Safety Data Sheet

SUMITOMO CHEMICAL AMERICA, INC.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : DL-METHIONINE FEED GRADE

Manufacturer or supplier's details

Company : Sumitomo Chemical America, Inc.

Department / Section : Animal Nutrition Division
150 East 42nd Street, Suite 701, New York, NY, 10017

Telephone : +1-212-572-8200
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Emergency telephone number : Asia-Pacific region (excluding China):
+65-3158-1074 (CARECHEM24, Singapore)
China:+86-512-8090-3042(CARECHEM24, China)
Europe, Americas (excluding USA), Middle East, Africa, Israel (Europe and English Language speaking countries):
+44-1235-239-670 (CARECHEM24, UK)
Middle East/Africa (Arabic speaking countries):
+44-1235-239-671 (CARECHEM24, UK)
USA (Domestic call):+1-800-424-9300 (CHEMTREC, USA)
USA (International call; collect calls accepted):
+1-703-527-3887 (CHEMTREC, USA)

Recommended use of the chemical and restrictions on use

Use : Feed additive

2. HAZARDS IDENTIFICATION

GHS Classification

Physical hazards	Explosives	: Classification not possible
	Flammable gases (including chemically unstable gases)	: Not applicable
	Aerosols	: Not applicable
	Oxidising gases	: Not applicable
	Gases under pressure	: Not applicable
	Flammable liquids	: Not applicable
	Flammable solids	: Classification not possible
	Self-reactive substances and mixtures	: Classification not possible
	Pyrophoric liquids	: Not applicable
	Pyrophoric solids	: Not applicable
	Self-heating substances and mixtures	: Classification not possible
	Substances and mixtures, which in contact with water, emit flammable gases	: Not applicable
	Oxidizing liquids	: Not applicable
	Oxidizing solids	: Classification not possible
	Organic peroxides	: Not applicable
	Corrosive to metals	: Classification not possible
Health hazards	Acute toxicity (oral)	: Not classified

	Acute toxicity (dermal)	:	Not classified
	Acute toxicity (inhalation - gas)	:	Not applicable
	Acute toxicity (inhalation - vapor)	:	Classification not possible
	Acute toxicity (inhalation - dust and mist)	:	Classification not possible
	Skin corrosion/irritation	:	Not classified
	Serious eye damage/eye irritation	:	Not classified
	Respiratory sensitisation	:	Classification not possible
	Skin sensitisation	:	Not classified
	Germ cell mutagenicity	:	Not classified
	Carcinogenicity	:	Classification not possible
	Reproductive toxicity	:	Classification not possible
	Specific target organ toxicity - single exposure	:	Classification not possible
	Specific target organ toxicity - repeated exposure	:	Classification not possible
	Aspiration hazard	:	Classification not possible
Environmental hazards	Acute aquatic toxicity	:	Not classified
	Chronic aquatic toxicity	:	Not classified
	Hazardous to the ozone layer	:	Classification not possible

GHS Label element
Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Chemical name	CAS No.	Concentration[%]
DL-2-Amino-4-methylthio butanoic acid (ISO common name: DL-Methionine)	59-51-8	99 min.

4. FIRST AID MEASURES

If inhaled : Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Administer oxygen if breathing is difficult.
Apply artificial respiration if victim is not breathing.
Do not use mouth-to-mouth method.
Keep victim warm with a blanket etc.
Get immediate medical advice/attention.
If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Effect of exposure to substance may be delayed. Medical observation is indicated.

In case of skin contact : Remove/Take off immediately contaminated clothing and shoes.
Gently wash with plenty of soap and water.
If skin irritation or rash occurs: Get medical advice/attention.

In case of eye contact : Do not rub eye.
Hold eyelids apart.
Begin to rinse with water as soon as possible and rinse cautiously for several minutes.

		Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.
If swallowed	:	Rinse mouth thoroughly with water and give large amounts of milk or water to people not unconscious. Do not give victim anything to drink if he is unconscious. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Keep victim warm with a blanket etc. Get immediate medical advice/attention. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Administer oxygen if breathing is difficult. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method.
Protection of first-aiders	:	Use personal protective equipment as required.

