards from the substance or mixture | No specific fire or explosion hazard. |
| Hazardous combustion products | Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides phosphorus oxides halogenated compounds metal oxide/oxides |

5.3 Advice for firefighters

| | |
|---|---|
| Special precautions for fire-fighters | Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. |
| Special protective equipment for fire-fighters | Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to British standard BS EN 469 will provide a basic level of protection for chemical incidents. |

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

| | |
|------------------------------------|---|
| For non-emergency personnel | No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. |
| For emergency responders | If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". |

6.2 Environmental precautions

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and material for containment and cleaning up

| | |
|--|--|
| Small spill | Move containers from spill area. Avoid dust generation. Using a vacuum with HEPA filter will reduce dust dispersal. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. |
| Large spill | Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. |
| 6.4 Reference to other sections | See Section 1 for emergency contact information. See Section 8 for information on appropriate personal protective equipment. See Section 13 for additional waste treatment information. |

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

| | |
|---|--|
| Protective measures | Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container. |
| Advice on general occupational hygiene | Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. |

7.2 Conditions for safe storage, including any incompatibilities

Store between the following temperatures: 2 to 8°C (35.6 to 46.4°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

| | |
|---|----------------|
| Recommendations | Not available. |
| Industrial sector specific solutions | Not available. |

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

| <u>Occupational exposure limits</u> | |
|-------------------------------------|---|
| Product/ingredient name | Exposure limit values |
| ammonium iron(III) citrate | EH40/2005 WELs (United Kingdom (UK), 1/2020) [iron salts] STEL 15 minutes: 2 mg/m ³ (as Fe). TWA 8 hours: 1 mg/m ³ (as Fe). |
| copper sulphate pentahydrate | EH40/2005 WELs (United Kingdom (UK), 1/2020) [Copper and compounds] STEL 15 minutes: 2 mg/m ³ (as Cu). Form: Dusts and Mists. TWA 8 hours: 1 mg/m ³ (as Cu). Form: Dusts and Mists. |
| manganese sulphate | EH40/2005 WELs (United Kingdom (UK), 1/2020) [manganese and its inorganic compounds] TWA 8 hours: 0.2 mg/m ³ (as Mn). Form: Inhalable fraction. TWA 8 hours: 0.05 mg/m ³ (as Mn). Form: Respirable fraction. |
| hexaammonium heptamolybdate | EH40/2005 WELs (United Kingdom (UK), 1/2020) [molybdenum soluble compounds] STEL 15 minutes: 10 mg/m ³ (as Mo). TWA 8 hours: 5 mg/m ³ (as Mo). |
| sodium selenite | EH40/2005 WELs (United Kingdom (UK), 1/2020) [selenium and compounds, except hydrogen selenide] TWA 8 hours: 0.1 mg/m ³ (as Se). |
| tin dichloride | EH40/2005 WELs (United Kingdom (UK), 1/2020) [tin compounds, inorganic except SnH₄] STEL 15 minutes: 4 mg/m ³ (as Sn). TWA 8 hours: 2 mg/m ³ (as Sn). |
| nickel sulphate | EH40/2005 WELs (United Kingdom (UK), 1/2020) [nickel inorganic compounds, water-soluble (except nickel tetracarbonyl)] Carc. Absorbed through skin, Inhalation sensitiser. TWA 8 hours: 0.1 mg/m ³ (as Ni). |

Biological exposure indices

No exposure indices known.

Recommended monitoring procedures

Reference should be made to monitoring standards, such as the following: British Standard BS EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) British Standard BS EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) British Standard BS EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs**Product/ingredient name**

succinic acid

Result**DNEL - General population - Short term - Inhalation**10 mg/m³Effects: Local**DNEL - General population - Long term - Inhalation**10 mg/m³Effects: Local**DNEL - General population - Short term - Inhalation**10 mg/m³Effects: Systemic**DNEL - General population - Long term - Inhalation**10 mg/m³Effects: Systemic**DNEL - Workers - Long term - Inhalation**10 mg/m³Effects: Local**DNEL - Workers - Short term - Inhalation**10 mg/m³Effects: Systemic**DNEL - Workers - Long term - Inhalation**10 mg/m³Effects: Systemic**DNEL - General population - Long term - Oral**

