Conforms to US OSHA Hazard Communication 29CFR1910.1200

SAFETY DATA SHEET

Agilent Technologies

Amino Acids Kit, Part Number 5063-6588

Section 1. Identification

1.1 Product identifier

Product name : Amino Acids Kit, Part Number 5063-6588

Part no. (chemical kit) : 5063-6588

Part no. :

Sarcosine	Not available.
L-Trytophan	Not available.
L-Norvaline	Not available.
L-Glutamine	Not available.
L-Asparagine	Not available.
L-4-Hydroxyproline	Not available.
3,3′-Dithiodipropionic Acid	5062-2479
FMOC reagent 10 ampoules 1ml ea for AAA	5061-3337
OPA reagent, 10 mg/ml, 6 ampoules	5061-3335
AA, std 10pmol 10/PK	5061-3334
AA, std 25pmol 10/PK	5061-3333
AA, standard 100PMOL 10/PK	5061-3332
td 1nmol 10/PK	5061-3330
AA, standard 250PMOL 10/PK	5061-3331

Validation date : 12/12/2023

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

Identified uses : Reagents and Standards for Analytical Chemistry Laboratory Use

Sarcosine	1 g
L-Trytophan	1 g
L-Norvaline	1 g
L-Glutamine	1 g
L-Asparagine	1 g
L-4-Hydroxyproline	1 g
3,3′-Dithiodipropionic Acid	1 x 5 g
FMOC reagent 10 ampoules 1ml ea for AAA	10 x 1 ml
OPA reagent, 10 mg/ml, 6 ampoules	6 x 1 ml
AA, std 10pmol 10/PK	10 x 1 ml
AA, std 25pmol 10/PK	10 x 1 ml
AA, standard 100PMOL 10/PK	10 x 1 ml
td 1nmol 10/PK	10 x 1 ml
AA, standard 250PMOL 10/PK	10 x 1 ml

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer : Agilent Technologies, Inc.
5301 Stevens Creek Blvd
Santa Clara, CA 95051, USA
800-227-9770

1.4 Emergency telephone number

In case of emergency : CHEMTREC®: 1-800-424-9300

Section 2. Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status :

Sarcosine	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
L-Trytophan	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
L-Norvaline	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
L-Glutamine	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
L-Asparagine	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
L-4-Hydroxyproline	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
3,3′-Dithiodipropionic Acid	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
FMOC reagent 10 ampoules 1ml ea for AAA	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
OPA reagent, 10 mg/ml, 6 ampoules	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
AA, std 10pmol 10/PK	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
AA, std 25pmol 10/PK	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
AA, standard 100PMOL 10/PK	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
td 1nmol 10/PK	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
AA, standard 250PMOL 10/PK	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture

Sarcosine

COMBUSTIBLE DUSTS

L-Trytophan

COMBUSTIBLE DUSTS

L-Norvaline

COMBUSTIBLE DUSTS

L-Glutamine

COMBUSTIBLE DUSTS

L-Asparagine

COMBUSTIBLE DUSTS

L-4-Hydroxyproline

COMBUSTIBLE DUSTS

3,3′-Dithiodipropionic Acid

COMBUSTIBLE DUSTS

H315	SKIN IRRITATION - Category 2
H319	EYE IRRITATION - Category 2A
H335	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

FMOC reagent 10 ampoules 1ml ea for AAA

H225	FLAMMABLE LIQUIDS - Category 2

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H302	ACUTE TOXICITY (oral) - Category 4
H312	ACUTE TOXICITY (dermal) - Category 4
H332	ACUTE TOXICITY (inhalation) - Category 4
H319	EYE IRRITATION - Category 2A
H373	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

OPA reagent, 10 mg/ml, 6 ampoules

H290	CORROSIVE TO METALS - Category 1
H302	ACUTE TOXICITY (oral) - Category 4
H314	SKIN CORROSION - Category 1A
H318	SERIOUS EYE DAMAGE - Category 1
H317	SKIN SENSITIZATION - Category 1
H360	TOXIC TO REPRODUCTION - Category 1B
H411	AQUATIC HAZARD (LONG-TERM) - Category 2

AA, std 10pmol 10/PK

H290	CORROSIVE TO METALS - Category 1

AA, std 25pmol 10/PK

H290	CORROSIVE TO METALS - Category 1

AA, standard 100PMOL 10/PK

H290	CORROSIVE TO METALS - Category 1

td 1nmol 10/PK

H290	CORROSIVE TO METALS - Category 1

AA, standard 250PMOL 10/PK

H290	CORROSIVE TO METALS - Category 1

2.2 GHS label elements

Section 2. Hazards identification

Hazard pictograms :

3,3′-Dithiodipropionic Acid

FMOC reagent 10 ampoules 1ml ea for AAA

OPA reagent, 10 mg/ml, 6 ampoules

AA, std 10pmol 10/PK

AA, std 25pmol 10/PK

AA, standard 100PMOL 10/PK

td 1nmol 10/PK

AA, standard 250PMOL 10/PK

Signal word :

