



ALGAL AMINO ACID MIXTURE (U-13C, 97-99%; U-15N, 97-99%)

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 05/08/2014

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Version: 4.0

CNLM-452

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixtures
Product name : ALGAL AMINO ACID MIXTURE (U-13C, 97-99%; U-15N, 97-99%)
Product code : CNLM-452

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Main use category : Professional use
Industrial/Professional use spec : For professional use only

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Cambridge Isotope Laboratories, Inc.
50 Frontage Road
Andover, MA 01810
USA

USA: 1-800-322-1174 Int: 1-978-749-8000
cilsales@isotope.com www.isotope.com

Emergency telephone number

Emergency numbers:

Chemtrec: 1-800-424-9300 (24 hours)
International: 1-703-741-5970 (24 hours)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Skin Irrit. 2 H315
Eye Irrit. 2 H319
Skin Sens. 1 H317

Full text of hazard classes and H-statements : see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

R43
Xi; R36/38

Full text of R-phrases: see section 16

GHS-US classification

Skin Irrit. 2 H315
Eye Irrit. 2 H319
Skin Sens. 1 H317

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

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2.2. Label elements

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

Hazard pictograms (CLP) :



GHS07

Signal word (CLP) :

Warning

Hazardous ingredients :

L-LYSINE:2HCL (13C6, 97-99%; 15N2, 97-99%)

Hazard statements (CLP) :

H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation

Precautionary statements (CLP) :

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.

GHS-US labeling

Hazard pictograms (GHS-US) :



GHS07

Signal word (GHS-US) :

Warning

Hazard statements (GHS-US) :

H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation

Precautionary statements (GHS-US) :

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P272 - Contaminated work clothing must not be allowed out of the workplace
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 - If on skin: Wash with plenty of water
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P321 - Specific treatment (see Hazardous component(s) for labeling on this label)
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P363 - Wash contaminated clothing before reuse.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards

No additional information available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Directive 67/548/EEC
L-LEUCINE (13C6, 99%; 15N, 99%)	(CAS-No.) 202406-52-8 (EC-No.) 200-522-0 (Unlabeled)	~ 14	Not classified
L-GLUTAMIC ACID (13C5, 99%; 15N, 99%)	(CAS-No.) 56-86-0 (Unlabeled) (EC-No.) 200-293-7 (Unlabeled)	~ 13	Not classified
L-ALANINE (13C3, 99%; 15N, 99%)	(CAS-No.) 312623-85-1 (EC-No.) 200-273-8 (Unlabeled) (EC Index-No.)	~ 10	Not classified

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Name	Product identifier	%	Classification according to Directive 67/548/EEC
L-VALINE (13C5, 99%; 15N, 99%)	(CAS-No.) 72-18-4 (Unlabeled) (EC-No.) 200-773-6 (Unlabeled)	~ 9	Not classified
L-ISOLEUCINE (13C6, 99%; 15N, 99%)	(CAS-No.) 73-32-5 (Unlabeled) (EC-No.) 200-798-2 (Unlabeled)	~ 8	Not classified
L-PHENYLALANINE (13C9, 99%; 15N, 99%)	(CAS-No.) 63-91-2 (Unlabeled) (EC-No.) 200-568-1 (Unlabeled)	~ 8	Not classified
L-ASPARTIC ACID (13C4, 99%; 15N, 99%)	(CAS-No.) 202468-27-7 (EC-No.) 200-291-6 (Unlabeled)	~ 6	Xn; R21/22 Xi; R36
GLYCINE (13C2, 99%; 15N, 99%)	(CAS-No.) 211057-02-2 (EC-No.) 200-272-2 (Unlabeled)	~ 6	Not classified
L-THREONINE (13C4, 97-99%; 15N, 97-99%)	(CAS-No.) 202468-39-1 (EC-No.) 200-774-1 (Unlabeled)	~ 5	Not classified
L-PROLINE (13C5, 99%; 15N, 99%)	(CAS-No.) 147-85-3 (Unlabeled) (EC-No.) 205-702-2 (Unlabeled)	~ 4	Not classified
L-TYROSINE (13C9, 99%; 15N, 99%)	(CAS-No.) 202407-26-9 (EC-No.) 200-460-4 (Unlabeled)	~ 4	Xi; R36/37/38
L-ARGININE:HCL (13C6, 97-99%; 15N4, 97-99%)	(CAS-No.) 202468-25-5 (EC-No.) 214-275-1 (Unlabeled)	~ 3	Xi; R36/38
L-LYSINE:2HCL (13C6, 97-99%; 15N2, 97-99%)	(CAS-No.) 657-26-1 (Unlabeled) (EC-No.) 211-518-3 (Unlabeled)	~ 3	Not classified
L-SERINE (13C3, 99%; 15N, 99%)	(CAS-No.) 202407-34-9 (EC-No.) 200-274-3 (Unlabeled)	~ 3	Not classified
L-HISTIDINE (13C6, 97-99%; 15N3, 97-99%)	(CAS-No.) 71-00-1 (Unlabeled) (EC-No.) 200-745-3 (Unlabeled) (EC Index-No.)	~ 2	Not classified
L-METHIONINE (13C5, 99%; 15N, 99%)	(CAS-No.) 63-68-3 (Unlabeled) (EC-No.) 200-562-9 (Unlabeled)	~ 2	Not classified