43 mg/kg bw/day

Effects: Systemic**DNEL - General population - Long term - Dermal**

43 mg/kg bw/day

Effects: Systemic**DNEL - Workers - Long term - Dermal**

71 mg/kg bw/day

Effects: Systemic**DNEL - Workers - Short term - Inhalation**10 mg/m³Effects: Local**DNEL - General population - Short term - Oral**

67 mg/kg bw/day

Effects: Systemic**DNEL - General population - Short term - Dermal**

67 mg/kg bw/day

Effects: Systemic**DNEL - Workers - Short term - Dermal**

67 mg/kg bw/day

Effects: Systemic

ammonium iron(III) citrate

DNEL - General population - Long term - Oral

0.993 mg/kg bw/day

Effects: Systemic**DNEL - General population - Long term - Dermal**

0.993 mg/kg bw/day

Effects: Systemic**DNEL - General population - Long term - Inhalation**1.73 mg/m³

| | |
|-----------------|--|
| | <u>Effects:</u> Systemic |
| | DNEL - Workers - Long term - Dermal 2.78 mg/kg bw/day <u>Effects:</u> Systemic |
| | DNEL - Workers - Long term - Inhalation 9.8 mg/m ³ <u>Effects:</u> Systemic |
| sodium selenite | DNEL - General population - Long term - Oral 9.42 µg/kg bw/day <u>Effects:</u> Systemic |
| | DNEL - General population - Long term - Inhalation 0.033 mg/m ³ <u>Effects:</u> Systemic |
| | DNEL - Workers - Long term - Inhalation 0.11 mg/m ³ <u>Effects:</u> Systemic |
| | DNEL - General population - Long term - Dermal 9.42 mg/kg bw/day <u>Effects:</u> Systemic |
| | DNEL - Workers - Long term - Dermal 15.33 mg/kg bw/day <u>Effects:</u> Systemic |

PNECs

Not available.

8.2 Exposure controls**Appropriate engineering controls**

Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Individual protection measures**Hygiene measures**

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection**Hand protection**

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection

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.

Other skin protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance

| | |
|---|--|
| Physical state | Solid. |
| Colour | White to yellowish. |
| Odour | Not available. |
| Odour threshold | Not available. |
| pH | 3 to 4 |
| Melting point/freezing point | Not available. |
| Initial boiling point and boiling range | Not available. |
| Flammability (solid, gas) | Not available. |
| Upper/lower flammability or explosive limits | Not applicable. |
| Flash point | Not applicable. |
| Auto-ignition temperature | Not applicable. |
| Decomposition temperature | Not available. |
| Viscosity | Dynamic (room temperature): Not available. Kinematic (room temperature): Not available. Kinematic (40°C): Not available. |
| Solubility in water | Not available. |
| Partition coefficient: n-octanol/water | Not applicable. |
| Vapour pressure | Not available. |
| Evaporation rate | Not available. |
| Relative density | Not available. |
| Vapour density | Not applicable. |
| Explosive properties | Non-explosive in the presence of the following materials or conditions: open flames, sparks and static discharge, heat, shocks and mechanical impacts, oxidising materials, reducing materials, combustible materials, organic materials, metals, acids, alkalis and moisture. |
| Oxidising properties | Not available. |

Particle characteristics

| | |
|-----------------------------|----------------|
| Median particle size | Not available. |
|-----------------------------|----------------|

9.2 Other information

Not available.

| | |
|----------------------------|----------------|
| Burning time | Not available. |
| Burning rate | Not available. |
| Solubility in water | Not available. |

