



SAFETY DATA SHEET

Singapore

Section 1. Identification

GHS product identifier

Chemically Defined Insect Medium Prototype (ADCF)

Catalogue Number

SH31205



9 0 S H 3 1 2 0 5

Other means of identification Not available.

Product type Powder.

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 Kremlstr. 5 4061 Pasching AUSTRIA Phone: +43 7229 64865 |
|---|--|

Cytiva Singapore
25 Tuas South Street 1
Singapore 638034

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25 Tuas South Street 1
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 Not classified.

GHS label elements, including precautionary statements

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.

Other hazards which do not result in classification Warning: May form explosive dust-air mixture if dispersed.

Section 3. Composition/information on ingredients

| | | | |
|--------------------------------------|-----------------|-------|---------------------------------|
| Substance/mixture | Mixture | | |
| Other means of identification | Not available. | | |
| Chemical formula | Not applicable. | | |
| Ingredient name | | % | Identifiers |
| potassium chloride | | <2.9 | CAS: 7447-40-7 EC: 231-211-8 |
| L-valine | | <1.75 | CAS: 72-18-4 EC: 200-773-6 |
| magnesium sulphate | | <1.75 | CAS: 7487-88-9 EC: 231-298-2 |

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

Over-exposure signs/symptoms

| | |
|---------------------|---|
| Eye contact | Adverse symptoms may include the following: irritation redness |
| Inhalation | Adverse symptoms may include the following: respiratory tract irritation coughing |
| Skin contact | No specific data. |
| Ingestion | No specific data. |

Indication of immediate medical attention and special treatment needed, if necessary

| | |
|-----------------------------------|---|
| Notes to physician | In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. |
| Specific treatments | No specific treatment. |
| Protection of first-aiders | No action shall be taken involving any personal risk or without suitable training. |

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

| | |
|---|--|
| Suitable extinguishing media | Use dry chemical powder. |
| Unsuitable extinguishing media | Avoid high pressure media which could cause the formation of a potentially explosive dust-air mixture. |
| Specific hazards arising from the chemical | May form explosive dust-air mixture if dispersed. |
| Hazardous thermal decomposition products | Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides phosphorus oxides halogenated compounds metal oxide/oxides |
| Special protective actions for fire-fighters | Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. |
| Special protective equipment for fire-fighters | Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. |

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

| | |
|------------------------------------|---|
| For non-emergency personnel | No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing dust. Put on appropriate personal protective equipment. |
| For emergency responders | If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". |
| Environmental precautions | Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). |

Methods and materials for containment and cleaning up

| | |
|--------------------|---|
| Small spill | Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. |
| Large spill | Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Avoid creating dusty conditions and prevent wind dispersal. Dispose of via a licensed waste disposal contractor. |

Section 7. Handling and storage

Precautions for safe handling

| | |
|---|---|
| Protective measures | Put on appropriate personal protective equipment (see Section 8). Avoid breathing dust. 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. 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. |
| 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 a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. |

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None.

Biological exposure indices

No exposure indices known.

Appropriate engineering controls

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

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. If operating conditions cause high dust concentrations to be produced, use dust 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.

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. [Powder.] |
| Color | Off-white. |
| Odor | Not available. |
| Odor threshold | Not available. |
| pH | 3.8 to 4.2 [Conc. (% w/w): 4.8%] |
| 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 | |

Section 10. Stability and reactivity

| | |
|---|---|
| Reactivity | No specific test data related to reactivity available for this product or its ingredients. |
| Chemical stability | The product is stable. |
| Possibility of hazardous reactions | Under normal conditions of storage and use, hazardous reactions will not occur. |
| Conditions to avoid | Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Prevent dust accumulation. |
| Incompatible materials | Reactive or incompatible with the following materials: oxidizing materials |
| Hazardous decomposition products | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |
| SADT | Not available. |

