

# Safety Data Sheet

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## 1. Product and company identification

**Product name** HyClone™ prime expression medium (chemically defined), 500L

**Catalogue Number** SH31198.05

**Product type** Powder.

**Original preparation date** 7/18/2024

**Date of issue/Date of revision** 9/10/2025

**Date of previous issue** 7/18/2024

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

For further manufacturing.

Supplier / Manufacturer

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## 2. Hazards identification

**GHS Classification** HAZARDOUS TO THE AQUATIC ENVIRONMENT - ACUTE HAZARD - Category 3  
HAZARDOUS TO THE AQUATIC ENVIRONMENT - CHRONIC HAZARD - Category 3

Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment:  
46.6%

GHS label elements

**Signal word** No signal word.

**Hazard statements** Harmful to aquatic life with long lasting effects.

**Precautionary statements**

**General**

**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.

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

### 3. Composition/information on ingredients

Substance/mixture		Mixture		
Ingredient name	含量(%)	Identifiers	Official Gazette notice reference number	
			CSCS	ISHL
sodium chloride	15.404 - 15.405	CAS: 7647-14-5	1-236	Not available.
L-serine	<2.55	CAS: 56-45-1	9-1585	Not available.
potassium chloride	<2.4	CAS: 7447-40-7	1-228	(1)-228
L-valine	<1.4	CAS: 72-18-4	9-1604	Not available.

### 4. First aid measures

<b>Inhalation</b>	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.
<b>Skin contact</b>	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
<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. Get medical attention if irritation occurs.
<b>Ingestion</b>	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

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

##### Short term exposure

<b>Potential delayed effects</b>	Not available.
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##### Over-exposure signs/symptoms

<b>Inhalation</b>	Adverse symptoms may include the following: respiratory tract irritation coughing
<b>Skin contact</b>	No specific data.
<b>Eye contact</b>	Adverse symptoms may include the following: irritation redness
<b>Ingestion</b>	No specific data.
<b>Protection of first-aiders</b>	No action shall be taken involving any personal risk or without suitable training.
<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.

### 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Use dry chemical powder.
<b>Unsuitable extinguishing media</b>	Avoid high pressure media which could cause the formation of a potentially explosible dust-air mixture.
<b>Specific hazards arising from the chemical</b>	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.
<b>Special protective actions 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.

## 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 spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing dust. Put on appropriate personal protective equipment.
<b>For emergency responders</b>	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".
<b>Environmental precautions</b>	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

<b>Small spill</b>	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.
<b>Large spill</b>	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.

## 7. Handling and storage

### 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 grounding 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.

### Storage

<b>Conditions for safe storage</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 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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## 8. Exposure controls/personal protection

<b>Appropriate engineering controls</b>	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.
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Occupational exposure limits

### Biological exposure indices

No exposure indices known.

### Individual protection measures

<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.
<b>Hand protection</b>	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>Eye protection</b>	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.
<b>Skin 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. 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.

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## 9. Physical and chemical properties

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

<b>Physical state</b>	Solid. [Powder.]
<b>Color</b>	Off-white.
<b>Odor</b>	Not available.
<b>Odor threshold</b>	Not available.
<b>pH</b>	5.2 to 7.4
<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>Evaporation rate</b>	Not available.
<b>Flammability</b>	Not available.
<b>Lower and upper explosive (flammable) limits</b>	Not applicable.
<b>Vapor pressure</b>	Not available.
<b>Relative vapor 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>Viscosity</b>	Dynamic (room temperature): Not available. Kinematic (room temperature): Not available. Kinematic (40°C (104°F)): Not available.
<b><u>Particle characteristics</u></b>	
<b>Median particle size</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.
<b>Burning rate</b>	Not available.
<b>Burning time</b>	Not available.

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## 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 grounding and bonding containers and equipment before transferring material. Prevent dust accumulation.
<b>Incompatible materials</b>	Reactive or incompatible with the following materials: oxidizing materials
<b>Hazardous decomposition products</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

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## 11. Toxicological information

### Acute toxicity

Product/ingredient name	Result
L-serine	<b>Rat - Oral - LD50</b> 14 g/kg
potassium chloride	<b>Rat - Male - Oral - LD50</b> 2600 mg/kg Toxic effects: Gastrointestinal - Hypermotility, diarrhea Gastrointestinal - Nausea or vomiting
L-valine	<b>Rat - Oral - LD50</b> 2000 mg/kg

### 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

### Skin corrosion/irritation

Not available.

