

SAFETY DATA SHEET

Republic of Korea

In accordance with the Standard for Classification and Labeling of Chemical Substance and Safety Data Sheet, Article 10 Paragraph 1

Section 1. Chemical product and company identification

A. Product name Chemically Defined Insect Medium Prototype (ADCF)

Catalogue Number SH31204

Article Number SH31204

B. Recommended use of the chemical

For Further Manufacturing or Research Use. Not for Diagnostic or Therapeutic Use.

Restrictions on use

Uses advised against

Not applicable.

Reason

C. Supplier's information

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

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Section 2. Hazards identification

A. Hazard classification GERM CELL MUTAGENICITY - Category 1B

This product is classified in accordance with the Industrial Safety and Health Act and the Chemical Control Act.

Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 1.5%

B. GHS label elements, including precautionary statements

Symbol



Signal word

Danger

Hazard statements

May cause genetic defects.

Precautionary statements	
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves, protective clothing and eye or face protection.
Response	IF exposed or concerned: Get medical advice or attention.
Storage	Store locked up.
Disposal	Dispose of contents and container in accordance with all local, regional, national and international regulations.
C. 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.

Ingredient name	Common name	Identifiers	%
L-(+)-ARGININE MONOHYDROCHLORIDE		CAS: 1119-34-2 EC: 214-275-1	≤0.5

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

A. 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.
B. Skin contact	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
C. 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 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.
D. 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. 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.
E. Notes to physician	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	No specific treatment.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

A. Extinguishing media	
Suitable	Use an extinguishing agent suitable for the surrounding fire.
Not suitable	None known.
B. Specific hazards arising from the chemical	In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products	Decomposition products may include the following materials: carbon dioxide carbon monoxide
C. 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.
Special precautions 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.

Section 6. Accidental release measures

- A. Personal precautions, protective equipment and emergency procedures** 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. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- B. 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).
- C. Methods and materials for containment and cleaning up**
- Small spill** Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.

Section 7. Handling and storage

- A. Precautions for safe handling**
- Protective measures** 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.
- 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.
- B. 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. Store locked up. 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

- A. Control parameters**
- Occupational exposure limits**
Not applicable.
- Biological exposure indices**
No exposure indices known.
- B. Appropriate engineering controls** 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.
- 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.
- C. Personal protective equipment**
- 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.
- Eye 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.
- 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.
- Skin 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.
- 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.

Section 9. Physical and chemical properties

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

A. <u>Appearance</u>	
Physical state	Liquid.
Color	Clear. Yellow.
B. Odor	
Not available.	
C. Odor threshold	
Not available.	
D. pH	
6.1 to 6.5	
E. Melting/freezing point	
Not available.	
F. Boiling point or initial boiling point and boiling range	
Not available.	
G. Flash point	
Not available.	
Fire point	
Not available.	
Burning time	
Not applicable.	
Burning rate	
Not applicable.	
H. Evaporation rate	
Not available.	
I. Flammability (solid, gas)	
Not available.	
J. Lower and upper explosive (flammable) limits	
Not available.	
K. Vapor pressure	
Not available.	

		Vapor Pressure at 20 °C			Vapor pressure at 50 °C					
	Ingredient name	mm Hg	kPa	Method	mm Hg	kPa	Method			
	water	17.5	2.3							
L.	Solubility in water	Not available.								
M.	Vapor density	Not available.								
N.	Relative density	Not available.								
O.	Partition coefficient: n-octanol/water	Not applicable.								
P.	Auto-ignition temperature	Not available.								
	Ingredient name	°C		°F	Method					
	glucose	500		932						
Q.	Decomposition temperature	Not available.								
	SADT	Not available.								
R.	Viscosity	Dynamic (room temperature): Not available. Kinematic (room temperature): Not available. Kinematic (40 °C (104 °F)): Not available.								
	Flow time (ISO 2431)	Not available.								
S.	Molecular weight	Not applicable.								

Particle characteristics

Median particle size	Not applicable.
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Section 10. Stability and reactivity

A. Chemical stability	
The product is stable.	
Possibility of hazardous reactions	
Under normal conditions of storage and use, hazardous reactions will not occur.	
B. Conditions to avoid	
No specific data.	
C. Incompatible materials	
No specific data.	
D. Hazardous decomposition products	
Under normal conditions of storage and use, hazardous decomposition products should not be produced.	

Section 11. Toxicological information

A. Information on the likely routes of exposure

Routes of entry anticipated: Oral, Dermal, Eyes.

Potential acute health effects

Respiratory	No known significant effects or critical hazards.
Oral	No known significant effects or critical hazards.
Skin	No known significant effects or critical hazards.
Eyes	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Inhalation	No specific data.
Ingestion	No specific data.
Skin contact	No specific data.
Eye contact	No specific data.

B. Health hazards

Acute toxicity

Product/ingredient name	Result
L-(+)-ARGININE MONOHYDROCHLORIDE	Rat - Oral - LD50 12 g/kg <u>Toxic effects:</u> Behavioral - Altered sleep time (including change in righting reflex) Behavioral - Ataxia Lung, Thorax, or Respiration - Dyspnea

Conclusion/Summary [Product]	Not available.
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Skin corrosion/irritation

Not available.

