



# SAFETY DATA SHEET

New Zealand

## Section 1. Identification

Product name

**CDM4PERMAB™ Recommended additions:  
3.2 g/L Sodium Bicarbonate, 0.5 g/L  
Poloxamer 188, 4 mM L-Glutamine**

Catalogue Number

SH30872.01



9 0 S H 3 0 8 7 2 . 0 1

Other means of identification

Not available.

Product type

Powder.

### Identified uses

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

### Supplier

Cytiva Austria  
Kremplstr. 5  
4061 Pasching  
AUSTRIA  
Tel. (+43) 7229 64865  
Fax (+43) 7229 64866

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

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

### Person who prepared the SDS :

sds\_author@cytiva.com

Cytiva New Zealand  
Buddle Findlay, Level 18, Pricewaterhousecooper Tower,  
188 Quay Street,  
Auckland, Auckland, 1010  
New Zealand

### Emergency telephone number

111

---

## Section 2. Hazards identification

### HSNO Classification

EYE IRRITATION - Category 2  
LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3

Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 44%

This material is classified as hazardous according to criteria in the Hazardous Substances (Hazard Classification) Notice 2020.

### GHS label elements

Signal word

Warning

Hazard statements

Causes serious eye irritation.  
Harmful to aquatic life with long lasting effects.

### Precautionary statements

General

Do not apply directly into or onto water. Take all reasonable steps to ensure that the substance does not cause any significant adverse effects to the environment beyond the application area.

Prevention

Wear eye or face protection. Avoid release to the environment. Wash thoroughly after handling.

<b>Response</b>	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.
<b>Storage</b>	Not applicable.
<b>Disposal</b>	Dispose of contents and container in accordance with all local, regional, national and international regulations.
<b>Symbol</b>	

**Other hazards which do not result in classification** May form explosive dust-air mixture if dispersed.

### Section 3. Composition/information on ingredients

<b>Substance/mixture</b>	Mixture		
<b>Other means of identification</b>	Not available.		
<b>Ingredient name</b>		<b>% (w/w)</b>	<b>Identifiers</b>
Sodium chloride		30.156 - 30.156	CAS: 7647-14-5 EC: 231-598-3
Phosphoric acid, monosodium salt, monohydrate	<3.9		CAS: 10049-21-5 EC: 231-449-2
Potassium chloride	<3.7		CAS: 7447-40-7 EC: 231-211-8
L-serine	<2.55		CAS: 56-45-1 EC: 200-274-3
L-valine	<1.6		CAS: 72-18-4 EC: 200-773-6
Copper sulphate, pentahydrate	<0.02		CAS: 7758-99-8 EC: 231-847-6
Copper (II) chloride, dihydrate	<0.005		CAS: 10125-13-0 EC: 231-210-2

**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 and hence require reporting in this section.**

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

### Section 4. First aid measures

#### Description of necessary first aid measures

<b>Inhalation</b>	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.
<b>Ingestion</b>	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.
<b>Skin contact</b>	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.
<b>Eye contact</b>	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.

#### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

<b>Inhalation</b>	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
-------------------	--

<b>Ingestion</b>	No known significant effects or critical hazards.
<b>Skin contact</b>	No known significant effects or critical hazards.
<b>Eye contact</b>	Causes serious eye irritation.

#### **Over-exposure signs/symptoms**

<b>Inhalation</b>	Adverse symptoms may include the following: respiratory tract irritation coughing
<b>Ingestion</b>	No specific data.
<b>Skin</b>	No specific data.
<b>Eyes</b>	Adverse symptoms may include the following: pain or irritation watering redness

#### **Indication of immediate medical attention and special treatment needed, if necessary**

<b>Specific treatments</b>	Not available.
<b>Notes to physician</b>	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.
<b>Protection of first-aiders</b>	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.

#### **See toxicological information (Section 11)**

## **Section 5. Firefighting measures**

#### **Extinguishing media**

<b>Suitable</b>	Use dry chemical powder.
<b>Not suitable</b>	Avoid high pressure media which could cause the formation of a potentially explosive dust-air mixture.
<b>Specific hazards arising from the chemical</b>	May form explosive dust-air mixture if dispersed. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
<b>Hazardous thermal decomposition products</b>	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides phosphorus oxides halogenated compounds metal oxide/oxides
<b>Hazchem code</b>	Not available.
<b>Special precautions for fire-fighters</b>	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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
<b>Special protective equipment for fire-fighters</b>	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## **Section 6. Accidental release measures**

#### **Personal precautions, protective equipment and emergency procedures**

<b>For non-emergency personnel</b>	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. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
<b>For emergency responders</b>	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".
<b>Environmental precautions</b>	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). Water polluting material. May be harmful to the environment if released in large quantities.