Sarcosine	Warning
L-Trytophan	Warning
L-Norvaline	Warning
L-Glutamine	Warning
L-Asparagine	Warning
L-4-Hydroxyproline	Warning
3,3′-Dithiodipropionic Acid	Warning
FMOC reagent 10 ampoules 1ml ea for AAA	Danger
OPA reagent, 10 mg/ml, 6 ampoules	Danger
AA, std 10pmol 10/PK	Warning
AA, std 25pmol 10/PK	Warning
AA, standard 100PMOL 10/PK	Warning
td 1nmol 10/PK	Warning
AA, standard 250PMOL 10/PK	Warning

Section 2. Hazards identification

Hazard statements :

Sarcosine	May form combustible dust concentrations in air.
L-Trytophan	May form combustible dust concentrations in air.
L-Norvaline	May form combustible dust concentrations in air.
L-Glutamine	May form combustible dust concentrations in air.
L-Asparagine	May form combustible dust concentrations in air.
L-4-Hydroxyproline	May form combustible dust concentrations in air.
3,3′-Dithiodipropionic Acid	H315 - Causes skin irritation. H319 - Causes serious eye irritation. H335 - May cause respiratory irritation. May form combustible dust concentrations in air.
FMOC reagent 10 ampoules 1ml ea for AAA	H225 - Highly flammable liquid and vapor. H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled. H319 - Causes serious eye irritation. H373 - May cause damage to organs through prolonged or repeated exposure.
OPA reagent, 10 mg/ml, 6 ampoules	H290 - May be corrosive to metals. H302 - Harmful if swallowed. H314 - Causes severe skin burns and eye damage. H317 - May cause an allergic skin reaction. H360 - May damage fertility or the unborn child. H411 - Toxic to aquatic life with long lasting effects.
AA, std 10pmol 10/PK	H290 - May be corrosive to metals.
AA, std 25pmol 10/PK	H290 - May be corrosive to metals.
AA, standard 100PMOL 10/PK	H290 - May be corrosive to metals.
td 1nmol 10/PK	H290 - May be corrosive to metals.
AA, standard 250PMOL 10/PK	H290 - May be corrosive to metals.

Precautionary statements

Prevention :

Sarcosine	Not applicable.
L-Trytophan	Not applicable.
L-Norvaline	Not applicable.
L-Glutamine	Not applicable.
L-Asparagine	Not applicable.
L-4-Hydroxyproline	Not applicable.
3,3′-Dithiodipropionic Acid	P280 - Wear protective gloves. Wear eye or face protection. P261 - Avoid breathing dust or mist. P264 - Wash thoroughly after handling.
FMOC reagent 10 ampoules 1ml ea for AAA	P280 - Wear protective gloves and protective clothing. Wear eye or face protection. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P241 - Use explosion-proof electrical, ventilating or lighting equipment. P242 - Use non-sparking tools. P243 - Take action to prevent static discharges. P233 - Keep container tightly closed. P260 - Do not breathe vapor. P270 - Do not eat, drink or smoke when using this product. P264 - Wash thoroughly after handling.
OPA reagent, 10 mg/ml, 6 ampoules	P201 - Obtain special instructions before use. P280 - Wear protective gloves, protective clothing and eye or face protection. P234 - Keep only in original packaging.

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			P273 - Avoid release to the environment. P261 - Avoid breathing vapor. P270 - Do not eat, drink or smoke when using this product. P264 - Wash thoroughly after handling.
		AA, std 10pmol 10/PK	P234 - Keep only in original packaging.
		AA, std 25pmol 10/PK	P234 - Keep only in original packaging.
		AA, standard 100PMOL 10/PK	P234 - Keep only in original packaging.
		td 1nmol 10/PK	P234 - Keep only in original packaging.
		AA, standard 250PMOL 10/PK	P234 - Keep only in original packaging.
Response	:	Sarcosine	Not applicable.
		L-Trytophan	Not applicable.
		L-Norvaline	Not applicable.
		L-Glutamine	Not applicable.
		L-Asparagine	Not applicable.
		L-4-Hydroxyproline	Not applicable.
		3,3′-Dithiodipropionic Acid	P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell. P362 + P364 - Take off contaminated clothing and wash it before reuse. 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. P337 + P313 - If eye irritation persists: Get medical advice or attention.
		FMOC reagent 10 ampoules 1ml ea for AAA	P314 - Get medical advice or attention if you feel unwell. P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell. P302 + P312 - IF ON SKIN: Call a POISON CENTER or doctor if you feel unwell. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice or attention.
		OPA reagent, 10 mg/ml, 6 ampoules	P391 - Collect spillage. P390 - Absorb spillage to prevent material damage. P308 + P313 - IF exposed or concerned: Get medical advice or attention. P304 + P310 - IF INHALED: Immediately call a POISON CENTER or doctor. P301 + P310, P330, P331 - IF SWALLOWED: Immediately call a POISON CENTER or doctor. Rinse mouth. Do NOT induce vomiting. P303 + P361 + P353, P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Immediately call a POISON CENTER or doctor. P363 - Wash contaminated clothing before reuse. P302 + P352 - IF ON SKIN: Wash with plenty of water. P333 + P313 - If skin irritation or rash occurs: Get medical advice or attention. P305 + P351 + P338, P310 - IF IN EYES: Rinse

