



# SAFETY DATA SHEET

United States

## Section 1. Identification

Product name

**ActiCHO™ SM, with Poloxamer-188, without Insulin, without L-Glutamine, 1L**

Catalogue Number

SH31029.06



9 0 S H 3 1 0 2 9 . 0 6

Other means of identification

Not available.

Product type

Solid.

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

For further manufacturing.

#### Supplier / Manufacturer

Cytiva Austria  
Kremsplstr. 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

Cytiva Singapore  
25 Tuas South Street 1  
Singapore 638034

Cytiva  
Amersham Place  
Little Chalfont  
Buckinghamshire  
HP7 9NA United Kingdom  
+44 1494 508000

Cytiva USA  
100 Results Way  
Marlborough, MA 01752  
1-800-526-3593

#### In case of emergency

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

## Section 2. Hazards identification

#### OSHA/HCS status

While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

#### Classification of the substance or mixture

Not classified.

Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 44.5%

#### GHS label elements



**Hazard pictograms**

|   |   |
|---|---|
| <b>Signal word</b>                      | No signal word.                                   |
| <b>Hazard statements</b>                | No known significant effects or critical hazards. |
| <b><u>Precautionary statements</u></b>  |   |
| <b>Prevention</b>                       | Not applicable.                                   |
| <b>Response</b>                         | Not applicable.                                   |
| <b>Storage</b>                          | Not applicable.                                   |
| <b>Disposal</b>                         | Not applicable.                                   |
| <b>Hazards not otherwise classified</b> | None known.                                       |
| <b>Hazards identified when used</b>     | No known significant effects or critical hazards. |

**Section 3. Composition/information on ingredients**

|                               |  |         |              |
|-------------------------------|--|---------|--------------|
| Substance/mixture             | Mixture  |         |              |
| Other means of identification | Not available.   |         |              |
| Ingredient name               | Synonyms   | %       | Identifiers  |
| 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 |
| 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 |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**There are no additional 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**

|                     |   |
|---------------------|---|
| <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>Inhalation</b>   | Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. 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>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. Get medical attention if symptoms occur.  |

**Most important symptoms/effects, acute and delayed****Potential acute health effects**

|                     |   |
|---------------------|---|
| <b>Eye contact</b>  | No known significant effects or critical hazards. |
| <b>Inhalation</b>   | No known significant effects or critical hazards. |
| <b>Skin contact</b> | No known significant effects or critical hazards. |
| <b>Ingestion</b>    | No known significant effects or critical hazards. |

**Over-exposure signs/symptoms**

|                     |                   |
|---------------------|-------------------|
| <b>Eye contact</b>  | No specific data. |
| <b>Inhalation</b>   | No specific data. |
| <b>Skin contact</b> | 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 an extinguishing agent suitable for the surrounding fire.

**Unsuitable extinguishing media** None known.

**Specific hazards arising from the chemical** No specific fire or explosion hazard.

**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.

**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. 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).

**Methods and materials for containment and cleaning up**

**Small spill** Move containers from spill area. 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. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. 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).

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

##### Ingredient name

L-serine

L-valine

##### Exposure limits

None.

None.

#### Biological exposure indices

No exposure indices known.

#### Appropriate engineering controls

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

#### 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.

#### 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.

##### 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.

## Section 9. Physical and chemical properties

### Appearance

#### Physical state

Solid.

#### Color

Off-white. Light brown. Light Orange.

#### Odor

Not available.

#### Odor threshold

Not available.