#### **Methods and material for containment and cleaning up**

<b>Small spill</b>	Move containers from spill area. Use spark-proof tools and explosion-proof equipment. 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.
<b>Large spill</b>	Move containers from spill area. Use spark-proof tools and explosion-proof equipment. 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. Avoid creating dusty conditions and prevent wind dispersal. Dispose of via a licensed waste disposal contractor.

## Section 7. Handling and storage

### Precautions for safe handling

<b>Protective measures</b>	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Avoid release to the environment. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Prevent dust accumulation. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Electrical equipment and lighting should be protected to appropriate standards to prevent dust coming into contact with hot surfaces, sparks or other ignition sources. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
<b>Advice on general occupational hygiene</b>	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.
<b>Conditions for safe storage, including any incompatibilities</b>	Store between the following temperatures: 2 to 8°C (35.6 to 46.4°F). Store in accordance with local regulations. Store in a segregated and approved area. 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. Eliminate all ignition sources. Separate from oxidising materials. 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.

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

##### **Ingredient name**

Copper sulphate, pentahydrate

##### **Exposure limits**

**HSWA 2015 - HSW (GRWM) 2016. Workplace exposure standards (WES) (New Zealand, 11/2023) [copper and its inorganic compounds]**  
Skin sensitiser.

WES-TWA 8 hours: 0.01 mg/m³ (as Cu). Form: The value for respirable dust..

##### Copper (II) chloride, dihydrate

**HSWA 2015 - HSW (GRWM) 2016. Workplace exposure standards (WES) (New Zealand, 11/2023) [copper and its inorganic compounds]**  
Skin sensitiser.

WES-TWA 8 hours: 0.01 mg/m³ (as Cu). Form: The value for respirable dust..

### Biological exposure indices

No exposure indices known.

#### **Appropriate engineering controls**

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

#### **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.

### 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. If operating conditions cause high dust concentrations to be produced, use dust 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.

<b>Body protection</b>	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.
<b>Other skin protection</b>	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.
<b>Respiratory protection</b>	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.

## Section 9. Physical and chemical properties and safety characteristics

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

### Appearance

<b>Physical state</b>	Solid. [Powder.]
<b>Colour</b>	White. to Off-white.
<b>Odour</b>	Not available.
<b>Odour threshold</b>	Not available.
<b>pH</b>	5 to 7 [Conc. (% w/w): 1.7%]
<b>Melting point/freezing point</b>	Not available.
<b>Boiling point or initial boiling point and boiling range</b>	Not available.
<b>Flash point</b>	Not applicable.
<b>Burning time</b>	Not available.
<b>Burning rate</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability</b>	Not available.
<b>Lower and upper explosive (flammable) limits</b>	Not applicable.
<b>Vapour pressure</b>	Not available.
<b>Relative vapour density</b>	Not applicable.
<b>Relative density</b>	Not available.
<b>Solubility in water</b>	Not available.
<b>Partition coefficient: n-octanol/water</b>	Not applicable.
<b>Auto-ignition temperature</b>	Not applicable.
<b>Decomposition temperature</b>	Not available.
<b>SADT</b>	Not available.
<b>Viscosity</b>	Dynamic (room temperature): Not available. Kinematic (room temperature): Not available. Kinematic (40°C (104°F)): Not available.
<b>Flow time (ISO 2431)</b>	Not available.

### Particle characteristics

<b>Median particle size</b>	Not available.
-----------------------------	----------------

## Section 10. Stability and reactivity

<b>Reactivity</b>	No specific test data related to reactivity available for this product or its ingredients.
<b>Chemical stability</b>	The product is stable.
<b>Possibility of hazardous reactions</b>	Under normal conditions of storage and use, hazardous reactions will not occur.
<b>Conditions to avoid</b>	Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Prevent dust accumulation.
<b>Incompatible materials</b>	Reactive or incompatible with the following materials: oxidising materials
<b>Hazardous decomposition products</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
<b>Ingestion</b>	No known significant effects or critical hazards.
<b>Skin contact</b>	No known significant effects or critical hazards.
<b>Eye contact</b>	Causes serious eye irritation.