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			cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.
		AA, std 10pmol 10/PK	P390 - Absorb spillage to prevent material damage.
		AA, std 25pmol 10/PK	P390 - Absorb spillage to prevent material damage.
		AA, standard 100PMOL 10/PK	P390 - Absorb spillage to prevent material damage.
		td 1nmol 10/PK	P390 - Absorb spillage to prevent material damage.
		AA, standard 250PMOL 10/PK	P390 - Absorb spillage to prevent material damage.
Storage	:	Sarcosine	Not applicable.
		L-Trytophan	Not applicable.
		L-Norvaline	Not applicable.
		L-Glutamine	Not applicable.
		L-Asparagine	Not applicable.
		L-4-Hydroxyproline	Not applicable.
		3,3′-Dithiodipropionic Acid	P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
		FMOC reagent 10 ampoules 1ml ea for AAA	P403 + P235 - Store in a well-ventilated place. Keep cool.
		OPA reagent, 10 mg/ml, 6 ampoules	Not applicable.
		AA, std 10pmol 10/PK	Not applicable.
		AA, std 25pmol 10/PK	Not applicable.
		AA, standard 100PMOL 10/PK	Not applicable.
		td 1nmol 10/PK	Not applicable.
		AA, standard 250PMOL 10/PK	Not applicable.
Disposal	:	Sarcosine	Not applicable.
		L-Trytophan	Not applicable.
		L-Norvaline	Not applicable.
		L-Glutamine	Not applicable.
		L-Asparagine	Not applicable.
		L-4-Hydroxyproline	Not applicable.
		3,3′-Dithiodipropionic Acid	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
		FMOC reagent 10 ampoules 1ml ea for AAA	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
		OPA reagent, 10 mg/ml, 6 ampoules	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
		AA, std 10pmol 10/PK	Not applicable.
		AA, std 25pmol 10/PK	Not applicable.
		AA, standard 100PMOL 10/PK	Not applicable.
		td 1nmol 10/PK	Not applicable.
		AA, standard 250PMOL 10/PK	Not applicable.
Supplemental label elements	:	Sarcosine	Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Prevent dust accumulation.
		L-Trytophan	Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Prevent dust accumulation.
		L-Norvaline	Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Prevent dust accumulation.
		L-Glutamine	Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other

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		ignition sources. No smoking. Prevent dust accumulation.
	L-Asparagine	Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Prevent dust accumulation.
	L-4-Hydroxyproline	Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Prevent dust accumulation.
	3,3′-Dithiodipropionic Acid	Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Prevent dust accumulation.
	FMOC reagent 10 ampoules 1ml ea for AAA	None known.
	OPA reagent, 10 mg/ml, 6 ampoules	Do not taste or swallow. Wash thoroughly after handling.
	AA, std 10pmol 10/PK	None known.
	AA, std 25pmol 10/PK	None known.
	AA, standard 100PMOL 10/PK	None known.
	td 1nmol 10/PK	None known.
	AA, standard 250PMOL 10/PK	None known.

2.3 Other hazards

Hazards not otherwise classified :	Sarcosine	None known.
	L-Trytophan	None known.
	L-Norvaline	None known.
	L-Glutamine	None known.
	L-Asparagine	None known.
	L-4-Hydroxyproline	None known.
	3,3′-Dithiodipropionic Acid	None known.
	FMOC reagent 10 ampoules 1ml ea for AAA	None known.
	OPA reagent, 10 mg/ml, 6 ampoules	Causes severe digestive tract burns.
	AA, std 10pmol 10/PK	None known.
	AA, std 25pmol 10/PK	None known.
	AA, standard 100PMOL 10/PK	None known.
	td 1nmol 10/PK	None known.
	AA, standard 250PMOL 10/PK	None known.

Section 3. Composition/information on ingredients

Substance/mixture :	Sarcosine	Substance
	L-Trytophan	Substance
	L-Norvaline	Substance
	L-Glutamine	Substance
	L-Asparagine	Substance
	L-4-Hydroxyproline	Substance
	3,3′-Dithiodipropionic Acid	Substance
	FMOC reagent 10 ampoules 1ml ea for AAA	Mixture
	OPA reagent, 10 mg/ml, 6 ampoules	Mixture
	AA, std 10pmol 10/PK	Mixture
	AA, std 25pmol 10/PK	Mixture
	AA, standard 100PMOL 10/PK	Mixture
	td 1nmol 10/PK	Mixture
	AA, standard 250PMOL 10/PK	Mixture

Section 3. Composition/information on ingredients

Ingredient name	%	CAS number
Sarcosine		
Sarcosine	100	107-97-1
L-Trytophan		
L-Tryptophan	100	73-22-3
L-Norvaline		
Norvaline	100	6600-40-4
L-Glutamine		
Levoglutamide	100	56-85-9
L-Asparagine		
Asparagine	100	70-47-3
L-4-Hydroxyproline		
L-4-Hydroxyproline	100	51-35-4
3,3′-Dithiodipropionic Acid		
3,3'-dithiobispropionic acid	100	1119-62-6
FMOC reagent 10 ampoules 1ml ea for AAA		
Acetonitrile	≥90	75-05-8
OPA reagent, 10 mg/ml, 6 ampoules		
Potassium hydroxide	≤10	1310-58-3
boric acid	≤5	10043-35-3
3-Mercaptopropionic acid	≤3	107-96-0
Methanol	<3	67-56-1
Phthalaldehyde	≤2.4	643-79-8
Potassium thiocyanate	≤2.4	333-20-0
Dodecan-1-ol, ethoxylated	≤0.8	9002-92-0

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

4.1 Description of necessary first aid measures

Eye contact	:	Sarcosine	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
		L-Trytophan	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
		L-Norvaline	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
		L-Glutamine	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
		L-Asparagine	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
		L-4-Hydroxyproline	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
		3,3′-Dithiodipropionic Acid	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.
		FMOC reagent 10 ampoules 1ml ea for AAA	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.
		OPA reagent, 10 mg/ml, 6 ampoules	Get medical attention immediately. Call a poison center or physician. 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. Chemical burns must be treated promptly by a physician.
		AA, std 10pmol 10/PK	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
		AA, std 25pmol 10/PK	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
		AA, standard 100PMOL 10/PK	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
		td 1nmol 10/PK	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
		AA, standard 250PMOL 10/PK	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids.