#### pH

3 to 4 [Conc. (% w/w): 2.1%]

#### 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.



|                             |  |
|-----------------------------|--|
| <b>Viscosity</b>            | Dynamic (room temperature): Not available.<br>Kinematic (room temperature): Not available.<br>Kinematic (40°C (104°F)): Not available.<br>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>                | No specific data.  |
| <b>Incompatible materials</b>             | No specific data.  |
| <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 toxicological effects****Acute toxicity**

| <b>Product/ingredient name</b>      | <b>Result</b>                          |
|-------------------------------------|--|
| L-serine                            | <b>Rat - Oral - LD50</b><br>14 g/kg    |
| L-valine                            | <b>Rat - Oral - LD50</b><br>2000 mg/kg |
| <b>Conclusion/Summary [Product]</b> | Not available.                         |

**Skin corrosion/irritation**

Not available.

| <b>Conclusion/Summary [Product]</b> | 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.

| <b>Conclusion/Summary [Product]</b> | 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.

|                                     |                |
|-------------------------------------|----------------|
| <b>Conclusion/Summary [Product]</b> | Not available. |
|-------------------------------------|----------------|

**Respiratory or skin sensitization**

Not available.

**Skin**

|                                     |                |
|-------------------------------------|----------------|
| <b>Conclusion/Summary [Product]</b> | Not available. |
|-------------------------------------|----------------|

**Respiratory**

|                                     |                |
|-------------------------------------|----------------|
| <b>Conclusion/Summary [Product]</b> | 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, Inhalation, Eyes.

**Potential acute health effects**

|                     |   |
|---------------------|---|
| <b>Eye contact</b>  | No known significant effects or critical hazards. |
| <b>Inhalation</b>   | No known significant effects or critical hazards. |
| <b>Skin contact</b> | No known significant effects or critical hazards. |
| <b>Ingestion</b>    | No known significant effects or critical hazards. |

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

|                     |                   |
|---------------------|-------------------|
| <b>Eye contact</b>  | No specific data. |
| <b>Inhalation</b>   | No specific data. |
| <b>Skin contact</b> | No specific data. |
| <b>Ingestion</b>    | No specific data. |

**Delayed and immediate effects and also chronic effects from short and long term exposure****Short term exposure**

|                                    |                |
|------------------------------------|----------------|
| <b>Potential immediate effects</b> | Not available. |
| <b>Potential delayed effects</b>   | Not available. |

**Long term exposure**

|                                    |                |
|------------------------------------|----------------|
| <b>Potential immediate effects</b> | Not available. |
| <b>Potential delayed effects</b>   | Not available. |

**Potential chronic health effects**

Not available.

**Conclusion/Summary  
[Product]**

Not available.

**General  
Carcinogenicity**

No known significant effects or critical hazards.  
No known significant effects or critical hazards.



|                              |   |
|------------------------------|---|
| <b>Mutagenicity</b>          | No known significant effects or critical hazards. |
| <b>Reproductive toxicity</b> | 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™ ActiCHO™ SM    | 25153.1      | 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                                 |

**Section 12. Ecological information****Toxicity**

| Product/ingredient name             | Result   |
|-------------------------------------|--|
| L-serine                            | <b>Acute - EC50</b><br>Daphnia<br>83 mg/l [48 hours]<br><b>Acute - NOEC</b><br>Algae<br>1000 mg/l [72 hours] |
| L-valine                            | <b>LC50</b><br>Fish<br>10000 mg/l [96 hours]   |
| <b>Conclusion/Summary [Product]</b> | Not available.   |
| Ingredient name                     | Conclusion/Summary   |
| L-serine                            | Naturally occurring substance  |
| L-valine                            | Naturally occurring substance  |

**Persistence and degradability**

| Product/ingredient name | Result   |
|-------------------------|--|
| L-valine                | 82% [28 days]  |
| Ingredient name         | Conclusion/Summary   |
| L-serine                | Not expected to bioaccumulate. Naturally occurring substance |
| L-valine                | Not expected to bioaccumulate. Naturally occurring substance |

| Product/ingredient name | Aquatic half-life | Photolysis | Biodegradability |
|-------------------------|-------------------|------------|------------------|
| L-valine                | -                 | -          | Readily          |