### Symptoms related to the physical, chemical and toxicological characteristics

<b>Inhalation</b>	Adverse symptoms may include the following: respiratory tract irritation coughing
<b>Ingestion</b>	No specific data.
<b>Skin contact</b>	No specific data.
<b>Eye contact</b>	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

#### Acute toxicity

<b>Product/ingredient name</b>	<b>Result</b>
Phosphoric acid, monosodium salt, monohydrate	<b>Rat - Oral - LD50</b> 8290 mg/kg <b>Rabbit - Dermal - LD50</b> 7940 mg/kg
Potassium chloride	<b>Rat - Male - Oral - LD50</b> 2600 mg/kg <u>Toxic effects:</u> Gastrointestinal - Hypermotility, diarrhea Gastrointestinal - Nausea or vomiting
L-serine	<b>Rat - Oral - LD50</b> 14 g/kg
L-valine	<b>Rat - Oral - LD50</b> 2000 mg/kg
Copper sulphate, pentahydrate	<b>Rat - Oral - LD50</b> 300 mg/kg

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

#### Skin corrosion/irritation

Not available.

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

<b>Ingredient name</b>	<b>Conclusion/Summary</b>
L-serine	May cause skin irritation.
L-valine	May cause skin irritation.

#### Serious eye damage/eye irritation

Not available.

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

<b>Ingredient name</b>	<b>Conclusion/Summary</b>
L-serine	May cause eye irritation.
L-valine	May cause eye irritation.

#### Respiratory corrosion/irritation

Not available.

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

#### Respiratory or skin sensitization

Not available.

## Skin

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

## Respiratory

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

## Potential chronic health effects

<b>General</b>	Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.
<b>Inhalation</b>	Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.
<b>Ingestion</b>	No known significant effects or critical hazards.
<b>Skin contact</b>	No known significant effects or critical hazards.
<b>Eye contact</b>	No known significant effects or critical hazards.
<b>Carcinogenicity</b>	No known significant effects or critical hazards.
<b>Mutagenicity</b>	No known significant effects or critical hazards.
<b>Developmental effects</b>	No known significant effects or critical hazards.
<b>Fertility effects</b>	No known significant effects or critical hazards.

## Chronic toxicity

Not available.

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

## Carcinogenicity

Not available.

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

## Germ cell mutagenicity

Not available.

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

## Reproductive toxicity

Not available.

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

## Specific target organ toxicity (single exposure)

Product/ingredient name	Result
Copper (II) chloride, dihydrate	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3

## Specific target organ toxicity (repeated exposure)

Product/ingredient name	Result
Copper sulphate, pentahydrate	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2
Copper (II) chloride, dihydrate	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2

## Aspiration hazard

Not available.

## Numerical measures of toxicity

### 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)
CDM4PERMAb™	89581.9	N/A	N/A	N/A	N/A
Phosphoric acid, monosodium salt, monohydrate	8290	7940	N/A	N/A	N/A
Potassium chloride	2600	N/A	N/A	N/A	N/A
L-serine	14000	N/A	N/A	N/A	N/A
L-valine	2000	N/A	N/A	N/A	N/A
Copper sulphate, pentahydrate	500	N/A	N/A	N/A	N/A
Copper (II) chloride, dihydrate	100	300	N/A	N/A	N/A

## Section 12. Ecological information

### Ecotoxicity

This material is harmful to aquatic life with long lasting effects.