SECTION 10: Stability and reactivity

| | |
|--|--|
| 10.1 Reactivity | No specific test data related to reactivity available for this product or its ingredients. |
| 10.2 Chemical stability | The product is stable. |
| 10.3 Possibility of hazardous reactions | Under normal conditions of storage and use, hazardous reactions will not occur. |
| 10.4 Conditions to avoid | No specific data. |
| 10.5 Incompatible materials | No specific data. |
| 10.6 Hazardous decomposition products | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name

succinic acid

Result

Rat - Oral - LD50

2260 mg/kg

ammonium iron(III) citrate

Rat - Oral - LD50

2001 mg/kg

copper sulphate pentahydrate

Rat - Oral - LD50

300 mg/kg

sodium selenite

Rat - Oral - LD50

7 mg/kg

Toxic effects: Behavioral - Somnolence (general depressed activity)
Lung, Thorax, or Respiration - Dyspnea Gastrointestinal - Hypermotility, diarrhea

tin dichloride

Rat - Oral - LD50

700 mg/kg

nickel sulphate

Rat - Oral - LD50

362 mg/kg

Conclusion/Summary [Product] Not available.

Acute toxicity estimates

| Product/ingredient name | Oral (mg/kg) | Dermal (mg/kg) | Inhalation (gases) (ppm) | Inhalation (vapours) (mg/l) | Inhalation (dusts and mists) (mg/l) |
|------------------------------|--------------|----------------|--------------------------|-----------------------------|-------------------------------------|
| HyClone™ ActiPro™ | 81164.5 | N/A | N/A | N/A | N/A |
| succinic acid | 2260 | N/A | N/A | N/A | N/A |
| ammonium iron(III) citrate | 2001 | N/A | N/A | N/A | N/A |
| copper sulphate pentahydrate | 500 | N/A | N/A | N/A | N/A |
| sodium selenite | 7 | N/A | N/A | N/A | 0.5 |
| tin dichloride | 700 | N/A | N/A | N/A | N/A |
| nickel sulphate | 362 | N/A | N/A | 11 | N/A |

Skin corrosion/irritation

Not available.

Conclusion/Summary [Product] Not available.

Serious eye damage/eye irritation

Not available.

Conclusion/Summary [Product] Not available.

Respiratory corrosion/irritation

Not available.

Conclusion/Summary [Product] Not available.

Respiratory or skin sensitization

Not available.

Skin

Conclusion/Summary [Product] Not available.

Ingredient name

tin dichloride

nickel sulphate

Conclusion/Summary

May cause allergic reactions in certain individuals.

May produce an allergic reaction.

Respiratory**Conclusion/Summary [Product]** Not available.**Ingredient name**tin dichloride
nickel sulphate**Conclusion/Summary**May cause allergic reactions in certain individuals.
May produce an allergic reaction. Causes damage to organs through prolonged or repeated exposure if inhaled.**Germ cell mutagenicity**

Not available.

Conclusion/Summary [Product] Not available.**Carcinogenicity**

Not available.

Conclusion/Summary [Product] Not available.**Reproductive toxicity**

Not available.

Conclusion/Summary [Product] Not available.**Ingredient name**

nickel sulphate

Conclusion/Summary

Presumed human reproductive toxicant

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)**Product/ingredient name**manganese sulphate
nickel sulphate**Result**STOT RE 2, H373
STOT RE 1, H372**Aspiration hazard**

Not available.

Information on likely routes of exposure Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.**Potential acute health effects**

| | |
|---------------------|---|
| Inhalation | Causes serious eye irritation. |
| Ingestion | No known significant effects or critical hazards. |
| Skin contact | No known significant effects or critical hazards. |
| Eye contact | Causes serious eye irritation. |

Symptoms related to the physical, chemical and toxicological characteristics

| | |
|---------------------|--|
| Inhalation | No specific data. |
| Ingestion | No specific data. |
| Skin contact | No specific data. |
| Eye contact | Adverse symptoms may include the following: pain or irritation watering redness |

Delayed and immediate effects as well as chronic effects from short and long-term exposure**Short term exposure****Potential immediate effects** Not available.**Potential delayed effects** Not available.

Long term exposure**Potential immediate effects** Not available.**Potential delayed effects** Not available.**Potential chronic health effects**

Not available.

