



Safety Data Sheet

Canada

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

SH30872.05



9 0 S H 3 0 8 7 2 . 0 5

Product type

Powder.

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

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

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

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

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

Importer Cytiva Canada
1055 Vernon Dr
Vancouver BC V6A 3P4
Canada
+1 778-956-2584

In case of emergency INFOTRAC
Outside of the United States, call 24 Hour number: 001-352-323-3500 (Call Collect)
In the United States, call 24 Hour number: 1-800-535-5053

Section 2. Hazard identification

Classification of the substance or mixture AQUATIC HAZARD (LONG-TERM) - Category 3

GHS label elements

Signal word No signal word.

Hazard statements Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention Avoid release to the environment.

Response Not applicable.

Storage Not applicable.



Disposal	Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements	Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 46.9%

Section 3. Composition/information on ingredients

Substance/mixture Mixture
Other means of identification Not available.

Ingredient name	Synonyms	% (w/w)	CAS number
Glucose	D-Glucose; Dextrose; D-gluconaldehyde; product composed of 62,1 % calcium carrageenate, 32,9 % dextrose and 5 % sucrose; DEXTROSE, ANHYDROUS; Grape sugar; GLUCOSE, D-; corn sugar; glucolin; D-GLUCOSE ANHYDROUS GRANULAR; GLUCOSE POWDER	≥15 - ≤40	CAS: 50-99-7
d-Galactose	D-Galactose; galactose, pure; galactose, impure; Galactose, D-; D-Galactose; Brain sugar; (3R,4S,5R,6R)-6-(hydroxymethyl) oxane-2,3,4,5-tetrol	≥1 - ≤5	CAS: 59-23-4
L-serine	2-Serine; serine; Serine, L-; 2-AMINO-3-HYDROXYPROPANOIC ACID, (S)-; BETA-HYDROXYALANINE; 2-Amino-3-hydroxypropanoic acid; 2-Amion-3-hydroxypropionic acid; D,L-Serine; (S)-2-Amino-3-hydroxypropanoic acid; SERINE PURISS, L-	≥1 - ≤5	CAS: 56-45-1
I-Leucine	2-Leucine; Leucine; E 641; L-Leu; alpha-aminoisocaproic acid; (S)-2-amino-4-methylpentanoic acid; L-2-amino-4-methylvaleric acid; 2-aminoisobutylic acid; Leucine, L-; 2-Amino-4-methylvaleric acid; ALPHA-AMINOISOCAPROIC ACID; 2-AMINO-4-METHYL PENTANOIC ACID, (S)-; 2-Amino-4-methylpentanoic acid	≥1 - ≤5	CAS: 61-90-5
L-valine	2-Valine; 2-Amino-3-methylbutanoic acid; valine; Valine, L-; ALPHA-AMINO-BETA-METHYLBUTYRIC ACID, L-; ALPHA-AMINOISOVALERIC ACID, L-(+)-; VALINE, (S)-; 2-AMINO-3-METHYLBUTANOIC ACID, (S)-; 2-AMINO-3-METHYLBUTYRIC ACID, (S)-; ALPHA-AMINO-BETA-METHYLBUTYRIC ACID, (S)-; 2-Amino-3-methylbutyric acid	≥1 - ≤5	CAS: 72-18-4
I-Glutamic acid	L-Glutamic acid; 2-Glutamic acid; .alpha.-Aminoglutaric acid; Glutaminic acid; E 620; L-2-aminopentanedioic acid; L- α -aminoglutamic acid; Glutamic acid, L-; GLUTAMIC ACID, (S)-(+)-; 1-AMINOPROPANE-1,3-DICARBOXYLIC ACID; AMINOGLUTARIC ACID, ALPHA-	≥0.5 - ≤1.5	CAS: 56-86-0
I-Arginine	L-Arginine; 2-Arginine; Arginine, L-; N5-(AMINOIMINOMETHYL)-L-ORNITHINE; 5-(AMINOIMINOMETHYL)AMINO-L-NORVALINE; AMINO-DELTA-GUANIDINOVALERIC ACID, L-ALPHA-; ARGININE, L-(+); 2-AMINO-5-GUANIDINOVALERIC ACID, (S)-; 2-AMINO-5-((AMINOIMINOMETHYL)AMINO)PENTANOIC ACID, (S)-; 1-AMINO-4-GUANIDOVALERIC ACID; GUANIDINE AMINOVALERIC ACID	≥0.5 - ≤1.5	CAS: 74-79-3
Copper (II) sulfate pentahydrate	copper sulphate penta-hydrate; copper sulphate pentahydrate; Sulfuric acid, copper(2+) salt (1:1), pentahydrate; Copper sulfate, pentahydrate; Sulfuric acid copper(2+) salt (1:1), pentahydrate;	≤0.1	CAS: 7758-99-8



