



SAFETY DATA SHEET

United States

Section 1. Identification

Product name

ActiPRO™, with Poloxamer-188, without Insulin, without L-Glutamine, 5L

Catalogue Number

SH31037.01



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

Other means of identification

Not available.

Product type

Solid.

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 / Manufacturer

Cytiva Austria
Kremslstr. 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: 43.8%

GHS label elements

Signal word

No signal word.

Hazard statements

No known significant effects or critical hazards.

Precautionary statements



| | |
|---|---|
| Prevention | Not applicable. |
| Response | Not applicable. |
| Storage | Not applicable. |
| Disposal | Not applicable. |
| Hazards not otherwise classified | None known. |
| Hazards identified when used | 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

| | |
|---------------------|---|
| 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. 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. |
| 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. Get medical attention if symptoms occur. |

Most important symptoms/effects, acute and delayed

Potential acute health effects

| | |
|---------------------|---|
| Eye contact | No known significant effects or critical hazards. |
| Inhalation | No known significant effects or critical hazards. |
| Skin contact | No known significant effects or critical hazards. |
| Ingestion | No known significant effects or critical hazards. |

Over-exposure signs/symptoms

| | |
|---------------------|-------------------|
| Eye contact | No specific data. |
| Inhalation | No specific data. |
| 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 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 | Exposure limits |
|-----------------|-----------------|
| L-serine | None. |
| L-valine | 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 | White to yellowish. |
| Odor | Not available. |
| Odor threshold | Not available. |
| pH | 3 to 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 | 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 | No specific data. |
| Incompatible materials | No specific data. |
| 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 |
|------------------------------|---------------------------------|
| L-serine | Rat - Oral - LD50 14 g/kg |
| L-valine | Rat - Oral - LD50 2000 mg/kg |
| Conclusion/Summary [Product] | Not available. |

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

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 | No known significant effects or critical hazards. |
| Inhalation | No known significant effects or critical hazards. |
| 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 | No specific data. |
| Inhalation | No specific data. |
| 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.

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

| | |
|------------------------------|---|
| General | No known significant effects or critical hazards. |
| 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™ ActiPro™ | 17184.7 | 133180.3 | 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 | Acute - EC50 Daphnia 83 mg/l [48 hours] Acute - NOEC Algae 1000 mg/l [72 hours] LC50 Fish 10000 mg/l [96 hours] |
| L-valine | |
| Conclusion/Summary [Product] | 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 _{ow} | BCF | Potential |
|-------------------------|--------------------|-------|-----------|
| L-serine | -3.07 | 0.609 | Low |
| L-valine | -2.26 | 0.846 | 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 | <p>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.</p> |
|-------------------------|---|

Section 14. Transport information



| DOT Classification | | TDG Classification | Mexico Classification |
|----------------------------|---|--------------------|-----------------------|
| UN number | UN3077 | Not available. | Not available. |
| UN proper shipping name | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (ammonium iron (III) citrate) | Not available. | Not available. |
| Transport hazard class(es) | 9 | Not available. | Not available. |
| |  | | |
| Packing group | III | - | - |
| Environmental hazards | No. | No. | No. |
| Additional information | Reportable quantity 43917.4 lbs / 19938.5 kg. The classification of the product is due solely to the presence of one or more US DOT-listed 'Hazardous substances' that are subject to reportable quantity requirements and only applies to shipments of packages greater than, or equal to, the product reportable quantity. Package sizes less than the product reportable quantity are not regulated as hazardous materials. | - | - |

| ADR/RID | | 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. | | |
| Proper shipping name | | Not available. | |

Section 15. Regulatory information

| | |
|--|--|
| U.S. Federal regulations | TSCA 4(a) proposed test rules: glycine 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: ammonium iron(III) citrate; 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) |
| <u>TSCA 12(b) - Chemical export notification</u> | |
| 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 | - |
| SARA 304 RQ | | | 74074074.1 lbs / 33629629.6 kg | | | |

SARA 311/312

Classification Not applicable.

Composition/information on ingredients

| Name | % | Classification |
|----------|-------|------------------------------------|
| L-valine | <2.15 | ACUTE TOXICITY (oral) - Category 4 |

State regulations

| | |
|----------------------|--|
| Massachusetts | The following components are listed: FERRIC AMMONIUM CITRATE |
| New York | The following components are listed: Ferric ammonium citrate |
| New Jersey | The following components are listed: FERRIC AMMONIUM CITRATE |
| Pennsylvania | The following components are listed: 1,2,3-PROPANETRICARBOXYLIC ACID, 2-HYDROXY-, AMMONIUM IRON(3+) SALT |

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.

| 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 |
|-----------------|---------------|
| Not classified. | |

History

| | |
|---------------------------------------|-----------------------|
| Date of printing | 8/6/2025 |
| Date of issue/Date of revision | 8/6/2025 |
| Date of previous issue | 8/6/2025 |
| Version | 4.04 |
| | 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

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