



Methionine

Safety Data Sheet

Version 1.1

Revision date 01/09/2012/JK-IA

SECTION 1. Product and company identification

Chemical type	: Substance
Substance name	: Methionine
CAS No.	: 348-67-4
Product code	: RC-071
Formula	: C ₅ H ₁₁ NO ₂ S
Synonyms	: (R)-(-)-methionine / (R)-2-amino-4-(methylmercapto)butyric acid / 2-amino-4-(methylmercapto)butyric acid, (R)- / 2-amino-4-(methylthio)butanoic acid, D- / alpha-amino-gamma-methylmercaptobutyric acid, D- / D(-)-methionine / D-2-amino-4-(methylthio)butanoic acid / D-alpha-amino-gamma-methylmercaptobutyric acid / D-methionine / methionine, (R)-(-)- / methionine, D(-)-
Company identification	: G-Biosciences/ Geno Technology, Inc. 9800 Page Avenue St. Louis, MO 63312-1429, USA Tel.1-800-628-7730 http://www.GBiosciences.com
Emergency number	: Chemtrec 1-800-424-9300 (USA/Canada), +1-703-527-3887 (Intl)

SECTION: 2. Hazards identification

2.1. Emergency Overview

Physical state	: Solid
Appearance	: Amorphous powder
Colour	: White
Odour	: Mild odour

Methionine(348-67-4)

2.2. OSHA Regulatory Status

No additional information available

2.3. Potential health effects

Symptoms/injuries after ingestion : AFTER ABSORPTION OF HIGH QUANTITIES: Gastrointestinal complaints.

2.4. Potential environmental effects

No additional information available

SECTION: 3. Composition/information on ingredients

Name	CAS No.	%
Methionine	348-67-4	100

4.1. First aid procedures

First-aid measures general	: Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.
First-aid measures after inhalation	: Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.
First-aid measures after skin contact	: Rinse with water. Soap may be used. Take victim to a doctor if irritation persists.
First-aid measures after eye contact	: Rinse with water. Take victim to an ophthalmologist if irritation persists.
First-aid measures after ingestion	: Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital.

4.2. Note to physicians

No additional information available

SECTION: 5. Firefighting measures

5.1. Flammable properties

Fire hazard	: DIRECT FIRE HAZARD. Literature reports direct fire hazard. In finely divided state: increased fire hazard. INDIRECT FIRE HAZARD. Heating increases the fire hazard.
Explosion hazard	: DIRECT EXPLOSION HAZARD. Its dust is explosive with air. INDIRECT EXPLOSION HAZARD. Dust cloud can be ignited by a spark.

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Reactivity : On burning: release of toxic and corrosive gases/vapours (nitrous vapours, sulphur oxides, carbon monoxide - carbon dioxide).

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Polyvalent foam. ABC powder. Carbon dioxide.

5.3. Protection for firefighters

Firefighting instructions : Dilute toxic gases with water spray.

Protection during firefighting : Heat/fire exposure: compressed air/oxygen apparatus.

SECTION: 6. Accidental release measures

6.1. Personal precautions

6.1.1. For non-emergency personnel

Protective equipment : Gloves. Protective clothing. Dust cloud production: compressed air/oxygen apparatus.

Emergency procedures : Mark the danger area. Prevent dust cloud formation, e.g. by wetting. No naked flames. Wash contaminated clothes.

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

No additional information available

6.3. Methods for containment

For containment : Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray. Powdered form: no compressed air for pumping over spills.

6.4. Methods for clean up

Methods for cleaning up : Stop dust cloud by humidifying. Scoop solid spill into closing containers. See "Material-handling" for suitable container materials. Powdered: do not use compressed air for pumping over spills. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

6.5. Other information

No additional information available

6.6. Spill or leak statements by type of chemical

No additional information available

SECTION: 7. Handling and storage

7.1. Handling

Precautions for safe handling : Comply with the legal requirements. Clean contaminated clothing. Powdered form: no compressed air for pumping over. Avoid raising dust. Keep away from naked flames/heat. Finely divided: spark- and explosionproof appliances. Finely divided: keep away from ignition sources/sparks. Observe normal hygiene standards. Keep container tightly closed. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

7.2. Storage

Heat-ignition : KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.

Prohibitions on mixed storage : KEEP SUBSTANCE AWAY FROM: oxidizing agents.

Storage area : Store in a cool area. Store in a dry area. Keep container in a well-ventilated place. Fireproof storeroom. Meet the legal requirements.

Special rules on packaging : SPECIAL REQUIREMENTS: closing. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

Packaging materials : SUITABLE MATERIAL: synthetic material. glass.