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

| Product/ingredient name | Result |
|-------------------------|--|
| 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 | Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes. |
| Inhalation | Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs. |
| Skin contact | No known significant effects or critical hazards. |
| Ingestion | No known significant effects or critical hazards. |

Symptoms related to the physical, chemical and toxicological characteristics

| | |
|---------------------|---|
| Eye contact | Adverse symptoms may include the following: irritation redness |
| Inhalation | Adverse symptoms may include the following: respiratory tract irritation coughing |
| Skin contact | No specific data. |
| Ingestion | No specific data. |

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

| | |
|------------------------------------|----------------|
| Potential immediate effects | Not available. |
| Potential delayed effects | Not available. |

Long term exposure

| | |
|------------------------------------|----------------|
| Potential immediate effects | Not available. |
| Potential delayed effects | Not available. |

Potential chronic health effects

Not available.

Conclusion/Summary [Product] Not available.

General Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.

Carcinogenicity No known significant effects or critical hazards.

Mutagenicity No known significant effects or critical hazards.

Reproductive toxicity No known significant effects or critical hazards.

Numerical measures of toxicity**Acute toxicity estimates**

| Product/ingredient name | Oral (mg/kg) | Dermal (mg/kg) | Inhalation (gases) (ppm) | Inhalation (vapors) (mg/l) | Inhalation (dusts and mists) (mg/l) |
|--------------------------------------|--------------|----------------|--------------------------|----------------------------|-------------------------------------|
| DPM-HyClone™ CD BEVS complete medium | 23292.6 | 17477.4 | N/A | 125.1 | N/A |
| potassium chloride | 2600 | N/A | N/A | N/A | N/A |
| L-valine | 2000 | N/A | N/A | N/A | N/A |
| magnesium sulphate | 500 | 1100 | N/A | 11 | N/A |

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

potassium chloride

Result**Acute - LC50 - Fresh water**Crustaceans - Water flea - *Pseudosida ramosa* - NeonateAge: ≤24 hours

9.68 mg/l [48 hours]

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

ISO

Algae - Green algae - *Desmodesmus subspicatus*

9.24 g/l [72 hours]

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

509.65 mg/l [96 hours]

Effect: Mortality**LC50**

Fish

10000 mg/l [96 hours]

Chronic - NOEC - Fresh waterDaphnia - Water flea - *Daphnia magna* - NeonateAge: <24 hours

360 mg/l [3 weeks]

Effect: Reproduction**Chronic - IC10 - Fresh water**Aquatic plants - Lesser Duckweed - *Lemna aequinoctialis*

1.9 mg/l [96 hours]

Effect: Population**Acute - IC50 - Fresh water**Aquatic plants - Lesser Duckweed - *Lemna aequinoctialis*

4.4 mg/l [96 hours]

Effect: Population**Acute - LC50 - Fresh water**Fish - Purple Spotted Gudgeon - *Mogurnda mogurnda* - Larvae

40 mg/l [96 hours]

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

343.56 mg/l [48 hours]

Effect: Intoxication**Conclusion/Summary [Product]** Not available.**Ingredient name**

L-valine

Conclusion/Summary

Naturally occurring substance

Persistence/degradability**Product/ingredient name**

L-valine

Result

82% [28 days]

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

L-valine

Conclusion/Summary

Not expected to bioaccumulate. Naturally occurring substance

Product/ingredient name

L-valine

Aquatic half-life

-

Photolysis

-

Biodegradability

Readily

Bioaccumulative potential**Product/ingredient name****LogP_{ow}****BCF****Potential**

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

| Ingredient name | Status |
|-----------------|--------|
| Phosphides | 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

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

Section 16. Other information

History

Date of printing 27 January 2026

Date of issue/Date of revision 27 January 2026

Date of previous issue No previous validation.

Version 1

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| | |
|-----------------------------|---|
| 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 |
|----------------|---------------|
|----------------|---------------|

Not classified.

References

Not available.

 Indicates information that has changed from previously issued version.

Notice to reader

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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.