Conclusion/Summary [Product]	Not available.
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Serious eye damage/eye irritation

Not available.

Conclusion/Summary [Product]	Not available.
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Respiratory corrosion/irritation

Not available.

Conclusion/Summary [Product]	Not available.
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Respiratory or skin sensitization

Not available.

Skin	
Conclusion/Summary [Product]	Not available.

Respiratory	
Conclusion/Summary [Product]	Not available.

Not available.

<u>Germ cell mutagenicity</u>					
Not available.					
Conclusion/Summary [Product]		Not available.			
<u>Carcinogenicity</u>					
Not available.					
Conclusion/Summary [Product]		Not available.			
<u>Reproductive toxicity</u>					
Not available.					
Conclusion/Summary [Product]		Not available.			
<u>Specific target organ toxicity (single exposure)</u>					
Not available.					
<u>Specific target organ toxicity (repeated exposure)</u>					
Not available.					
<u>Aspiration hazard</u>					
Not available.					
<u>Potential chronic health effects</u>					
Not available.					
Conclusion/Summary [Product]		Not available.			
General		No known significant effects or critical hazards.			
Carcinogenicity		No known significant effects or critical hazards.			
Mutagenicity		May cause genetic defects.			
Reproductive toxicity		No known significant effects or critical hazards.			
<u>Numerical measures of toxicity</u>					
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)
L-(+)-ARGININE MONOHYDROCHLORIDE	12000	N/A	N/A	N/A	N/A

Section 12. Ecological information

A. <u>Ecotoxicity</u>	
Not available.	
Conclusion/Summary [Product]	
Not available.	
Ingredient name	Conclusion/Summary
L-(+)-ARGININE MONOHYDROCHLORIDE	Naturally occurring substance
B. <u>Persistence/degradability</u>	
Not available.	
Conclusion/Summary [Product]	
Not available.	
Ingredient name	Conclusion/Summary
L-(+)-ARGININE MONOHYDROCHLORIDE	Not expected to bioaccumulate. Naturally occurring substance
C. <u>Bioaccumulative potential</u>	

Not available.

D. Mobility in soil**Soil/Water partition coefficient** Not available.**E. Other adverse effects** No known significant effects or critical hazards.

Section 13. Disposal considerations**A. 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.

B. Disposal precautions

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****A. UN number** Not regulated.**B. Proper shipping name** Not regulated.**C. Classes** Not regulated.**D. Packing group** Not regulated.**E. Marine pollutant** No.**F. Additional information** -

Label

IMDG**A. UN number** Not regulated.**B. Proper shipping name** Not regulated.**C. Classes** Not regulated.**D. Packing group** Not regulated.**E. Marine pollutant** No.**F. Additional information** -

Label

IATA**A. UN number** Not regulated.**B. Proper shipping name** Not regulated.**C. Classes** Not regulated.**D. Packing group** Not regulated.**E. Marine pollutant** No.**F. Additional information** -

Label

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**A. Regulation according to ISHA**

ISHA article 117 (Harmful substances prohibited from manufacture) None of the components are listed.

ISHA article 118 (Harmful substances requiring permission) None of the components are listed.

Exposure Limits of Chemical Substances and Physical Factors

None of the components have an OEL.

ISHA Enforcement Regs Annex 19 (Exposure standards established for harmful factors) The following components are listed: manganese and its inorganic compounds

ISHA Enforcement Regs Annex 21 (Harmful factors subject to Work Environment Measurement) None of the components are listed.

ISHA Enforcement Regs Annex 22 (Harmful Factors Subject to Special Health Check-up) None of the components are listed.

Standard of Industrial Safety and Health Annex 12 (Hazardous substances subject to control) None of the components are listed.

B. Regulation according to Chemicals Control Act

Article 11 (TRI) None of the components are listed.

Article 18 Prohibited (K-Reach Article 27) None of the components are listed.

Article 19 Candidate substances subject to authorization (K-Reach Article 25) None of the components are listed.

Article 19 Subject to authorization (K-Reach Article 25) None of the components are listed.

Article 20 Toxic Chemicals (K-Reach Article 20) Not applicable

Article 20 Restricted (K-Reach Article 27) None of the components are listed.

Article 39 (Accident Precaution Chemicals)

Not listed.

MoE 2021-51 - Regulations on the quantity of toxic substances, restricted substances, prohibited substances and permitted substances

Ingredient name	Higher regulated quantity	Lower regulated quantity
inorganic zinc, salts	400 tonnes	20 tonnes
selenium compounds	200 tonnes	5 tonnes

Existing Chemical Substances Subject to Registration The following components are listed: Sulfuric acid, zinc salt (1:1), heptahydrate

C. Dangerous Materials Safety Management Act

Not applicable.

D. Wastes regulation

Dispose of contents and container in accordance with all local, regional, national and international regulations.

E. Regulation according to other foreign laws

Article 2 of Youth Protection Act on Substances Hazardous to Youth Not applicable.

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

Republic of Korea	Not determined.
United States	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**A. References**

B. First issue date	27 January 2026
C. Date of issue/Date of revision	27 January 2026 / 27 January 2026
D. Version	1
Date of printing	27 January 2026 sds_author@cytiva.com

E. Other

 Indicates information that has changed from previously issued version.

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
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