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

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

### Serious eye damage/eye irritation

Not available.

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

Ingredient name	Conclusion/Summary
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.

### Germ cell mutagenicity

Not available.

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

### Carcinogenicity

Not available.

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

### Reproductive toxicity

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.

12. Ecological information

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 <b>Chronic - NOEC - Fresh water</b> Daphnia - Water flea - <i>Daphnia pulex</i> 0.314 g/l [21 days] <u>Effect:</u> Reproduction <b>Chronic - NOEC - Fresh water</b> Fish - Eastern mosquitofish - <i>Gambusia holbrooki</i> - Adult 100 mg/l [8 weeks] <u>Effect:</u> Reproduction <b>Chronic - NOEC - Fresh water</b> OECD Aquatic plants - Duckweed - <i>Lemna minor</i> 6 g/l [96 hours] <u>Effect:</u> Growth <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
L-serine	<b>Acute - EC50</b> Daphnia 83 mg/l [48 hours] <b>Acute - NOEC</b> Algae 1000 mg/l [72 hours]
potassium chloride	<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
L-valine	<b>LC50</b> 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

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.

**Mobility**

Not available.

Hazardous to the ozone layer

Not applicable.

Other adverse effects

No known significant effects or critical hazards.

### 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.

### 14. Transport information

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

## 15. Regulatory information

### Fire Service Law

None of the components are listed.

**Fire Service Law - Obstructive materials** Not listed

### Industrial Safety and Health Act

#### Ordinance on the Prevention of the Hazard due to Specified Chemical Substances

None of the components are listed.

**Organic solvents poisoning prevention** Not applicable.

#### Substance(s) requiring labelling

\* Any concentration shown as a range is to protect confidentiality.

#### Chemicals requiring notification

\* Any concentration shown as a range is to protect confidentiality.

**Chemical substances that cause skin disorders, etc. and other chemical substances that must be handled with impermeable protective equipment etc. based on special chemical regulations. (Article 594-2 Paragraph 1 of Ordinance on ISH)**

None of the components are listed.

#### Carcinogens based on Article 577-2 of the Ordinance on ISH

None of the components are listed.

#### Mutagen

None of the components are listed.

**Corrosive liquid** Not listed

**ISHL Enforcement Order Appendix 1 - Dangerous Substances** Oxidizing, Inflammable

**Harmful Substances Subject to Obtaining Permission for Manufacturing** Not listed

**Harmful Substances, Prohibited for Manufacturing** Not listed

### Chemical Substances Control Law (CSCL)

None of the components are listed.

### Poisonous and Deleterious Substances

None of the components are listed.

### Pollutant Release and Transfer Registers (PRTR)

None of the components are listed.

**JSOH Carcinogen** Not listed

**Law concerning prevention of pollution of the ocean** Not available.

**Road law** Not available.

**List of Specially Controlled Industrial Waste** 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.

**International lists****National inventory**


<b>Japan</b>	<b>Japan inventory (CSCL):</b> Not determined. <b>Japan inventory (ISHL):</b> Not determined.
<b>United States</b>	Not determined.
<b>Canada inventory</b>	Not determined.
<b>China</b>	At least one component is not listed.

**16. Other information****History**

<b>Date of printing</b>	9/10/2025
<b>Date of issue/Date of revision</b>	9/10/2025
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<b>Version</b>	0.02
	sds_author@cytiva.com
	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**

<b>Classification</b>	<b>Justification</b>
HAZARDOUS TO THE AQUATIC ENVIRONMENT - ACUTE HAZARD - Category 3	Calculation method
HAZARDOUS TO THE AQUATIC ENVIRONMENT - CHRONIC HAZARD - Category 3	Calculation method

**References** Not available. Indicates information that has changed from previously issued version.**Notice to reader**

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