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			Check for and remove any contact lenses. Get medical attention if irritation occurs.
Inhalation	:	Sarcosine	Remove victim to fresh air and keep at rest in a position comfortable for breathing. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
		L-Trytophan	Remove victim to fresh air and keep at rest in a position comfortable for breathing. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
		L-Norvaline	Remove victim to fresh air and keep at rest in a position comfortable for breathing. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
		L-Glutamine	Remove victim to fresh air and keep at rest in a position comfortable for breathing. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
		L-Asparagine	Remove victim to fresh air and keep at rest in a position comfortable for breathing. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
		L-4-Hydroxyproline	Remove victim to fresh air and keep at rest in a position comfortable for breathing. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
		3,3′-Dithiodipropionic Acid	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. 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 necessary, call a poison center or physician. 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.
		FMOC reagent 10 ampoules 1ml ea for AAA	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by

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			trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention following exposure or if feeling unwell. If necessary, call a poison center or physician. 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. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
		OPA reagent, 10 mg/ml, 6 ampoules	Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. 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. 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. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
		AA, std 10pmol 10/PK	Remove victim to fresh air and keep at rest in a position comfortable for breathing.
		AA, std 25pmol 10/PK	Remove victim to fresh air and keep at rest in a position comfortable for breathing.
		AA, standard 100PMOL 10/PK	Remove victim to fresh air and keep at rest in a position comfortable for breathing.
		td 1nmol 10/PK	Remove victim to fresh air and keep at rest in a position comfortable for breathing.
		AA, standard 250PMOL 10/PK	Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Skin contact	:	Sarcosine	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		L-Trytophan	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		L-Norvaline	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		L-Glutamine	Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		L-Asparagine	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		L-4-Hydroxyproline	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		3,3′-Dithiodipropionic Acid	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes.

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			Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
		FMOC reagent 10 ampoules 1ml ea for AAA	Wash with plenty of soap and 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 following exposure or if feeling unwell. If necessary, call a poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
		OPA reagent, 10 mg/ml, 6 ampoules	Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and 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. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
		AA, std 10pmol 10/PK	Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		AA, std 25pmol 10/PK	Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		AA, standard 100PMOL 10/PK	Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		td 1nmol 10/PK	Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		AA, standard 250PMOL 10/PK	Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	:	Sarcosine	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel.
		L-Trytophan	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel.
		L-Norvaline	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel.
		L-Glutamine	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel.
		L-Asparagine	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical

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	personnel.
L-4-Hydroxyproline	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel.
3,3′-Dithiodipropionic Acid	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 if adverse health effects persist or are severe. 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.
FMOC reagent 10 ampoules 1ml ea for AAA	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. If necessary, call a poison center or physician. 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.
OPA reagent, 10 mg/ml, 6 ampoules	Get medical attention immediately. Call a poison center or physician. 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. Chemical burns must be treated promptly by a physician. 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.
AA, std 10pmol 10/PK	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel.
AA, std 25pmol 10/PK	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel.
AA, standard 100PMOL 10/PK	Wash out mouth with water. If material has been

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		swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel.
	td 1nmol 10/PK	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel.
	AA, standard 250PMOL 10/PK	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	:	Sarcosine	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.
		L-Trytophan	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.
		L-Norvaline	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.
		L-Glutamine	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.
		L-Asparagine	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.
		L-4-Hydroxyproline	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.
		3,3′-Dithiodipropionic Acid	Causes serious eye irritation.
		FMOC reagent 10 ampoules 1ml ea for AAA	Causes serious eye irritation.
		OPA reagent, 10 mg/ml, 6 ampoules	Causes serious eye damage.
		AA, std 10pmol 10/PK	No known significant effects or critical hazards.
		AA, std 25pmol 10/PK	No known significant effects or critical hazards.
		AA, standard 100PMOL 10/PK	No known significant effects or critical hazards.
		td 1nmol 10/PK	No known significant effects or critical hazards.
		AA, standard 250PMOL 10/PK	No known significant effects or critical hazards.
Inhalation	:	Sarcosine	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
		L-Trytophan	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
		L-Norvaline	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
		L-Glutamine	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
		L-Asparagine	Exposure to airborne concentrations above statutory or recommended exposure limits may