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
L-LEUCINE (13C6, 99%; 15N, 99%)	(CAS-No.) 202406-52-8 (EC-No.) 200-522-0 (Unlabeled)	~ 14	Not classified
L-GLUTAMIC ACID (13C5, 99%; 15N, 99%)	(CAS-No.) 56-86-0 (Unlabeled) (EC-No.) 200-293-7 (Unlabeled)	~ 13	Not classified
L-ALANINE (13C3, 99%; 15N, 99%)	(CAS-No.) 312623-85-1 (EC-No.) 200-273-8 (Unlabeled) (EC Index-No.)	~ 10	Not classified
L-VALINE (13C5, 99%; 15N, 99%)	(CAS-No.) 72-18-4 (Unlabeled) (EC-No.) 200-773-6 (Unlabeled)	~ 9	Not classified
L-ISOLEUCINE (13C6, 99%; 15N, 99%)	(CAS-No.) 73-32-5 (Unlabeled) (EC-No.) 200-798-2 (Unlabeled)	~ 8	Not classified
L-PHENYLALANINE (13C9, 99%; 15N, 99%)	(CAS-No.) 63-91-2 (Unlabeled) (EC-No.) 200-568-1 (Unlabeled)	~ 8	Not classified
L-ASPARTIC ACID (13C4, 99%; 15N, 99%)	(CAS-No.) 202468-27-7 (EC-No.) 200-291-6 (Unlabeled)	~ 6	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Eye Irrit. 2, H319
GLYCINE (13C2, 99%; 15N, 99%)	(CAS-No.) 211057-02-2 (EC-No.) 200-272-2 (Unlabeled)	~ 6	Not classified
L-THREONINE (13C4, 97-99%; 15N, 97-99%)	(CAS-No.) 202468-39-1 (EC-No.) 200-774-1 (Unlabeled)	~ 5	Not classified
L-PROLINE (13C5, 99%; 15N, 99%)	(CAS-No.) 147-85-3 (Unlabeled) (EC-No.) 205-702-2 (Unlabeled)	~ 4	Not classified
L-TYROSINE (13C9, 99%; 15N, 99%)	(CAS-No.) 202407-26-9 (EC-No.) 200-460-4 (Unlabeled)	~ 4	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335
L-ARGININE:HCL (13C6, 97-99%; 15N4, 97-99%)	(CAS-No.) 202468-25-5 (EC-No.) 214-275-1 (Unlabeled)	~ 3	Skin Irrit. 2, H315 Eye Irrit. 2, H319
L-LYSINE:2HCL (13C6, 97-99%; 15N2, 97-99%)	(CAS-No.) 657-26-1 (Unlabeled) (EC-No.) 211-518-3 (Unlabeled)	~ 3	Skin Sens. 1, H317
L-SERINE (13C3, 99%; 15N, 99%)	(CAS-No.) 202407-34-9 (EC-No.) 200-274-3 (Unlabeled)	~ 3	Not classified
L-HISTIDINE (13C6, 97-99%; 15N3, 97-99%)	(CAS-No.) 71-00-1 (Unlabeled) (EC-No.) 200-745-3 (Unlabeled) (EC Index-No.)	~ 2	Not classified
L-METHIONINE (13C5, 99%; 15N, 99%)	(CAS-No.) 63-68-3 (Unlabeled) (EC-No.) 200-562-9 (Unlabeled)	~ 2	Not classified