SECTION: 8. Exposure controls/personal protection

8.1. Exposure guidelines

No additional information available

8.2. Engineering controls

No additional information available

8.3. Personal protective equipment (PPE)

Materials for protective clothing : GIVE EXCELLENT RESISTANCE: No data available. GIVE GOOD RESISTANCE: No data available. GIVE LESS RESISTANCE: No data available. GIVE POOR RESISTANCE: No data available.

Hand protection : Gloves.

Eye protection : Safety glasses. In case of dust production: protective goggles.

Skin and body protection : Protective clothing.

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Respiratory protection : Dust production: dust mask with filter type P1.

SECTION: 9. Physical and chemical properties

Physical state : Solid
Appearance : Amorphous powder.
Molecular mass : 149.21 g/mol
Colour : White.
Odour : Mild odour.
Odour threshold : No data available
pH : No data available
Melting point : 273 °C
Solidification point : No data available
Boiling point : Not applicable
Flash point : No data available
Relative evaporation rate (butylacetate=1) : No data available
Flammability (solid, gas) : No data available
Explosive limits : No data available
Vapour pressure : No data available
Relative vapour density at 20 °C : No data available
Relative density : 1.3
Density : 1340 kg/m³
Solubility : Moderately soluble in water. Substance sinks in water. Soluble in acids. Soluble in bases.
Water: 5.3 g/100ml
Log Pow : -1.87
Self ignition temperature : 390 °C
Decomposition temperature : 273 °C
Viscosity : No data available
Explosive properties : No data available
Oxidising properties : No data available
SADT : -30 °C
Other properties : Substance has acid reaction.

SECTION: 10. Stability and reactivity

10.1. Chemical stability

On burning: release of toxic and corrosive gases/vapours (nitrous vapours, sulphur oxides, carbon monoxide - carbon dioxide).

Stable under normal conditions.

10.2. Conditions to avoid

No additional information available

10.3. Incompatible materials

No additional information available

10.4. Hazardous decomposition products

No additional information available

10.5. Possibility of hazardous reactions

No additional information available

SECTION: 11. Toxicological information

Information on toxicological effects

Acute toxicity : Not classified
Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Not classified
Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
Specific target organ toxicity (single exposure) : Not classified
Specific target organ toxicity (repeated exposure) : Not classified

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Aspiration hazard : Not classified

SECTION: 12. Ecological information

12.1 Ecotoxicity

Ecology - air : Not dangerous for the ozone layer (Council Regulation (EC) no 1005/2009). Germany: TA-Luft Klasse 5.2.5/I.

Methionine(348-67-4)	
LC50 fishes 1	> 3200 mg/l (96 Hours; BRACHYDANIO RERIO; OTHER ISOMER)
EC50 Daphnia 1	324 mg/l (48 Hours; DAPHNIA MAGNA; OTHER ISOMER)
EC50 other aquatic organisms 1	> 1000 mg/l (72 Hours; SCENEDESMUS SUBSPICATUS; OTHER ISOMER)

12.2. 12.2. Persistence and degradability

Methionine(348-67-4)	
Persistence and degradability	Readily biodegradable in water. test: 81 %, OECD 302B Zahn- Well.

12.3. Bioaccumulation/Accumulation

Methionine(348-67-4)	
Log Pow	-1.87
Bioaccumulative potential	Bioaccumulation: not applicable.

12.4. Mobility in environmental media

No additional information available

12.6. Other adverse effects

No additional information available

SECTION: 13. Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber with energy recovery.

Additional information : LWCA (the Netherlands): KGA category 03.

SECTION: 14. Transport information

14.1. Basic shipping description

No additional information available

14.2 Additional information

Other information : No supplementary information available.

State during transport (ADR-RID) : Rail and road transport: not subject to ADR-RID.

Overland transport

No additional information available

Transport by sea

No additional information available

Air transport

No additional information available

SECTION: 15. Regulatory information

15.1. US Federal regulations

No additional information available

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not classified

Classification according to Directive 67/548/EEC or 1999/45/EC

Not classified

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15.2.2. National regulations

No additional information available

15.3. US State regulations

No additional information available

SECTION: 16. Other information

NFPA health hazard

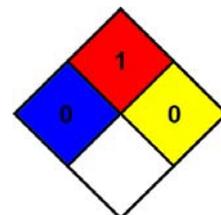
: 0 - Exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials.

NFPA fire hazard

: 1 - Must be preheated before ignition can occur.

NFPA reactivity

: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

No additional information available

SDS US (ANSI) GBiosciences