

SAFETY DATA SHEET

China

Safety Data Sheet according to GB/T 16483-2008 and GB/T 17519-2013

Section 1. Identification

GHS product identifier

**HyClone™ prime expression medium
(chemically defined)**

HyClone™ prime expression medium
(chemically defined)

Catalogue Number **SH31198**

Other means of identification Not available.

Product type Powder.

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

For further manufacturing.

Supplier's details

Supplier/Manufacturer

Cytiva Austria
Kremslstr. 5
4061 Pasching
AUSTRIA
Tel. (+43) 7229 64865
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HyClone Laboratories
925 West 1800 South
Logan, Utah 84321
Phone: (435) 792-8000

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1 Maritime Square #13-01
Harbourfront Centre
Singapore 099253

24 hours response advisory service hotline

0532-83889090

Section 2. Hazards identification

Classification of the substance or mixture according to GB 13690-2009 and GB 30000-2013

Emergency overview

Solid. [Powder.]

Off-white.

Harmful to aquatic life.

Harmful to aquatic life with long lasting effects.

May form explosible dust-air mixture if dispersed.

See Section 12 for environmental precautions.

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

GHS label elements

| | |
|--------------------------------------|---|
| Signal word | No signal word. |
| Hazard statements | Harmful to aquatic life. 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. |
| Physical and chemical hazards | May form explosible dust-air mixture if dispersed. |
| Health hazards | 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. |

| | |
|------------------------------|---|
| Environmental hazards | Harmful to aquatic life. Harmful to aquatic life with long lasting effects. |
|------------------------------|---|

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

Section 3. Composition/information on ingredients

| | | | |
|--------------------------------------|-----------------|---------------------------------|--|
| Substance/mixture | Mixture | | |
| Other means of identification | Not available. | | |
| Ingredient name | % | Identifiers | |
| sodium chloride | 15.404 - 15.405 | CAS: 7647-14-5 EC: 231-598-3 | |
| L-serine | <2.55 | CAS: 56-45-1 EC: 200-274-3 | |
| potassium chloride | <2.4 | CAS: 7447-40-7 EC: 231-211-8 | |
| L-valine | <1.4 | CAS: 72-18-4 EC: 200-773-6 | |
| aspartic acid | <1.05 | CAS: 56-84-8 EC: 200-291-6 | |

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

First aid

| | |
|---------------------|--|
| 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 | Avoid high pressure media which could cause the formation of a potentially explosible dust-air mixture. |
| Specific hazards arising from the chemical | May form explosible 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 sulfur 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. |
| Precautionary measures to prevent the occurrence of secondary disasters | Shut off all ignition sources. No flares, smoking or flames in hazard area. Use spark-proof tools and explosion-proof equipment. Prevent entry into sewers, water courses, basements or confined areas. |

Section 7. Handling and storage

Precautions for safe handling

| | |
|---|--|
| Precautions for operating | 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. |
| Conditions for safe storage | 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. |

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None.

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.

Personal protective equipment

| | |
|-------------------------------|--|
| 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. |
| <u>Skin protection</u> | |
| 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. |
| Thermal hazards | Not available. |

Section 9. Physical and chemical properties

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

Appearance and physical state

| | |
|---|--|
| Physical state | Solid. [Powder.] |
| Color | Off-white. |
| Odor | Not available. |
| Odor threshold | Not available. |
| pH | 5.2 to 7.4 |
| 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 (solid, gas) | 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. |
| <u>Particle characteristics</u> | |
| 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

L-serine

potassium chloride

L-valine

aspartic acid

Result

Rat - Oral - LD50

14 g/kg

Rat - Male - Oral - LD50

2600 mg/kg

Toxic effects: Gastrointestinal - Hypermotility, diarrhea Gastrointestinal - Nausea or vomiting

Rat - Oral - LD50

2000 mg/kg

Rat - Oral - LD50

5000 mg/kg

Rabbit - Dermal - LD50

5000 mg/kg

Conclusion/Summary
[Product]

Not available.

Skin corrosion/irritation

Not available.

Conclusion/Summary
[Product]

Not available.

Ingredient name

L-serine

L-valine

Conclusion/Summary

May cause skin irritation.

May cause skin irritation.

Serious eye damage/eye irritation

Not available.

Conclusion/Summary
[Product]

Not available.

Ingredient name

L-serine

L-valine

Conclusion/Summary

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. |
|---|----------------|

Carcinogenicity

Not available.

| | |
|---|----------------|
| Conclusion/Summary [Product] | Not available. |
|---|----------------|

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, 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**

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) |
|---|--------------|----------------|--------------------------|----------------------------|-------------------------------------|
| HyClone™ prime expression medium (chemically defined) | 42996.7 | 175553.8 | N/A | N/A | N/A |
| L-serine | 14000 | N/A | N/A | N/A | N/A |
| potassium chloride | 2600 | N/A | N/A | N/A | N/A |
| L-valine | 2000 | N/A | N/A | N/A | N/A |
| aspartic acid | 5000 | 5000 | N/A | N/A | N/A |