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			cause irritation of the nose, throat and lungs.
		L-4-Hydroxyproline	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
		3,3′-Dithiodipropionic Acid	May cause respiratory irritation.
		FMOC reagent 10 ampoules 1ml ea for AAA	Harmful if inhaled.
		OPA reagent, 10 mg/ml, 6 ampoules	No known significant effects or critical hazards.
		AA, std 10pmol 10/PK	No known significant effects or critical hazards.
		AA, std 25pmol 10/PK	No known significant effects or critical hazards.
		AA, standard 100PMOL 10/PK	No known significant effects or critical hazards.
		td 1nmol 10/PK	No known significant effects or critical hazards.
		AA, standard 250PMOL 10/PK	No known significant effects or critical hazards.
Skin contact	:	Sarcosine	No known significant effects or critical hazards.
		L-Trytophan	No known significant effects or critical hazards.
		L-Norvaline	No known significant effects or critical hazards.
		L-Glutamine	No known significant effects or critical hazards.
		L-Asparagine	No known significant effects or critical hazards.
		L-4-Hydroxyproline	No known significant effects or critical hazards.
		3,3′-Dithiodipropionic Acid	Causes skin irritation.
		FMOC reagent 10 ampoules 1ml ea for AAA	Harmful in contact with skin.
		OPA reagent, 10 mg/ml, 6 ampoules	Causes severe burns. May cause an allergic skin reaction.
		AA, std 10pmol 10/PK	No known significant effects or critical hazards.
		AA, std 25pmol 10/PK	No known significant effects or critical hazards.
		AA, standard 100PMOL 10/PK	No known significant effects or critical hazards.
		td 1nmol 10/PK	No known significant effects or critical hazards.
		AA, standard 250PMOL 10/PK	No known significant effects or critical hazards.
Ingestion	:	Sarcosine	No known significant effects or critical hazards.
		L-Trytophan	No known significant effects or critical hazards.
		L-Norvaline	No known significant effects or critical hazards.
		L-Glutamine	No known significant effects or critical hazards.
		L-Asparagine	No known significant effects or critical hazards.
		L-4-Hydroxyproline	No known significant effects or critical hazards.
		3,3′-Dithiodipropionic Acid	No known significant effects or critical hazards.
		FMOC reagent 10 ampoules 1ml ea for AAA	Harmful if swallowed.
		OPA reagent, 10 mg/ml, 6 ampoules	Severely corrosive to the digestive tract. Causes severe burns. Harmful if swallowed.
		AA, std 10pmol 10/PK	No known significant effects or critical hazards.
		AA, std 25pmol 10/PK	No known significant effects or critical hazards.
		AA, standard 100PMOL 10/PK	No known significant effects or critical hazards.
		td 1nmol 10/PK	No known significant effects or critical hazards.
		AA, standard 250PMOL 10/PK	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact	:	Sarcosine	Adverse symptoms may include the following: irritation redness
		L-Trytophan	Adverse symptoms may include the following: irritation redness
		L-Norvaline	Adverse symptoms may include the following: irritation redness
		L-Glutamine	Adverse symptoms may include the following: irritation redness

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	L-Asparagine	Adverse symptoms may include the following: irritation redness
	L-4-Hydroxyproline	Adverse symptoms may include the following: irritation redness
	3,3′-Dithiodipropionic Acid	Adverse symptoms may include the following: pain or irritation watering redness
	FMOC reagent 10 ampoules 1ml ea for AAA	Adverse symptoms may include the following: pain or irritation watering redness
	OPA reagent, 10 mg/ml, 6 ampoules	Adverse symptoms may include the following: pain watering redness
	AA, std 10pmol 10/PK	No specific data.
	AA, std 25pmol 10/PK	No specific data.
	AA, standard 100PMOL 10/PK	No specific data.
	td 1nmol 10/PK	No specific data.
	AA, standard 250PMOL 10/PK	No specific data.
Inhalation :	Sarcosine	Adverse symptoms may include the following: respiratory tract irritation coughing
	L-Trytophan	Adverse symptoms may include the following: respiratory tract irritation coughing
	L-Norvaline	Adverse symptoms may include the following: respiratory tract irritation coughing
	L-Glutamine	Adverse symptoms may include the following: respiratory tract irritation coughing
	L-Asparagine	Adverse symptoms may include the following: respiratory tract irritation coughing
	L-4-Hydroxyproline	Adverse symptoms may include the following: respiratory tract irritation coughing
	3,3′-Dithiodipropionic Acid	Adverse symptoms may include the following: respiratory tract irritation coughing
	FMOC reagent 10 ampoules 1ml ea for AAA	No specific data.
	OPA reagent, 10 mg/ml, 6 ampoules	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations
	AA, std 10pmol 10/PK	No specific data.
	AA, std 25pmol 10/PK	No specific data.
	AA, standard 100PMOL 10/PK	No specific data.
	td 1nmol 10/PK	No specific data.
	AA, standard 250PMOL 10/PK	No specific data.