Name	Product identifier	%	GHS-US classification
L-LEUCINE (13C6, 99%; 15N, 99%)	(CAS-No.) 202406-52-8	~ 14	Not classified
L-GLUTAMIC ACID (13C5, 99%; 15N, 99%)	(CAS-No.) 56-86-0 (Unlabeled)	~ 13	Not classified
L-ALANINE (13C3, 99%; 15N, 99%)	(CAS-No.) 312623-85-1	~ 10	Not classified
L-VALINE (13C5, 99%; 15N, 99%)	(CAS-No.) 72-18-4 (Unlabeled)	~ 9	Not classified

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L-ISOLEUCINE (13C6, 99%; 15N, 99%)	(CAS-No.) 73-32-5 (Unlabeled)	~ 8	Not classified
L-PHENYLALANINE (13C9, 99%; 15N, 99%)	(CAS-No.) 63-91-2 (Unlabeled)	~ 8	Not classified
L-ASPARTIC ACID (13C4, 99%; 15N, 99%)	(CAS-No.) 202468-27-7	~ 6	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Eye Irrit. 2A, H319
GLYCINE (13C2, 99%; 15N, 99%)	(CAS-No.) 211057-02-2	~ 6	Not classified
L-THREONINE (13C4, 97-99%; 15N, 97-99%)	(CAS-No.) 202468-39-1	~ 5	Not classified
L-PROLINE (13C5, 99%; 15N, 99%)	(CAS-No.) 147-85-3 (Unlabeled)	~ 4	Not classified
L-TYROSINE (13C9, 99%; 15N, 99%)	(CAS-No.) 202407-26-9	~ 4	Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335
L-ARGININE:HCL (13C6, 97-99%; 15N4, 97-99%)	(CAS-No.) 202468-25-5	~ 3	Skin Irrit. 2, H315 Eye Irrit. 2A, H319
L-LYSINE:2HCL (13C6, 97-99%; 15N2, 97-99%)	(CAS-No.) 657-26-1 (Unlabeled)	~ 3	Skin Sens. 1, H317
L-SERINE (13C3, 99%; 15N, 99%)	(CAS-No.) 202407-34-9	~ 3	Not classified
L-HISTIDINE (13C6, 97-99%; 15N3, 97-99%)	(CAS-No.) 71-00-1 (Unlabeled)	~ 2	Not classified
L-METHIONINE (13C5, 99%; 15N, 99%)	(CAS-No.) 63-68-3 (Unlabeled)	~ 2	Not classified

Full text of R- and H- phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: If you feel unwell, seek medical advice (show the label where possible). Evacuate danger area.
First-aid measures after inhalation	: When symptoms occur: go into open air and ventilate suspected area. If not breathing give artificial respiration. Get medical advice/attention.
First-aid measures after skin contact	: Wash with plenty of soap and water. and soap. Get immediate medical advice/attention.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes.
First-aid measures after ingestion	: Never give anything by mouth to an unconscious person. Rinse mouth out with water. Get medical advice/attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation	: May be harmful if inhaled. May cause respiratory irritation.
Symptoms/effects after skin contact	: Causes skin irritation. May cause an allergic skin reaction.
Symptoms/effects after eye contact	: Causes serious eye irritation.
Symptoms/effects after ingestion	: May be harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Water spray. Dry chemical powder, alcohol-resistant foam, carbon dioxide (CO2).
Unsuitable extinguishing media	: Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

Firefighting instructions	: Fight fire with normal precautions from a reasonable distance. Wear a self contained breathing apparatus. Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection. Wear recommended personal protective equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Avoid breathing vapors, mist, gas. Avoid dust formation.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Do not allow to enter drains or water courses. Avoid release to the environment.