Section 12. Ecological information**Toxicity****Product/ingredient name**

sodium chloride

Result**Acute - LC50 - Fresh water**Fish - Striped bass - *Morone saxatilis* - Larvae

1000 mg/l [96 hours]

Effect: Mortality**Chronic - NOEC - Fresh water**Daphnia - Water flea - *Daphnia pulex*

0.314 g/l [21 days]

Effect: Reproduction**Chronic - NOEC - Fresh water**Fish - Eastern mosquitofish - *Gambusia holbrooki* - Adult

100 mg/l [8 weeks]

Effect: Reproduction**Chronic - NOEC - Fresh water**

OECD

Aquatic plants - Duckweed - *Lemna minor*

6 g/l [96 hours]

Effect: Growth**Acute - EC50 - Fresh water**Daphnia - Water flea - *Daphnia magna*

402.6 mg/l [48 hours]

Effect: Intoxication**Acute - EC50 - Fresh water**Algae - Green algae - *Selenastrum capricornutum*28.85 mg/dm³ [72 hours]Effect: Population

L-serine

Acute - EC50

Daphnia

83 mg/l [48 hours]

Acute - NOEC

Algae

1000 mg/l [72 hours]

potassium chloride

Acute - LC50 - Fresh waterCrustaceans - Water flea - *Pseudosida ramosa* - NeonateAge: ≤24 hours

9.68 mg/l [48 hours]

Effect: Mortality**Acute - EC50 - Fresh water**

ISO

Algae - Green algae - *Desmodesmus subspicatus*

9.24 g/l [72 hours]

Effect: Population**Acute - LC50 - Fresh water**Fish - Zebra danio - *Danio rerio*

509.65 mg/l [96 hours]

Effect: Mortality

L-valine

LC50

| | | | |
|--|--|-------------------------------|-------------------------|
| | | Fish 10000 mg/l [96 hours] | |
| Conclusion/Summary [Product] | Not available. | | |
| Ingredient name | Conclusion/Summary | | |
| L-serine | Naturally occurring substance | | |
| L-valine | Naturally occurring substance | | |
| aspartic acid | Naturally occurring substance | | |
| <u>Persistence/degradability</u> | | | |
| 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-valine | Not expected to bioaccumulate. Naturally occurring substance | | |
| aspartic acid | Not expected to bioaccumulate. Naturally occurring substance | | |
| Product/ingredient name | Aquatic half-life | Photolysis | Biodegradability |
| L-valine | - | - | Readily |
| <u>Bioaccumulation/Accumulation</u> | | | |
| Product/ingredient name | LogP_{ow} | BCF | Potential |
| L-serine | -3.07 | 0.609 | Low |
| L-valine | -2.26 | 0.846 | Low |
| aspartic acid | -3.89 | - | Low |
| <u>Mobility in soil</u> | | | |
| 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

| | | | | |
|-------------------------------------|---|----------------|----------------|----------------|
| | GB12268 | JT/T617 | IMDG | IATA |
| UN number | Not available. | Not available. | Not available. | Not available. |
| UN proper shipping name | Not available. | Not available. | Not available. | Not available. |
| Transport hazard class(es) | Not available. | Not available. | Not available. | Not available. |
| Packing group | - | - | - | - |
| Environmental hazards | 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. | | | |

Extinguishing media

| | |
|---|---|
| Suitable extinguishing media | Use dry chemical powder. |
| Unsuitable extinguishing media | Avoid high pressure media which could cause the formation of a potentially explosible dust-air mixture. |
| Incompatible materials | Reactive or incompatible with the following materials: oxidizing materials |
| Transport in bulk according to IMO instruments | Not available. |

Section 15. Regulatory information

List of Goods banned for Importing

None of the components are listed.

Drug Precursors Requiring an Import/Export License

None of the components are listed.

Inventory of Hazardous Chemicals

None of the components are listed.

List of Explosive Precursors

None of the components are listed.

List of Goods banned for Exporting

None of the components are listed.

List of Toxic Chemicals Severely Restricted for Importing & Exporting by China

None of the components are listed.

Catalogue and classification of drug precursor chemicals

None of the components are listed.

Inventory of Highly Toxic Articles

None of the components are listed.

Catalogue of Hazardous Chemicals of Priority Management

None of the components are listed.

Catalogue of Occupational Disease Hazard Factors - Dust

None of the components are listed.

Catalogue of Occupational Disease Hazard Factors - Chemical Factors

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

| | |
|-------------------------|--|
| China | At least one component is not listed. |
| United States | Not determined. |
| Canada inventory | Not determined. |
| Japan | Japan inventory (CSCL): Not determined. Japan inventory (ISHL): Not determined. |

Section 16. Other information

History

| | |
|--------------------------------|-----------------------|
| Date of printing | 10 September 2025. |
| Date of issue/Date of revision | 10 September 2025. |
| Date of previous issue | 18 July 2024. |
| Version | 0.02 |
| | sds_author@cytiva.com |

| | |
|----------------------|---|
| Key to abbreviations | 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) |
| | N/A = Not available |
| | UN = United Nations |

Procedure used to derive the classification

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

| | |
|------------|----------------|
| 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.