Conclusion/Summary [Product] Not available.**General** No known significant effects or critical hazards.**Carcinogenicity** No known significant effects or critical hazards.**Mutagenicity** No known significant effects or critical hazards.**Reproductive toxicity** No known significant effects or critical hazards.**Other information** Not available.**SECTION 12: Ecological information****12.1 Toxicity****Product/ingredient name**

succinic acid

Result**Acute - EC50 - Fresh water**Daphnia - Water flea - *Daphnia magna* - LarvaeAge: <24 hours

374.2 mg/l [48 hours]

Effect: Intoxication

copper sulphate pentahydrate

Acute - EC50 - Fresh water

US EPA

Daphnia - Water flea - *Daphnia magna*Age: 1

182 ppb [48 hours]

Effect: Intoxication**Acute - LC50 - Fresh water**

US EPA

Fish - Rainbow trout, donaldson trout - *Oncorhynchus mykiss*Weight: 0.6 g

0.032 ppm [96 hours]

Effect: Mortality

hexaammonium heptamolybdate

LC50Fish - Trout - *Oncorhynchus mykiss*

420 mg/l [96 hours]

EC50Daphnia - Daphnia - *Daphnia magana*

140 mg/l [48 hours]

EC50Algae - Algae - *Desmodesmus subspicatus*

41 mg/l [72 hours]

sodium selenite

Acute - LC50 - Marine waterFish - Grass goby - *Zosterisessor ophiocephalus* - AdultSize: 15.6 cm; Weight: 41.7 g

0.29 ppm [96 hours]

Effect: Mortality**Acute - LC50 - Fresh water**Daphnia - Water flea - *Daphnia pulicaria*Age: ≤24 hours

0.006 mg/l [48 hours]

Effect: Mortality**Chronic - NOEC - Fresh water**Daphnia - Water flea - *Daphnia magna*Age: <24 hours

0.24 mg/l [21 days]

Effect: Mortality**Chronic - NOEC - Marine water**Algae - Green algae - *Dunaliella salina* - Exponential growth phaseSize: 3.8 to 20.3

1 mg/l [4 days]

Effect: Cells**Acute - EC50 - Fresh water**Algae - Green algae - *Scenedesmus acutus* var. *acutus*

80 µg/l [3 days]

Effect: Population**Chronic - NOEC - Fresh water**Fish - Medaka, high-eyes - *Oryzias latipes* - Juvenile (Fledgling, Hatchling, Weanling)

Age: 10 days; Weight: 0.85 mg

3.936 ng/ml [210 days]

Effect: Feeding Behavior**Conclusion/Summary [Product]** Not available.**Ingredient name**

manganese sulphate

nickel sulphate

Conclusion/Summary

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

12.2 Persistence and degradability

Not available.

Conclusion/Summary [Product] Not available.**12.3 Bioaccumulative potential**

| Product/ingredient name | LogP _{ow} | BCF | Potential |
|-------------------------|--------------------|-----|-----------|
| <10 | -0.59 | - | Low |
| <0.001 | - | 5.8 | Low |

12.4 Mobility in soil**Soil/water partition coefficient** Not available.**Mobility**

Not available.

12.5 Results of PBT and vPvB assessment

| | | | | | | | |
|------------------------------|----|-----|-----|----|-----|-----|-----|
| succinic acid | No | N/A | N/A | No | N/A | N/A | N/A |
| ammonium iron(III) citrate | No | N/A | N/A | No | N/A | N/A | N/A |
| copper sulphate pentahydrate | No | No | No | No | No | No | No |
| manganese sulphate | No | No | No | No | No | No | No |
| hexaammonium heptamolybdate | No | No | No | No | No | No | No |
| sodium selenite | No | No | No | No | No | No | No |
| tin dichloride | No | No | No | No | No | No | No |
| nickel sulphate | No | No | No | No | No | No | No |

12.6 Other adverse effects No known significant effects or critical hazards.**SECTION 13: Disposal considerations**

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods**Product****Methods of disposal**

The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste

The classification of the product may meet the criteria for a hazardous waste.

Packaging**Methods of disposal**

The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions

This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

| | ADR/RID | ADN | IMDG | IATA |
|---------------------------------|----------------|----------------|----------------|----------------|
| 14.1 UN number | Not regulated. | Not regulated. | Not regulated. | Not regulated. |
| 14.2 UN proper shipping name | - | - | - | - |
| 14.3 Transport hazard class(es) | - | - | - | - |
| 14.4 Packing group | - | - | - | - |
| 14.5 Environmental hazards | No. | No. | No. | No. |
| Additional information | - | - | - | - |

14.6 Special precautions for user **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to IMO instruments Not available.