5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Fog, Dry chemical powder
Unsuitable extinguishing media	:	Straight streams
Specific hazards during firefighting	:	Flammable/combustible material. Will be easily ignited by ignition sources such as heat, mechanical sparks, static discharge or open flames. Powders and dusts may form explosive dust clouds with air. When heated, decomposition gases may form explosive mixtures with air. Fire may produce flammable and/or harmful gases （See "10. Stability and reactivity"）. Containers may explode when heated. May re-ignite after fire is extinguished. Risk of fire and explosion on contact with incompatible material(s). Runoff and fire-control water may pollute waters.
Specific extinguishing methods	:	Large fire or tanks; Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Keep upwind. Keep unauthorized personnel away. If possible, remove containers exposed to heat or cool with water. For large fires, withdraw from fire area and let fire burn. Dike fire water for later disposal; do not spread the material. Cool containers with flooding quantities of water until well after fire is out.
Special protective equipment for firefighters	:	Wear regional, national, and local standards approved fire fighting turnout gear and positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection from heat, and may not provide adequate protection from the harmful vapors or liquids.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Wear appropriate protective equipment. Use personal protection recommended in "8. Exposure control/personal protection". Isolate spill or leak area for proper distance in all directions. Do not touch or walk through spilled material.
Emergency procedures	:	Keep all unauthorized personnel upwind away. Consult an expert. Warn habitants surroundings. Navigation lock on waterways. Form large safety zone.
Prevention of secondary hazards	:	Prevent from accumulation of static electricity by grounding and bonding of all equipment, and by wearing work clothing made of appropriate material. Prepare appropriate extinguishing agent. (See "5. Fire-fighting measures") Prevent dust cloud or/and dust accumulation. For large spill, consider initial downwind evacuation for proper distance.
Environmental precautions	:	Prevent entry spilled material and runoff from spillage control into waterways, sewers, basements or confined areas. Avoid release to the environment. Take appropriate measures, such as warning nearby residents of the leak, because its smell or irritating odor is intense.
Methods and materials for containment and cleaning up	:	ELIMINATE all ignition sources such as heat/sparks/open flames/hot surfaces/static discharges. Use explosion-proof electrical equipment and lighting. Stop leak if possible without any risk. Use clean non-sparking tools. Collect scattered product into sealable containers. Collect fine substance by dust explosion-proof cleaner to prevent scatter.（See "13. Disposal considerations".）

7. HANDLING AND STORAGE

Technical measures	:	Use only outdoors or in a well-ventilated area. ELIMINATE all ignition sources. Prevent dust cloud and dust accumulation. Take precautionary measures against static electricity such as grounding and bonding, wearing anti-static footwear and clothing, using grounded conductive floor. Do not use low conductive material to equipments and containers including plastic lining, bags and filters. Use dust explosion-proof electrical/ventilating/lighting/equipment. Inerting by nitrogen gas, etc., and explosion pressure venting of confined spaces are requested as dust explosion precautions. If above mentioned precautions are impossible, consult an expert of a specialized company.
Local/Total ventilation	:	Ventilate by appropriate method.

(See "8. Exposure control/personal protection")

Advice on safe handling	:	Install appropriate equipment and wear appropriate protective clothing. (See "8. Exposure control/personal protection") Eating, drinking and smoking in work areas is prohibited. Contaminated work clothing should not be allowed out of the workplace. Wash hands and face thoroughly after handling.
Conditions for safe storage	:	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep containers tightly closed. Well ventilate by proper manner according to regional, national and local regulations. Store in a dark place.. Keep away from incompatible materials. (See "10. Stability and reactivity".) Keep away from food and drink.
Packaging material	:	No information available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Engineering measures	:	Use closed system and equipment, or local and/or general exhaust to maintain product dust concentrations in air below occupational exposure standards. Control equipment and handling to prevent dust explosion hazards. (See "7. Handling and storage") Maintain eye wash fountain and quick-drench facilities in work area. Take precautionary measures against static electricity such as grounding and bonding, wearing anti-static footwear and clothing, using grounded conductive floor.

Personal protective equipment

Respiratory protection	:	Breathing protective equipment should be chosen only according to specific regulatory requirements. Wear positive pressure self-contained breathing apparatus (SCBA) in circumstance above occupational exposure standards for dust including emergency procedures and cleaning for accidental release.
Hand protection	:	Hand protective equipment should be chosen only according to specific regulatory requirements. Impervious gloves
Eye protection	:	Eye protective equipment should be chosen only according to specific regulatory requirements. Chemical safety goggles or full face shield
Skin and body protection	:	Personal protective equipment (PPE) should be chosen only according to specific regulatory requirements. Suitable impervious protective clothing, including protective footwear, gloves, lab coat, apron or coveralls.

Use anti static discharge work wear and footwear.

Hygiene measures : Prevent generation of dust.
Avoid inhalation.
Avoid contact with skin and eyes.
Do not eat, drink or smoke during work.
Wash thoroughly after handling and before eating or drinking.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Crystal or powder
Colour	:	White - pale yellow
Odour	:	Characteristic odor
pH	:	5.2 - 6.1 (1% aqueous solution)
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	No data available
Flash point	:	> 110°C (Seta closed cup)
Evaporation rate	:	No data available
Upper explosion limit	:	No data available
Lower explosion limit	:	60g/m^3 (particle size <=75µm)(JIS Z 8818(2002))
Vapour pressure	:	< 8.40 x 10^{-7} Pa (20°C)
Relative vapour density	:	No data available
Relative density	:	No data available
Density	:	1.32 g/cm^3
Bulk density	:	0.50 - 0.80 g/cm^3
Water solubility	:	31.6 g/L (20°C)
Solubility in other solvents	:	Dilute hydrochloric acid : Soluble 1 mol/L sodium hydroxide solution : Soluble Ethanol : Very slightly soluble Ether : Practically insoluble
Partition coefficient: n-octanol/water	:	Log Pow: -3.5
Auto-ignition temperature	:	No data available
Thermal decomposition	:	Approximately 250°C