### Aquatic and terrestrial toxicity

Product/ingredient name	Result
Sodium chloride	<b>Acute - LC50 - Fresh water</b> Fish - Striped bass - <i>Morone saxatilis</i> - Larvae 1000 mg/l [96 hours] <u>Effect:</u> Mortality
Potassium chloride	<b>Chronic - NOEC - Fresh water</b> Daphnia - Water flea - <i>Daphnia pulex</i> 0.314 g/l [21 days] <u>Effect:</u> Reproduction
L-serine	<b>Chronic - NOEC - Fresh water</b> Fish - Eastern mosquitofish - <i>Gambusia holbrooki</i> - Adult 100 mg/l [8 weeks] <u>Effect:</u> Reproduction
L-valine	<b>Chronic - NOEC - Fresh water</b> OECD Aquatic plants - Duckweed - <i>Lemna minor</i> 6 g/l [96 hours] <u>Effect:</u> Growth
Copper sulphate, pentahydrate	<b>Acute - EC50 - Fresh water</b> Daphnia - Water flea - <i>Daphnia magna</i> 402.6 mg/l [48 hours] <u>Effect:</u> Intoxication
	<b>Acute - EC50 - Fresh water</b> Algae - Green algae - <i>Selenastrum capricornutum</i> 28.85 mg/dm³ [72 hours] <u>Effect:</u> Population
	<b>Acute - LC50 - Fresh water</b> Crustaceans - Water flea - <i>Pseudosida ramosa</i> - Neonate <u>Age:</u> ≤24 hours 9.68 mg/l [48 hours] <u>Effect:</u> Mortality
	<b>Acute - EC50 - Fresh water</b> ISO Algae - Green algae - <i>Desmodesmus subspicatus</i> 9.24 g/l [72 hours] <u>Effect:</u> Population
	<b>Acute - LC50 - Fresh water</b> Fish - Zebra danio - <i>Danio rerio</i> 509.65 mg/l [96 hours] <u>Effect:</u> Mortality
	<b>Acute - EC50</b> Daphnia 83 mg/l [48 hours]
	<b>Acute - NOEC</b> Algae 1000 mg/l [72 hours]
	<b>LC50</b> Fish 10000 mg/l [96 hours]
	<b>Acute - EC50 - Fresh water</b> US EPA Daphnia - Water flea - <i>Daphnia magna</i> <u>Age:</u> 1 182 ppb [48 hours] <u>Effect:</u> Intoxication
	<b>Acute - LC50 - Fresh water</b> US EPA Fish - Rainbow trout,donaldson trout - <i>Oncorhynchus mykiss</i> <u>Weight:</u> 0.6 g 0.032 ppm [96 hours] <u>Effect:</u> Mortality

Copper (II) chloride, dihydrate

**Acute - EC50 - Marine water**

US EPA

Algae - Diatom - *Skeletonema costatum*

Age: 3 days

9.52 ppb [72 hours]

Effect: Population

**Chronic - NOEC - Marine water**

US EPA

Crustaceans - Harpacticoid copepod - *Tisbe battagliai*

Age: <24 hours

18 ppb [21 days]

Effect: Mortality

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

**Ingredient name**

L-serine

L-valine

**Conclusion/Summary**

Naturally occurring substance

Naturally occurring substance

**Persistence/degradability**

**Product/ingredient name**

L-valine

**Result**

82% [28 days]

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

**Ingredient name**

L-serine

L-valine

**Conclusion/Summary**

Not expected to bioaccumulate. Naturally occurring substance

Not expected to bioaccumulate. Naturally occurring substance

**Product/ingredient name**

L-valine

**Aquatic half-life**

**Photolysis**

**Biodegradability**

Readily

**Bioaccumulative potential**

**Product/ingredient name**

L-serine

L-valine

**LogP<sub>ow</sub>**

-3.07

-2.26

**BCF**

0.609

0.846

**Potential**

Low

Low

**Mobility in soil**

**Soil/water partition coefficient**

Not available.

**Other adverse effects**

No known significant effects or critical hazards.

## Section 13. Disposal considerations

**Disposal methods**

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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. 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

<b>Regulatory information</b>	<b>UN number</b>	<b>Proper shipping name</b>	<b>Classes</b>	<b>PG*</b>
-------------------------------	------------------	-----------------------------	----------------	------------

New Zealand Class	Not regulated.	-	-	-
-------------------	----------------	---	---	---

No.

IATA Class	Not regulated.	-	-	-
------------	----------------	---	---	---

No.

IMDG Class	Not regulated.	-	-	-
------------	----------------	---	---	---

No.

PG\* : Packing group

**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.

Transport in bulk according to Not available.  
IMO instruments

---

## Section 15. Regulatory information

HSNO Approval Number	Not available.
HSNO Group Standard	Not available.
HSNO Classification	EYE IRRITATION - Category 2 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3

### 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

New Zealand	Not determined.
Australia	Not determined.
United States	Not determined.
Canada inventory	Not determined.
China	Not determined.
Japan	Japan inventory (CSCL): Not determined. Japan inventory (ISHL): Not determined.

---

## Section 16. Other information

### History

Date of printing	17 February 2026
Date of issue/ Date of revision	17 February 2026
Date of previous issue	No previous validation
Version	1

Key to abbreviations	ADG = Australian Dangerous Goods ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail UN = United Nations
References	Not available.

 Indicates information that has changed from previously issued version.

### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

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.