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6.3. Methods and material for containment and cleaning up

- For containment : Take up mechanically (sweeping, shoveling) and collect in suitable container for disposal.
Methods for cleaning up : This material and its container must be disposed of in a safe way, and as per local legislation.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Provide good ventilation in process area to prevent formation of vapor.
Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Store in a well-ventilated place. Keep container tightly closed.
Storage conditions : Store at room temperature away from light and moisture.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

No additional information available

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state : Solid
Appearance : Solid
Color : Light brown
Odor : No data available
Odor threshold : No data available
pH : No data available
Relative evaporation rate (butyl acetate=1) : No data available
Melting point : No data available
Freezing point : No data available
Boiling point : No data available
Flash point : No data available
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : No data available
Vapor pressure : No data available
Relative vapor density at 20 °C : No data available
Relative density : No data available
Solubility : No data available
Log Pow : No data available
Log Kow : No data available
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidizing properties : No data available
Explosion limits : No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

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10.2. Chemical stability

Stable if stored under recommended conditions.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids, Strong bases.

10.6. Hazardous decomposition products

Carbon oxides (CO, CO₂). Carbon monoxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

L-ALANINE (13C3, 99%; 15N, 99%) (312623-85-1)	
LD50 oral rat	> 5110 mg/kg male and female
L-ARGININE:HCL (13C6, 97-99%; 15N4, 97-99%) (202468-25-5)	
LD50 oral rat	12400 mg/kg
ATE CLP (oral)	12000.000 mg/kg body weight
L-ASPARTIC ACID (13C4, 99%; 15N, 99%) (202468-27-7)	
LD50 oral rat	5000 mg/kg
LD50 dermal rabbit	5000 mg/kg
ATE CLP (oral)	500.000 mg/kg body weight
ATE CLP (dermal)	1100.000 mg/kg body weight
L-GLUTAMIC ACID (13C5, 99%; 15N, 99%) (56-86-0 (Unlabeled))	
LD50 oral rat	> 5110 mg/kg male and female
LD50 dermal rat	> 2000 mg/kg male and female
GLYCINE (13C2, 99%; 15N, 99%) (211057-02-2)	
LD50 oral rat	7930 mg/kg
ATE CLP (oral)	7930.000 mg/kg body weight
L-HISTIDINE (13C6, 97-99%; 15N3, 97-99%) (71-00-1 (Unlabeled))	
LD50 oral rat	> 15000 mg/kg Remarks: (RTECS)
L-LEUCINE (13C6, 99%; 15N, 99%) (202406-52-8)	
LD50 oral rat	> 16000 mg/kg male and female
LD50 Intraperitoneal - Rat - 5,379 mg/kg Remarks	Lungs, Thorax, or Respiration: Dyspnea. Nutritional and Gross Metabolic: Changes in: Body temperature decrease.
L-METHIONINE (13C5, 99%; 15N, 99%) (63-68-3 (Unlabeled))	
LD50 oral rat	36000 mg/kg Remarks: Behavioral: Change in motor activity (specific assay). Skin and Appendages: Allergic (Multiple organ involvement) Anaphylaxis.
L-SERINE (13C3, 99%; 15N, 99%) (202407-34-9)	
LD50 oral rat	14000 mg/kg male and female
L-THREONINE (13C4, 97-99%; 15N, 97-99%) (202468-39-1)	
LD50 Intraperitoneal - Rat - 3,098 mg/kg Remarks	Behavioral: Muscle contraction or spasticity. Lungs, Torax, or Respiration: Dyspnea. Nutritional and Gross Metabolic: Changes in: Body temperature decrease.
L-TYROSINE (13C9, 99%; 15N, 99%) (202407-26-9)	
Additional information	LD50 Intraperitoneal - mouse - > 1,450 mg/kg
L-VALINE (13C5, 99%; 15N, 99%) (72-18-4 (Unlabeled))	
LD50 oral rat	> 2000 mg/kg female
LD50 dermal rat	5390 mg/kg
LC50 inhalation rat (mg/l)	> 5260 mg/m ³ (OECD Test Guideline 403)