10. STABILITY AND REACTIVITY

Chemical stability	:	Material is stable under normal conditions.
Possibility of hazardous reactions	:	Strong oxidizers : Fire and explosion hazards. May form explosive dust cloud.
Conditions to avoid	:	Ignition sources (open flame, spark, heat, hot surface, static discharge etc.), Incompatibles, Heating
Incompatible materials	:	Strong oxidizers
Hazardous decomposition products	:	Carbon monoxide, Carbon dioxide, Hydrocarbons, Sulfur oxides. Nitrogen oxides, Ammonia, Soot

11. TOXICOLOGICAL INFORMATION

Acute Toxicity:

Oral: Rat : LD_{50} > 5,000 mg/kg
Mouse : LD_{50} > 5,000 mg/kg

Dermal: Mouse : LD_{50} > 2,000 mg/kg

Inhalation: No data available

Skin corrosion / irritation: Rabbit : Not irritating

Serious eye damage / eye irritation: Rabbit : Minimally irritating

Respiratory or skin sensitisation: Guinea pig skin sensitizer (Buehler test) : Non-sensitizer

Germ cell mutagenicity:

in vitro: Ames test (*S. typhimurium* and *E. coli*) : Negative

in vivo: Chromosome aberration test (rat, bone marrow) : Negative
Micronucleus test (mouse, intraperitoneal) : Negative

Carcinogenicity: No data available

IARC No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity:

Reproduction: No data available

Teratogenicity: No data available

Specific target organ toxicity - single exposure:	Rat (oral) : Not classified based on available information. Mouse (oral) : Not classified based on available information. Mouse (dermal) : No specific target organs noted.
Specific target organ toxicity - repeated exposure:	Rat 90-day repeated dose toxicity study (oral) : No specific target organs noted.
Aspiration toxicity:	No data available
Other effects:	No data available

12. ECOLOGICAL INFORMATION

Acute aquatic toxicity :

Toxicity to fish :	Ricefish : LC_{50} (96 h) > 100 mg/L
Toxicity to crustacea :	*Daphnia magna* : EC_{50} (48 h) > 1,000 mg/L
Toxicity to alga :	Green alga : ErC_{50} (72 h) > 1,000 mg/L

Chronic aquatic toxicity :

Toxicity to fish :	No data available
Toxicity to crustacea :	*Daphnia magna* : NOEC (21 d) 32 mg/L
Toxicity to alga :	Green alga : NOECr (72 h) 32 mg/L
Others :	No data available

Persistence and degradability
No data available

Bioaccumulative potential
LogPow = -3.5

Mobility in soil
No data available

Hazardousness to the ozone layer
UNEP - Not listed in Handbook for the Montreal Protocol on Substances that Deplete the Ozone Layer

13. DISPOSAL CONSIDERATIONS

Disposal methods

Dispose of contents/container appropriately in accordance with local/regional/national/international regulations.

14. TRANSPORT INFORMATION

International regulation

UNRTDG

Not regulated as a dangerous good

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

National Regulations

49 CFR
Not regulated as dangerous goods

TDG
Not regulated as dangerous goods

NOM-002-SCT
Not regulated as dangerous goods

Special precautions for user

Remarks	:	Make sure no damage, corrosion, leaks, and so on on the container(s) before transportation. Load not to fall, drop, damage the product, and make sure to take measures to secure the loaded products. Equip in automobile or ship for transportation with protective equipment (gloves, eyeglasses, mask, etc), and fire extinguisher, tools necessary for emergency.

15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity
This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards	:	No SARA Hazards
SARA 313	:	This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act
This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.
This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.
This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

US State Regulations

Massachusetts Right To Know

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know

Methionine 59-51-8

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

The components of this product are reported in the following inventories:

REACH	:	This substance is exempt from registration according to Regulation (EC) No. 1907/2006 (REACH).
DSL	:	All components of this product are on the Canadian DSL
AICS	:	On the inventory, or in compliance with the inventory
NZIoC	:	On the inventory, or in compliance with the inventory
ENCS	:	On the inventory, or in compliance with the inventory
ISHL	:	On the inventory, or in compliance with the inventory
KECI	:	Not in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory
TCSI	:	On the inventory, or in compliance with the inventory
TSCA	:	On TSCA Inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

Canadian lists

No substances are subject to a Significant New Activity Notification.

16. OTHER INFORMATION

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.