SECTION 15: Regulatory information

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

UK (GB)/REACHAnnex XIV - List of substances subject to authorisationAnnex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Ozone depleting substances

Not listed.

Prior Informed Consent (PIC)

Not listed.

Persistent Organic Pollutants

Not listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

| Product/ingredient name | % | Designation [Usage] |
|---|------|---------------------|
| Molybdate (Mo7O246-), ammonium, hydrate (1:6:4) | ≤0.1 | 65 |

Labelling Not applicable.

Seveso Directive

This product is not controlled under the Seveso Directive.

| Product/ingredient name | List name | Name on list | Classification | Notes |
|-------------------------|----------------|---|----------------|-------|
| nickel sulphate | EH40/2005 WELs | nickel inorganic compounds, water-soluble (except nickel tetracarbonyl) | Carc | - |

EU regulations

**Industrial emissions
(integrated pollution
prevention and control) - Air**

Not listed

**Industrial emissions
(integrated pollution
prevention and control) -
Water**

Not listed

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

United States Not determined.

Canada inventory Not determined.

China Not determined.

Japan **Japan inventory (CSCL):** Not determined.
Japan inventory (ISHL): Not determined.

15.2 Chemical safety assessment

This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: Other information

 Indicates information that has changed from previously issued version.

Abbreviations and acronyms

ATE = Acute Toxicity Estimate
GB CLP = UK CLP (EC No 1272/2008) on the Classification, Labelling and Packaging of Substances and Mixtures as amended by (EU Exit) Regulations 2019 No. 720 and amendments
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = GB CLP-specific Hazard statement
N/A = Not available
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
SGG = Segregation Group
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification

| Classification | Justification |
|--------------------|--------------------|
| Eye Irrit. 2, H319 | Calculation method |

Full text of abbreviated H statements

H300 Fatal if swallowed.
H302 Harmful if swallowed.
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.
H331 Toxic if inhaled.
H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341 Suspected of causing genetic defects.
H350i May cause cancer by inhalation.
H360D May damage the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.
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.

| | | |
|--|------------------------|---|
| Full text of classifications | H411 | Toxic to aquatic life with long lasting effects. |
| | H412 | Harmful to aquatic life with long lasting effects. |
| | EUH031 | Contact with acids liberates toxic gas. |
| | Acute Tox. 2 | ACUTE TOXICITY - Category 2 |
| | Acute Tox. 3 | ACUTE TOXICITY - Category 3 |
| | Acute Tox. 4 | ACUTE TOXICITY - Category 4 |
| | Aquatic Acute 1 | SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1 |
| | Aquatic Chronic 1 | LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1 |
| | Aquatic Chronic 2 | LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2 |
| | Aquatic Chronic 3 | LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3 |
| | Carc. 1A | CARCINOGENICITY - Category 1A |
| | Eye Dam. 1 | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1 |
| | Eye Irrit. 2 | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2 |
| | Muta. 2 | GERM CELL MUTAGENICITY - Category 2 |
| | Repr. 1B | REPRODUCTIVE TOXICITY - Category 1B |
| | Resp. Sens. 1 | RESPIRATORY SENSITISATION - Category 1 |
| | Skin Corr. 1 | SKIN CORROSION/IRRITATION - Category 1 |
| | Skin Corr. 1B | SKIN CORROSION/IRRITATION - Category 1B |
| | Skin Irrit. 2 | SKIN CORROSION/IRRITATION - Category 2 |
| | Skin Sens. 1 | SKIN SENSITISATION - Category 1 |
| | STOT RE 1 | SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 1 |
| | STOT RE 2 | SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2 |
| Date of printing | 06 November 2025 | |
| Date of issue/ Date of revision | 06 November 2025 | |
| Date of previous issue | No previous validation | |
| Version | 1 | |

Notice to reader

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Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.