Skin corrosion/irritation	: Causes skin irritation. Skin – Rabbit - Result: No skin irritation - 4 h
Serious eye damage/irritation	: Causes serious eye irritation. Eyes - rabbit - No eye irritation (OCED Test Guideline 405)
Respiratory or skin sensitization	: May cause an allergic skin reaction.

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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

L-LEUCINE (13C6, 99%; 15N, 99%) (202406-52-8)

NOAEL (oral,rat,90 days)	3840 mg/kg bodyweight/day female
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L-SERINE (13C3, 99%; 15N, 99%) (202407-34-9)

NOAEL (oral,rat,90 days)	3000 mg/kg bodyweight/day male and female - OECD Test Guideline 408
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Aspiration hazard	: Not classified
Symptoms/effects after inhalation	: May be harmful if inhaled. May cause respiratory irritation.
Symptoms/effects after skin contact	: Causes skin irritation. May cause an allergic skin reaction.
Symptoms/effects after eye contact	: Causes serious eye irritation.
Symptoms/effects after ingestion	: May be harmful if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

ALGAL AMINO ACID MIXTURE (U-13C, 97-99%; U-15N, 97-99%)

LC50 fish 1	> 10 g/l Danio rerio (zebra fish) - 96 h
EC50 Daphnia 1	> 10 g/l Daphnia magna (water flea) - 24 h

L-ALANINE (13C3, 99%; 15N, 99%) (312623-85-1)

EC50 Daphnia 1	> 100 g/l static test - Daphnia magna (Water flea) - 48 h (OECD Test Guideline 202)
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L-GLUTAMIC ACID (13C5, 99%; 15N, 99%) (56-86-0 (Unlabeled))

LC50 fish 1	> 100 mg/l Cyprinus carpio (Carp) - 96 h - static test
EC50 Daphnia 1	> 100 g/l Daphnia magna (Water flea) - 48 h
EC50 other aquatic organisms 1	> 31 mg/l Pseudokirchneriella subcapitata (green algae) - 72 h - static test

L-SERINE (13C3, 99%; 15N, 99%) (202407-34-9)

EC50 Daphnia 1	> 83 mg/l Daphnia magna (Water flea) - 48 h (OECD Test Guideline 202)
ErC50 (algae)	> 83 mg/l Daphnia magna (Water flea) - 48 h
NOEC chronic algae	1000 mg/l static test NOEC - Pseudokirchneriella subcapitata (green algae) - 72 h (OECD Test Guideline 201)

L-VALINE (13C5, 99%; 15N, 99%) (72-18-4 (Unlabeled))

LC50 fish 1	> 10 g/l Danio rerio (Zebra fish) - 96 h
EC50 Daphnia 1	> 10 g/l Daphnia magna (Water flea) - Immobilization - 24 h

12.2. Persistence and degradability

ALGAL AMINO ACID MIXTURE (U-13C, 97-99%; U-15N, 97-99%)

Persistence and degradability	Aerobic - exposure time: 28 d.
Biodegradation	82 % Readily biodegradable

L-ARGININE:HCL (13C6, 97-99%; 15N4, 97-99%) (202468-25-5)

Persistence and degradability	Not available.
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L-ASPARTIC ACID (13C4, 99%; 15N, 99%) (202468-27-7)

Persistence and degradability	Not available.
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L-GLUTAMIC ACID (13C5, 99%; 15N, 99%) (56-86-0 (Unlabeled))

Persistence and degradability	Aerobic - exposure time: 28 d.
Biodegradation	97 % Readily biodegradable

GLYCINE (13C2, 99%; 15N, 99%) (211057-02-2)