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Skin contact	:	Sarcosine	No specific data.
		L-Trytophan	No specific data.
		L-Norvaline	No specific data.
		L-Glutamine	No specific data.
		L-Asparagine	No specific data.
		L-4-Hydroxyproline	No specific data.
		3,3′-Dithiodipropionic Acid	Adverse symptoms may include the following: irritation redness
		FMOC reagent 10 ampoules 1ml ea for AAA	No specific data.
		OPA reagent, 10 mg/ml, 6 ampoules	Adverse symptoms may include the following: pain or irritation redness blistering may occur reduced fetal weight increase in fetal deaths skeletal malformations
		AA, std 10pmol 10/PK	No specific data.
		AA, std 25pmol 10/PK	No specific data.
		AA, standard 100PMOL 10/PK	No specific data.
		td 1nmol 10/PK	No specific data.
		AA, standard 250PMOL 10/PK	No specific data.
Ingestion	:	Sarcosine	No specific data.
		L-Trytophan	No specific data.
		L-Norvaline	No specific data.
		L-Glutamine	No specific data.
		L-Asparagine	No specific data.
		L-4-Hydroxyproline	No specific data.
		3,3′-Dithiodipropionic Acid	No specific data.
		FMOC reagent 10 ampoules 1ml ea for AAA	No specific data.
		OPA reagent, 10 mg/ml, 6 ampoules	Adverse symptoms may include the following: stomach pains reduced fetal weight increase in fetal deaths skeletal malformations
		AA, std 10pmol 10/PK	No specific data.
		AA, std 25pmol 10/PK	No specific data.
		AA, standard 100PMOL 10/PK	No specific data.
		td 1nmol 10/PK	No specific data.
		AA, standard 250PMOL 10/PK	No specific data.

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

Notes to physician	:	Sarcosine	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
		L-Trytophan	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
		L-Norvaline	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
		L-Glutamine	In case of inhalation of decomposition products in a

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		fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
	L-Asparagine	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
	L-4-Hydroxyproline	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
	3,3′-Dithiodipropionic Acid	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	FMOC reagent 10 ampoules 1ml ea for AAA	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
	OPA reagent, 10 mg/ml, 6 ampoules	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
	AA, std 10pmol 10/PK	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	AA, std 25pmol 10/PK	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	AA, standard 100PMOL 10/PK	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	td 1nmol 10/PK	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	AA, standard 250PMOL 10/PK	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments :	Sarcosine	No specific treatment.
	L-Trytophan	No specific treatment.
	L-Norvaline	No specific treatment.
	L-Glutamine	No specific treatment.
	L-Asparagine	No specific treatment.
	L-4-Hydroxyproline	No specific treatment.
	3,3′-Dithiodipropionic Acid	No specific treatment.
	FMOC reagent 10 ampoules 1ml ea for AAA	No specific treatment.
	OPA reagent, 10 mg/ml, 6 ampoules	No specific treatment.
	AA, std 10pmol 10/PK	No specific treatment.
	AA, std 25pmol 10/PK	No specific treatment.
	AA, standard 100PMOL 10/PK	No specific treatment.
	td 1nmol 10/PK	No specific treatment.
	AA, standard 250PMOL 10/PK	No specific treatment.

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Protection of first-aiders	:	Sarcosine	No action shall be taken involving any personal risk or without suitable training.
		L-Trytophan	No action shall be taken involving any personal risk or without suitable training.
		L-Norvaline	No action shall be taken involving any personal risk or without suitable training.
		L-Glutamine	No action shall be taken involving any personal risk or without suitable training.
		L-Asparagine	No action shall be taken involving any personal risk or without suitable training.
		L-4-Hydroxyproline	No action shall be taken involving any personal risk or without suitable training.
		3,3′-Dithiodipropionic Acid	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.
		FMOC reagent 10 ampoules 1ml ea for AAA	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.
		OPA reagent, 10 mg/ml, 6 ampoules	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.
		AA, std 10pmol 10/PK	No action shall be taken involving any personal risk or without suitable training.
		AA, std 25pmol 10/PK	No action shall be taken involving any personal risk or without suitable training.
		AA, standard 100PMOL 10/PK	No action shall be taken involving any personal risk or without suitable training.
		td 1nmol 10/PK	No action shall be taken involving any personal risk or without suitable training.
		AA, standard 250PMOL 10/PK	No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

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5.1 Extinguishing media

Suitable extinguishing media	:	Sarcosine	Use dry chemical powder.
		L-Trytophan	Use dry chemical powder.
		L-Norvaline	Use dry chemical powder.
		L-Glutamine	Use dry chemical powder.
		L-Asparagine	Use dry chemical powder.
		L-4-Hydroxyproline	Use dry chemical powder.
		3,3′-Dithiodipropionic Acid	Use dry chemical powder.
		FMOC reagent 10 ampoules 1ml ea for AAA	Use dry chemical, CO_2, water spray (fog) or foam.