**Bioaccumulative potential**

| Product/ingredient name | LogP <sub>ow</sub> | BCF   | Potential |
|-------------------------|--------------------|-------|-----------|
| L-serine                | -3.07              | 0.609 | Low       |
| L-valine                | -2.26              | 0.846 | Low       |

**Mobility in soil**

|   |   |
|---|---|
| <b>Soil/Water partition coefficient</b> | Not available.                                    |
| <b>Other adverse effects</b>            | No known significant effects or critical hazards. |

**Section 13. Disposal considerations**

|                         |  |
|-------------------------|--|
| <b>Disposal methods</b> | 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. 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

Product is not regulated as dangerous goods for transport.

## Section 15. Regulatory information

### U.S. Federal regulations

**TSCA 8(a) PAIR:** ammonium trioxovanadate

**TSCA 8(a) CDR Exempt/Partial exemption:** Not determined

**Clean Water Act (CWA) 307:** Sulfuric acid, zinc salt (1:1), heptahydrate; Sulfuric acid copper(2+) salt (1:1), hydrate (1:5); sodium selenite; Sulfuric acid, nickel(2+) salt, hydrate (1:1:6)

**Clean Water Act (CWA) 311:** Sulfuric acid, zinc salt (1:1), heptahydrate; Sulfuric acid copper(2+) salt (1:1), hydrate (1:5); sodium selenite; Sulfuric acid, nickel(2+) salt, hydrate (1:1:6)

### TSCA 12(b) - Chemical export notification

Not applicable.

### Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)

Listed

### Clean Air Act Section 602 Class I Substances

Not listed

### Clean Air Act Section 602 Class II Substances

Not listed

### DEA List I Chemicals (Precursor Chemicals)

Not listed

### DEA List II Chemicals (Essential Chemicals)

Not listed

### SARA 302/304

#### Composition/information on ingredients

| Name               | %                              | EHS  | SARA 302 TPQ |           | SARA 304 RQ |           |
|--------------------|--------------------------------|------|--------------|-----------|-------------|-----------|
|                    |                                |      | (lbs)        | (gallons) | (lbs)       | (gallons) |
| sodium selenite    | <0.00015                       | Yes. | 100 / 10000  | -         | 100         | -         |
| <b>SARA 304 RQ</b> | 74074074.1 lbs / 33629629.6 kg |      |              |           |             |           |

### SARA 311/312

**Classification** Not applicable.

#### Composition/information on ingredients

| Name     | %     | Classification                     |
|----------|-------|------------------------------------|
| L-valine | <1.95 | ACUTE TOXICITY (oral) - Category 4 |

### State regulations

|                      |                                    |
|----------------------|------------------------------------|
| <b>Massachusetts</b> | None of the components are listed. |
| <b>New York</b>      | None of the components are listed. |
| <b>New Jersey</b>    | None of the components are listed. |
| <b>Pennsylvania</b>  | None of the components are listed. |

### California Prop. 65



**WARNING:** This product can expose you to Nickel compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

| Ingredient name  | No significant risk level | Maximum acceptable dosage level |
|------------------|---------------------------|---------------------------------|
| Nickel compounds | -                         | -                               |

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

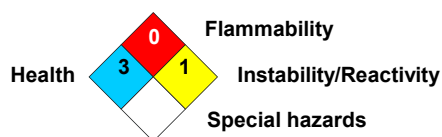
**United States** Not determined.





**Canada inventory**

Not determined.

**Section 16. Other information****National Fire Protection Association (U.S.A.)****Procedure used to derive the classification**

| Classification               | Justification      |
|------------------------------|--------------------|
| EYE IRRITATION - Category 2A | Calculation method |

**History**

|                                |                       |
|--------------------------------|-----------------------|
| Date of printing               | 10/25/2025            |
| Date of issue/Date of revision | 10/26/2025            |
| Date of previous issue         | 8/1/2025              |
| Version                        | 1.02                  |
|                                | 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  
 Not available.

**References**

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.