Persistence and degradability	Not available.
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L-ISOLEUCINE (13C6, 99%; 15N, 99%) (73-32-5 (Unlabeled))

Persistence and degradability	Not available.
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L-SERINE (13C3, 99%; 15N, 99%) (202407-34-9)

Persistence and degradability	Aerobic - exposure time: 28 d.
Biodegradation	81 % Readily biodegradable (OECD Test Guideline 301)

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L-VALINE (13C5, 99%; 15N, 99%) (72-18-4 (Unlabeled))	
Persistence and degradability	Biodegradability aerobic - Exposure time 28 d.
Biodegradation	82 % Readily biodegradable

12.3. Bioaccumulative potential

L-ALANINE (13C3, 99%; 15N, 99%) (312623-85-1)	
Log Pow	-2.74 at 20 °C (68 °F)

L-ARGININE:HCL (13C6, 97-99%; 15N4, 97-99%) (202468-25-5)	
Bioaccumulative potential	Not available.

L-ASPARTIC ACID (13C4, 99%; 15N, 99%) (202468-27-7)	
Bioaccumulative potential	Not available.

L-GLUTAMIC ACID (13C5, 99%; 15N, 99%) (56-86-0 (Unlabeled))	
Log Pow	< -4 at 20 °C (68 °F)

GLYCINE (13C2, 99%; 15N, 99%) (211057-02-2)	
Bioaccumulative potential	Not available.

L-ISOLEUCINE (13C6, 99%; 15N, 99%) (73-32-5 (Unlabeled))	
Log Pow	-1.58
Bioaccumulative potential	Not available.

L-PHENYLALANINE (13C9, 99%; 15N, 99%) (63-91-2 (Unlabeled))	
Bioaccumulative potential	Not available.

L-SERINE (13C3, 99%; 15N, 99%) (202407-34-9)	
Log Pow	-3.069 at 20 °C (68 °F)

L-TYROSINE (13C9, 99%; 15N, 99%) (202407-26-9)	
Log Pow	-2.26 at 25 °C (77 °F)

L-VALINE (13C5, 99%; 15N, 99%) (72-18-4 (Unlabeled))	
Log Pow	-2.259 at 20 °C (68 °F)

12.4. Mobility in soil

L-ARGININE:HCL (13C6, 97-99%; 15N4, 97-99%) (202468-25-5)	
Ecology - soil	Not available.

L-ASPARTIC ACID (13C4, 99%; 15N, 99%) (202468-27-7)	
Ecology - soil	Not available.

GLYCINE (13C2, 99%; 15N, 99%) (211057-02-2)	
Ecology - soil	Not available.

L-ISOLEUCINE (13C6, 99%; 15N, 99%) (73-32-5 (Unlabeled))	
Ecology - soil	Not available.

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

- Regional legislation (waste) : Waste materials should be disposed of under conditions which meet Federal, State, and local environmental control regulations.
- Product/Packaging disposal recommendations : Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
- Ecology - waste materials : Dispose of as unused product.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

Not applicable

14.2. UN proper shipping name

Not applicable

ALGAL AMINO ACID MIXTURE (U-13C, 97-99%; U-15N, 97-99%)

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14.3. Additional information

Other information : No supplementary information available.
Special transport precautions : Not classified as dangerous in the meaning of transport regulations.

Overland transport

No additional information available

Transport by sea

No additional information available

Air transport

No additional information available

14.4. Environmental hazards

Other information : No supplementary information available.

14.5. Special precautions for user

Special transport precautions : Not classified as dangerous in the meaning of transport regulations.