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	OPA reagent, 10 mg/ml, 6 ampoules	Use an extinguishing agent suitable for the surrounding fire.
	AA, std 10pmol 10/PK	Use an extinguishing agent suitable for the surrounding fire.
	AA, std 25pmol 10/PK	Use an extinguishing agent suitable for the surrounding fire.
	AA, standard 100PMOL 10/PK	Use an extinguishing agent suitable for the surrounding fire.
	td 1nmol 10/PK	Use an extinguishing agent suitable for the surrounding fire.
	AA, standard 250PMOL 10/PK	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media :	Sarcosine	Avoid high pressure media which could cause the formation of a potentially explosible dust-air mixture.
	L-Trytophan	Avoid high pressure media which could cause the formation of a potentially explosible dust-air mixture.
	L-Norvaline	Avoid high pressure media which could cause the formation of a potentially explosible dust-air mixture.
	L-Glutamine	Avoid high pressure media which could cause the formation of a potentially explosible dust-air mixture.
	L-Asparagine	Avoid high pressure media which could cause the formation of a potentially explosible dust-air mixture.
	L-4-Hydroxyproline	Avoid high pressure media which could cause the formation of a potentially explosible dust-air mixture.
	3,3′-Dithiodipropionic Acid	Avoid high pressure media which could cause the formation of a potentially explosible dust-air mixture.
	FMOC reagent 10 ampoules 1ml ea for AAA	Do not use water jet.
	OPA reagent, 10 mg/ml, 6 ampoules	None known.
	AA, std 10pmol 10/PK	None known.
	AA, std 25pmol 10/PK	None known.
	AA, standard 100PMOL 10/PK	None known.
	td 1nmol 10/PK	None known.
	AA, standard 250PMOL 10/PK	None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical :	Sarcosine	May form explosible dust-air mixture if dispersed.
	L-Trytophan	May form explosible dust-air mixture if dispersed.
	L-Norvaline	May form explosible dust-air mixture if dispersed.
	L-Glutamine	May form explosible dust-air mixture if dispersed.
	L-Asparagine	May form explosible dust-air mixture if dispersed.
	L-4-Hydroxyproline	May form explosible dust-air mixture if dispersed.
	3,3′-Dithiodipropionic Acid	May form explosible dust-air mixture if dispersed.
	FMOC reagent 10 ampoules 1ml ea for AAA	Highly flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.
	OPA reagent, 10 mg/ml, 6 ampoules	In a fire or if heated, a pressure increase will occur and the container may burst. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
	AA, std 10pmol 10/PK	In a fire or if heated, a pressure increase will occur and the container may burst.
	AA, std 25pmol 10/PK	In a fire or if heated, a pressure increase will occur and the container may burst.

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	AA, standard 100PMOL 10/PK	In a fire or if heated, a pressure increase will occur and the container may burst.
	td 1nmol 10/PK	In a fire or if heated, a pressure increase will occur and the container may burst.
	AA, standard 250PMOL 10/PK	In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products :	Sarcosine	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides
	L-Trytophan	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides
	L-Norvaline	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides
	L-Glutamine	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides
	L-Asparagine	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides
	L-4-Hydroxyproline	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides
	3,3′-Dithiodipropionic Acid	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides
	FMOC reagent 10 ampoules 1ml ea for AAA	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides cyanides
	OPA reagent, 10 mg/ml, 6 ampoules	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides metal oxide/oxides Formaldehyde.
	AA, std 10pmol 10/PK	No specific data.
	AA, std 25pmol 10/PK	No specific data.
	AA, standard 100PMOL 10/PK	No specific data.
	td 1nmol 10/PK	No specific data.
	AA, standard 250PMOL 10/PK	No specific data.

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5.3 Advice for firefighters

Special protective actions for fire-fighters	:	Sarcosine	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
		L-Trytophan	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
		L-Norvaline	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
		L-Glutamine	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
		L-Asparagine	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
		L-4-Hydroxyproline	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
		3,3′-Dithiodipropionic Acid	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
		FMOC reagent 10 ampoules 1ml ea for AAA	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
		OPA reagent, 10 mg/ml, 6 ampoules	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.
		AA, std 10pmol 10/PK	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.
		AA, std 25pmol 10/PK	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No

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		action shall be taken involving any personal risk or without suitable training.
	AA, standard 100PMOL 10/PK	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.
	td 1nmol 10/PK	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.
	AA, standard 250PMOL 10/PK	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.
Special protective equipment for fire-fighters :	Sarcosine	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	L-Trytophan	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	L-Norvaline	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	L-Glutamine	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	L-Asparagine	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	L-4-Hydroxyproline	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	3,3′-Dithiodipropionic Acid	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	FMOC reagent 10 ampoules 1ml ea for AAA	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	OPA reagent, 10 mg/ml, 6 ampoules	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	AA, std 10pmol 10/PK	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	AA, std 25pmol 10/PK	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	AA, standard 100PMOL 10/PK	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus

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	(SCBA) with a full face-piece operated in positive pressure mode.
td 1nmol 10/PK	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
AA, standard 250PMOL 10/PK	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

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6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: Sarcosine	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing dust. Put on appropriate personal protective equipment.
	L-Trytophan	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing dust. Put on appropriate personal protective equipment.
	L-Norvaline	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing dust. Put on appropriate personal protective equipment.
	L-Glutamine	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing dust. Put on appropriate personal protective equipment.
	L-Asparagine	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing dust. Put on appropriate personal protective equipment.
	L-4-Hydroxyproline	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in

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	hazard area. Avoid breathing dust. Put on appropriate personal protective equipment.
3,3′-Dithiodipropionic Acid	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
FMOC reagent 10 ampoules 1ml ea for AAA	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
OPA reagent, 10 mg/ml, 6 ampoules	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. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
AA, std 10pmol 10/PK	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. Put on appropriate personal protective equipment.
AA, std 25pmol 10/PK	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. Put on appropriate personal protective equipment.
AA, standard 100PMOL 10/PK	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. Put on appropriate personal protective equipment.
td 1nmol 10/PK	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. Put on appropriate personal protective equipment.
AA, standard 250PMOL 10/PK	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. Put on

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appropriate personal protective equipment.

