

SAFETY DATA SHEET

Singapore

Section 1. Identification

GHS product identifier

ActiPRO™, with Poloxamer-188, without Insulin, without L-Glutamine, 25L

Catalogue Number

SH31037.05



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.

Uses advised against

Reason

Supplier

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

Cytiva Austria
Kremslstr. 5
4061 Pasching
AUSTRIA
Phone: +43 7229 64865

Cytiva Singapore
25 Tuas South Street 1
Singapore 638034

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Singapore 638034

Emergency telephone number (with hours of operation)

+65 6863 6704
(hours of operation: 8.30 pm - 5.30 pm)

Section 2. Hazards identification

Classification of the substance or mixture SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A

GHS label elements, including precautionary statements

Hazard pictograms



Signal word Warning

Hazard statements Causes serious eye irritation.

Precautionary statements

Prevention Wear eye or face protection.

Response IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.

Storage Not applicable.

| | |
|--|-----------------|
| Disposal | Not applicable. |
| Other hazards which do not result in classification | None known. |

Section 3. Composition/information on ingredients

| | | | |
|-------------------------------|-----------------|---------------------------------|--|
| Substance/mixture | Mixture | | |
| Other means of identification | Not available. | | |
| Chemical formula | Not applicable. | | |
| Ingredient name | % | Identifiers | |
| succinic acid | <5.95 | CAS: 110-15-6 EC: 203-740-4 | |
| potassium chloride | <3.65 | CAS: 7447-40-7 EC: 231-211-8 | |
| L-valine | <2.15 | CAS: 72-18-4 EC: 200-773-6 | |

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

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. Continue to rinse for at least 10 minutes. Get medical attention. |
| Inhalation | Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. 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. Wash clothing before reuse. Clean shoes thoroughly before reuse. |
| Ingestion | Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |

Most important symptoms/effects, acute and delayed

Potential acute health effects

| | |
|---------------------|---|
| Eye contact | Causes serious eye irritation. |
| 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 | Adverse symptoms may include the following: pain or irritation watering redness |
| 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. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

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. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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. Avoid dust generation. Using a vacuum with HEPA filter will reduce dust dispersal. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, 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). Do not ingest. Avoid contact with eyes, skin and clothing. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. 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, 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

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: chemical splash goggles.

Skin protection

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

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 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. |
| SADT | Not available. |

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

| Product/ingredient name | Result |
|-------------------------------------|--|
| succinic acid | Rat - Oral - LD50 2260 mg/kg |
| potassium chloride | Rat - Male - Oral - LD50 2600 mg/kg Toxic effects: Gastrointestinal - Hypermotility, diarrhea Gastrointestinal - Nausea or vomiting |
| 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-valine | May cause skin irritation. |

Serious eye damage/eye irritation

| Not available. | |
|-------------------------------------|---------------------------|
| Conclusion/Summary [Product] | Not available. |
| Ingredient name | Conclusion/Summary |
| 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 | Causes serious eye irritation. |
| 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 | Adverse symptoms may include the following: pain or irritation watering redness |
| 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™ | 81164.5 | N/A | N/A | N/A | N/A |
| succinic acid | 2260 | 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 |

Section 12. Ecological information

Toxicity

| Product/ingredient name | Result |
|-------------------------------------|---|
| succinic acid | Acute - EC50 - Fresh water Daphnia - Water flea - <i>Daphnia magna</i> - Larvae Age: <24 hours 374.2 mg/l [48 hours] Effect: Intoxication |
| potassium chloride | Acute - LC50 - Fresh water Crustaceans - Water flea - <i>Pseudosida ramosa</i> - Neonate Age: ≤24 hours 9.68 mg/l [48 hours] Effect: Mortality Acute - EC50 - Fresh water ISO Algae - Green algae - <i>Desmodesmus subspicatus</i> 9.24 g/l [72 hours] Effect: Population Acute - LC50 - Fresh water Fish - Zebra danio - <i>Danio rerio</i> 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-valine | Naturally occurring substance |

Persistence/degradability

| | | | |
|------------------------------|-------------------|--|------------------|
| Product/ingredient name | | Result | |
| L-valine | | 82% [28 days] | |
| Conclusion/Summary [Product] | | Not available. | |
| Ingredient name | | Conclusion/Summary | |
| 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 |
|-------------------------|--------------------|-------|-----------|
| succinic acid | -0.59 | - | 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

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

| | UN | IMDG | IATA |
|--|---|----------------|----------------|
| UN number | Not regulated. | Not regulated. | Not regulated. |
| UN proper shipping name | - | - | - |
| Transport hazard class(es) | - | - | - |
| Packing group | - | - | - |
| Environmental hazards | No. | No. | No. |
| Additional information | - | - | - |
| | ADR/RID | ADN | |
| UN number | Not regulated. | Not regulated. | |
| UN proper shipping name | - | - | |
| Transport hazard class(es) | - | - | |
| Packing group | - | - | |
| Environmental hazards | No. | No. | |
| Additional information | | | |
| Special precautions for user | Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage. | | |
| Transport in bulk according to IMO instruments | Not available. | | |

Section 15. Regulatory information

Singapore - hazardous chemicals under government control

None.

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

| | |
|------------------|--|
| United States | Not determined. |
| Canada inventory | Not determined. |
| China | Not determined. |
| Japan | Japan inventory (CSCL): Not determined. Japan inventory (ISHL): Not determined. |

Section 16. Other information

History

| | |
|--------------------------------|-------------------------|
| Date of printing | 06 November 2025 |
| Date of issue/Date of revision | 06 November 2025 |
| Date of previous issue | No previous validation. |
| Version | 1 |
| | sds_author@cytiva.com |

| | |
|----------------------|---|
| Key to abbreviations | ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals 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 |
|--|--------------------|
| SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A | Calculation method |

| | |
|------------|----------------|
| References | Not available. |
|------------|----------------|

 Indicates information that has changed from previously issued version.

Notice to reader

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