14.6. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

L-ALANINE (13C3, 99%; 15N, 99%) (312623-85-1)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313
L-ARGININE:HCL (13C6, 97-99%; 15N4, 97-99%) (202468-25-5)	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard
L-ASPARTIC ACID (13C4, 99%; 15N, 99%) (202468-27-7)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313.
L-GLUTAMIC ACID (13C5, 99%; 15N, 99%) (56-86-0 (Unlabeled))	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313.
GLYCINE (13C2, 99%; 15N, 99%) (211057-02-2)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313.
L-HISTIDINE (13C6, 97-99%; 15N3, 97-99%) (71-00-1 (Unlabeled))	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313.
L-ISOLEUCINE (13C6, 99%; 15N, 99%) (73-32-5 (Unlabeled))	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313.
L-LEUCINE (13C6, 99%; 15N, 99%) (202406-52-8)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313
L-LYSINE:2HCL (13C6, 97-99%; 15N2, 97-99%) (657-26-1 (Unlabeled))	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313

ALGAL AMINO ACID MIXTURE (U-13C, 97-99%; U-15N, 97-99%)

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L-METHIONINE (13C5, 99%; 15N, 99%) (63-68-3 (Unlabeled))	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313
L-PHENYLALANINE (13C9, 99%; 15N, 99%) (63-91-2 (Unlabeled))	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313.
L-PROLINE (13C5, 99%; 15N, 99%) (147-85-3 (Unlabeled))	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313.
L-SERINE (13C3, 99%; 15N, 99%) (202407-34-9)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313.
L-THREONINE (13C4, 97-99%; 15N, 97-99%) (202468-39-1)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313.
L-TYROSINE (13C9, 99%; 15N, 99%) (202407-26-9)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313.
L-VALINE (13C5, 99%; 15N, 99%) (72-18-4 (Unlabeled))	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313

15.2. International regulations

CANADA

No additional information available

15.2.1. National regulations

No additional information available

15.3. US State regulations

ALGAL AMINO ACID MIXTURE (U-13C, 97-99%; U-15N, 97-99%)(I)				
U.S. - California - Proposition 65 - Carcinogens List	No			
U.S. - California - Proposition 65 - Developmental Toxicity	No			
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No			
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No			
State or local regulations	U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List			
L-ALANINE (13C3, 99%; 15N, 99%) (312623-85-1)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
No	No	No	No	
L-ARGININE:HCL (13C6, 97-99%; 15N4, 97-99%) (202468-25-5)				
U.S. - California - Proposition 65 -	U.S. - California - Proposition 65 -	U.S. - California - Proposition 65 - Reproductive Toxicity -	U.S. - California - Proposition 65 - Reproductive Toxicity -	No significant risk level (NSRL)

ALGAL AMINO ACID MIXTURE (U-13C, 97-99%; U-15N, 97-99%)

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L-ARGININE:HCL (13C6, 97-99%; 15N4, 97-99%) (202468-25-5)				
Carcinogens List	Developmental Toxicity	Female	Male	
No	No	No	No	
L-ASPARTIC ACID (13C4, 99%; 15N, 99%) (202468-27-7)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
No	No	No	No	
L-GLUTAMIC ACID (13C5, 99%; 15N, 99%) (56-86-0 (Unlabeled))				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
No	No	No	No	
GLYCINE (13C2, 99%; 15N, 99%) (211057-02-2)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
No	No	No	No	
L-HISTIDINE (13C6, 97-99%; 15N3, 97-99%) (71-00-1 (Unlabeled))				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
No	No	No	No	
L-ISOLEUCINE (13C6, 99%; 15N, 99%) (73-32-5 (Unlabeled))				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
No	No	No	No	
L-LEUCINE (13C6, 99%; 15N, 99%) (202406-52-8)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
No	No	No	No	
L-LYSINE:2HCL (13C6, 97-99%; 15N2, 97-99%) (657-26-1 (Unlabeled))				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
No	No	No	No	
L-METHIONINE (13C5, 99%; 15N, 99%) (63-68-3 (Unlabeled))				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
No	No	No	No	
L-PHENYLALANINE (13C9, 99%; 15N, 99%) (63-91-2 (Unlabeled))				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
No	No	No	No	

ALGAL AMINO ACID MIXTURE (U-13C, 97-99%; U-15N, 97-99%)