	Copper sulphate, pentahydrate; copper(II) sulfate pentahydrate; copper sulfate pentahydrate; Copper(II) sulfate, pentahydrate (1:1:5); copper sulfate; COPPER(II) SULFATE, PENTAHYDRATE		
Cupric chloride dihydrate	Cupric chloride, dihydrate; Copper (II) chloride, dihydrate; copper dichloride hydrate; Copper(2+) chloride dihydrate; Copper chloride, dihydrate; Cupric chloride dihydrate; Coppertrace; Copper chloride dihydrate; Copper chloride (CuCl ₂) dihydrate; Copper dichloride dihydrate; Copper (II) Chloride Dihydrate	≤0.1	CAS: 10125-13-0

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified 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

Eye contact	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.
Ingestion	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel.

Most important symptoms/effects, acute and delayed

Potential acute health effects

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

Over-exposure signs/symptoms

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

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

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.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)



Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Use dry chemical powder.
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	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.
Hazardous thermal decomposition products	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides phosphorus oxides halogenated compounds metal oxide/oxides
Special protective actions 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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
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.

Section 6. Accidental release measures

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 spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing dust. Put on appropriate personal protective equipment.
For emergency responders	If specialized 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".
Environmental precautions	Avoid dispersal of spilled 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 materials for containment and cleaning up

Small spill	Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
Large spill	Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, 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

Protective measures	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 grounding and bonding containers and equipment before transferring material. 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.



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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 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 oxidizing 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 unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
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Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name

Copper (II) sulfate pentahydrate

Exposure limits

CA British Columbia Provincial (Canada, 9/2024) [copper (dusts and mists)]

TWA 8 hours: 1 mg/m³ (as Cu). Form: Dusts and mists.

CA Quebec Provincial (Canada, 2/2024) [Copper , dusts & mists]

TWAEV 8 hours: 1 mg/m³ (as Cu). Form: dusts & mists.

CA Alberta Provincial (Canada, 3/2023) [Copper (dust/mists)]

OEL 8 hours: 1 mg/m³ (as Cu). Form: Dusts and Mists.

Biological exposure indices

No exposure indices known.

Appropriate engineering controls

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor 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, vapor 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: safety glasses with side-shields. 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.

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.



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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

Physical state Solid. [Powder.]

Color White. to Off-white.

Odor Not available.

Odor threshold Not available.

pH 5 to 7 [Conc. (% w/w): 1.7%]

Melting point/freezing point Not available.

Boiling point or initial boiling point and boiling range Not available.

Flash point Not applicable.

Burning time Not available.

Burning rate Not available.

Evaporation rate Not available.

Flammability Not available.

Lower and upper explosive (flammable) limits Not applicable.

Vapor pressure Not available.

Relative vapor density Not applicable.

Relative density Not available.

Solubility in water Not available.

Partition coefficient: n-octanol/water Not applicable.

Auto-ignition temperature Not applicable.

Decomposition temperature Not available.

SADT Not available.

Viscosity Dynamic (room temperature): Not available.

Kinematic (room temperature): Not available.

Kinematic (40°C (104°F)): Not available.

Flow time (ISO 2431) Not available.

Particle characteristics

Median particle size Not available.

Section 10. Stability and reactivity

Reactivity No specific test data related to reactivity available for this product or its ingredients.

Chemical stability The product is stable.

Possibility of hazardous reactions Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid 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 grounding and bonding containers and equipment before transferring material. Prevent dust accumulation.

Incompatible materials Reactive or incompatible with the following materials:
oxidizing materials

Hazardous decomposition products Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name

Result



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Glucose	Rat - Oral - LD50 25800 mg/kg Toxic effects: Behavioral - Coma Lung, Thorax, or Respiration - Cyanosis Gastrointestinal - Hypermotility, diarrhea
L-serine	Rat - Oral - LD50 14 g/kg
I-Leucine	Rat - Oral - LD50 16000 mg/kg
L-valine	Rat - Oral - LD50 2000 mg/kg
I-Glutamic acid	Rat - Oral - LD50 >30 g/kg
I-Arginine	Rat - Oral - LD50 12000 mg/kg
Copper (II) sulfate pentahydrate	Rat - Oral - LD50 300 mg/kg

Conclusion/Summary [Product] Not available.

Skin corrosion/irritation

Not available.

Conclusion/Summary [Product] Not available.

Ingredient name

L-serine
I-Leucine
L-valine

Conclusion/Summary

May cause skin irritation.
May cause skin irritation.
May cause skin irritation.

Serious eye damage/eye irritation

Not available.

Conclusion/Summary [Product] Not available.