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L-PROLINE (13C5, 99%; 15N, 99%) (147-85-3 (Unlabeled))				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
No	No	No	No	
L-SERINE (13C3, 99%; 15N, 99%) (202407-34-9)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
No	No	No	No	
L-THREONINE (13C4, 97-99%; 15N, 97-99%) (202468-39-1)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
No	No	No	No	
L-TYROSINE (13C9, 99%; 15N, 99%) (202407-26-9)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
No	No	No	No	
L-VALINE (13C5, 99%; 15N, 99%) (72-18-4 (Unlabeled))				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
No	No	No	No	
L-ALANINE (13C3, 99%; 15N, 99%) (312623-85-1)				
State or local regulations				
U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List				
L-ARGININE:HCL (13C6, 97-99%; 15N4, 97-99%) (202468-25-5)				
State or local regulations				
U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List				
L-ASPARTIC ACID (13C4, 99%; 15N, 99%) (202468-27-7)				
State or local regulations				
U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List				
L-GLUTAMIC ACID (13C5, 99%; 15N, 99%) (56-86-0 (Unlabeled))				
State or local regulations				
U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List				
GLYCINE (13C2, 99%; 15N, 99%) (211057-02-2)				
State or local regulations				
U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List				
L-HISTIDINE (13C6, 97-99%; 15N3, 97-99%) (71-00-1 (Unlabeled))				
State or local regulations				
U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List				

ALGAL AMINO ACID MIXTURE (U-13C, 97-99%; U-15N, 97-99%)

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L-ISOLEUCINE (13C6, 99%; 15N, 99%) (73-32-5 (Unlabeled))
State or local regulations
U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List
L-LEUCINE (13C6, 99%; 15N, 99%) (202406-52-8)
State or local regulations
U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List
L-LYSINE:2HCL (13C6, 97-99%; 15N2, 97-99%) (657-26-1 (Unlabeled))
State or local regulations
U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List
L-METHIONINE (13C5, 99%; 15N, 99%) (63-68-3 (Unlabeled))
State or local regulations
U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List
L-PHENYLALANINE (13C9, 99%; 15N, 99%) (63-91-2 (Unlabeled))
State or local regulations
U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List
L-PROLINE (13C5, 99%; 15N, 99%) (147-85-3 (Unlabeled))
State or local regulations
U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List
L-SERINE (13C3, 99%; 15N, 99%) (202407-34-9)
State or local regulations
U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List
L-THREONINE (13C4, 97-99%; 15N, 97-99%) (202468-39-1)
State or local regulations
U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List
L-TYROSINE (13C9, 99%; 15N, 99%) (202407-26-9)
State or local regulations
U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List
L-VALINE (13C5, 99%; 15N, 99%) (72-18-4 (Unlabeled))
State or local regulations
U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List

SECTION 16: Other information

Full text of R-, H- and EUH-phrases:

Acute Tox. 4 (Dermal)	Acute toxicity (dermal) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Eye Irrit. 2	Serious eye damage/eye irritation Category 2
Skin Irrit. 2	Skin corrosion/irritation Category 2
Skin Sens. 1	Skin sensitization, Category 1
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H302	Harmful if swallowed
H312	Harmful in contact with skin
H315	Causes skin irritation
H317	May cause an allergic skin reaction

ALGAL AMINO ACID MIXTURE (U-13C, 97-99%; U-15N, 97-99%)

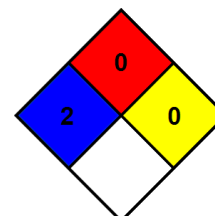
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H319	Causes serious eye irritation
H335	May cause respiratory irritation
R21/22	Harmful in contact with skin and if swallowed
R36	Irritating to eyes
R36/37/38	Irritating to eyes, respiratory system and skin
R36/38	Irritating to eyes and skin
R43	May cause sensitization by skin contact
Xi	Irritant
Xn	Harmful

NFPA health hazard	: 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.
NFPA fire hazard	: 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.
NFPA reactivity	: 0 - Material that in themselves are normally stable, even under fire conditions.



Hazard Rating

Health	: 2 Moderate Hazard - Temporary or minor injury may occur
Flammability	: 0 Minimal Hazard
Physical	: 0 Minimal Hazard

CIL Multi-Solvent Mixture SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product