Ingredient name

L-serine
I-Leucine
L-valine

Conclusion/Summary

May cause eye irritation.
May cause eye irritation.
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.

Germ cell mutagenicity

Not available.

Conclusion/Summary [Product] Not available.



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Carcinogenicity

Not available.

Conclusion/Summary [Product] Not available.

Ingredient name

I-Arginine

Conclusion/Summary

To the best of our knowledge, the toxicological properties of this substance have not been thoroughly investigated.

Reproductive toxicity

Not available.

Conclusion/Summary [Product] Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Potential acute health effects

Eye contact Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.

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

Skin contact No known significant effects or critical hazards.

Ingestion No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact Adverse symptoms may include the following:
irritation
redness

Inhalation Adverse symptoms may include the following:
respiratory tract irritation
coughing

Skin contact No specific data.

Ingestion No specific data.

Delayed and immediate effects and also 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



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Not available.

Conclusion/Summary [Product]	Not available.
General	Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.
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.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
CDM4PERMAb™	66072.6	105273.1	N/A	N/A	N/A
Glucose	25800	N/A	N/A	N/A	N/A
L-serine	14000	N/A	N/A	N/A	N/A
I-Leucine	16000	N/A	N/A	N/A	N/A
L-valine	2000	N/A	N/A	N/A	N/A
I-Arginine	12000	N/A	N/A	N/A	N/A
Copper (II) sulfate pentahydrate	500	N/A	N/A	N/A	N/A
Cupric chloride dihydrate	100	N/A	N/A	N/A	N/A

Section 12. Ecological information

Toxicity

Product/ingredient name	Result
L-serine	Acute - EC50 Daphnia 83 mg/l [48 hours]
L-valine	Acute - NOEC Algae 1000 mg/l [72 hours] LC50 Fish 10000 mg/l [96 hours]
Copper (II) sulfate pentahydrate	Acute - EC50 - Fresh water US EPA Daphnia - Water flea - <i>Daphnia magna</i> Age: 1 182 ppb [48 hours] <u>Effect:</u> Intoxication Acute - LC50 - Fresh water US EPA Fish - Rainbow trout,donaldson trout - <i>Oncorhynchus mykiss</i> Weight: 0.6 g 0.032 ppm [96 hours] <u>Effect:</u> Mortality
Cupric chloride dihydrate	Acute - EC50 - Marine water US EPA Algae - Diatom - <i>Skeletonema costatum</i> Age: 3 days 9.52 ppb [72 hours] <u>Effect:</u> Population Chronic - NOEC - Marine water US EPA Crustaceans - Harpacticoid copepod - <i>Tisbe battagliai</i> Age: <24 hours 18 ppb [21 days] <u>Effect:</u> Mortality

Conclusion/Summary [Product]	Not available.
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Ingredient name	Conclusion/Summary
L-serine	Naturally occurring substance
I-Leucine	Naturally occurring substance
L-valine	Naturally occurring substance



Persistence and degradability

Product/ingredient name	Result		
L-valine	82% [28 days]		
Conclusion/Summary [Product]	Not available.		
Ingredient name	Conclusion/Summary		
L-serine	Not expected to bioaccumulate. Naturally occurring substance		
L-Leucine	Not expected to bioaccumulate. Naturally occurring substance		
L-valine	Not expected to bioaccumulate. Naturally occurring substance		
Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Glucose	-	-	Readily
L-valine	-	-	Readily
L-Arginine	-	-	Readily
Bioaccumulative potential			
Product/ingredient name	LogP _{ow}	BCF	Potential
Glucose	-3.24	-	Low
L-serine	-3.07	0.609	Low
L-Leucine	-1.52	0.849	Low
L-valine	-2.26	0.846	Low
L-Glutamic acid	<-4	-	Low
L-Arginine	-4.2	-	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 minimized 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 spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	TDG Classification	DOT Classification	ADR/RID	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-	-
Transport hazard class(es)	-	-	-	-	-
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.
Additional information	-	-	-	-	-
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 IMO instruments Not available.

Section 15. Regulatory information

Canadian lists

Canadian NPRI	The following components are listed: selenium (and its compounds)
CEPA Toxic substances	None of the components are 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

Canada	Not determined.
United States	Not determined.

Section 16. Other information

History

Date of printing	2/17/2026
Date of issue/Date of revision	2/17/2026
Date of previous issue	No previous validation
Version	1
	sds_author@cytiva.com

Key to abbreviations	ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals HPR = Hazardous Products Regulations 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) N/A = Not available UN = United Nations
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Procedure used to derive the classification

	Classification	Justification
AQUATIC HAZARD (LONG-TERM) - Category 3		Calculation method

References	Not available.
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 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.



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