For emergency responders :	Sarcosine	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	L-Trytophan	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	L-Norvaline	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	L-Glutamine	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	L-Asparagine	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	L-4-Hydroxyproline	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	3,3′-Dithiodipropionic Acid	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	FMOC reagent 10 ampoules 1ml ea for AAA	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	OPA reagent, 10 mg/ml, 6 ampoules	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	AA, std 10pmol 10/PK	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	AA, std 25pmol 10/PK	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	AA, standard 100PMOL 10/PK	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	td 1nmol 10/PK	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	AA, standard 250PMOL 10/PK	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

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6.2 Environmental precautions	:	Sarcosine	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).
		L-Trytophan	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).
		L-Norvaline	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).
		L-Glutamine	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).
		L-Asparagine	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).
		L-4-Hydroxyproline	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).
		3,3′-Dithiodipropionic Acid	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).
		FMOC reagent 10 ampoules 1ml ea for AAA	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).
		OPA reagent, 10 mg/ml, 6 ampoules	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). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.
		AA, std 10pmol 10/PK	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).
		AA, std 25pmol 10/PK	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).
		AA, standard 100PMOL 10/PK	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has

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	caused environmental pollution (sewers, waterways, soil or air).
td 1nmol 10/PK	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).
AA, standard 250PMOL 10/PK	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).

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up :	Sarcosine	Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
	L-Trytophan	Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
	L-Norvaline	Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
	L-Glutamine	Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
	L-Asparagine	Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
	L-4-Hydroxyproline	Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
	3,3′-Dithiodipropionic Acid	Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Avoid dust generation. Using a vacuum with HEPA filter will reduce dust dispersal. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
	FMOC reagent 10 ampoules 1ml ea for AAA	Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
	OPA reagent, 10 mg/ml, 6 ampoules	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble.

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	Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Absorb spillage to prevent material damage. Dispose of via a licensed waste disposal contractor.
AA, std 10pmol 10/PK	Stop leak if without risk. Move containers from spill area. The spilled material may be neutralized with sodium carbonate, sodium bicarbonate or sodium hydroxide. Absorb spillage to prevent material damage. Dispose of via a licensed waste disposal contractor.
AA, std 25pmol 10/PK	Stop leak if without risk. Move containers from spill area. The spilled material may be neutralized with sodium carbonate, sodium bicarbonate or sodium hydroxide. Absorb spillage to prevent material damage. Dispose of via a licensed waste disposal contractor.
AA, standard 100PMOL 10/PK	Stop leak if without risk. Move containers from spill area. The spilled material may be neutralized with sodium carbonate, sodium bicarbonate or sodium hydroxide. Absorb spillage to prevent material damage. Dispose of via a licensed waste disposal contractor.
td 1nmol 10/PK	Stop leak if without risk. Move containers from spill area. The spilled material may be neutralized with sodium carbonate, sodium bicarbonate or sodium hydroxide. Absorb spillage to prevent material damage. Dispose of via a licensed waste disposal contractor.
AA, standard 250PMOL 10/PK	Stop leak if without risk. Move containers from spill area. The spilled material may be neutralized with sodium carbonate, sodium bicarbonate or sodium hydroxide. Absorb spillage to prevent material damage. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

7.1 Precautions for safe handling

Protective measures	:	Sarcosine	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Prevent dust accumulation. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Electrical equipment and lighting should be protected to appropriate standards to prevent dust coming into contact with hot surfaces, sparks or other ignition sources. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
		L-Trytophan	Put on appropriate personal protective equipment

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	(see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Prevent dust accumulation. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Electrical equipment and lighting should be protected to appropriate standards to prevent dust coming into contact with hot surfaces, sparks or other ignition sources. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
L-Norvaline	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Prevent dust accumulation. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Electrical equipment and lighting should be protected to appropriate standards to prevent dust coming into contact with hot surfaces, sparks or other ignition sources. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
L-Glutamine	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Prevent dust accumulation. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Electrical equipment and lighting should be protected to appropriate standards to prevent dust coming into contact with hot surfaces, sparks or other ignition sources. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
L-Asparagine	Put on appropriate personal protective equipment

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	(see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Prevent dust accumulation. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Electrical equipment and lighting should be protected to appropriate standards to prevent dust coming into contact with hot surfaces, sparks or other ignition sources. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
L-4-Hydroxyproline	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Prevent dust accumulation. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Electrical equipment and lighting should be protected to appropriate standards to prevent dust coming into contact with hot surfaces, sparks or other ignition sources. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
3,3′-Dithiodipropionic Acid	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Prevent dust accumulation. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Electrical equipment and lighting should be protected to appropriate standards to prevent dust coming into contact with hot surfaces, sparks or other ignition sources. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
FMOC reagent 10 ampoules 1ml	Put on appropriate personal protective equipment

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ea for AAA	(see Section 8). Do not breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
OPA reagent, 10 mg/ml, 6 ampoules	Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container. Absorb spillage to prevent material damage.
AA, std 10pmol 10/PK	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from alkalis. Empty containers retain product residue and can be hazardous. Do not reuse container. Absorb spillage to prevent material damage.
AA, std 25pmol 10/PK	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from alkalis. Empty containers retain product residue and can be hazardous. Do not reuse container. Absorb spillage to prevent material damage.
AA, standard 100PMOL 10/PK	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from alkalis. Empty containers retain product residue and can be hazardous. Do not reuse container.

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	td 1nmol 10/PK	Absorb spillage to prevent material damage. Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from alkalis. Empty containers retain product residue and can be hazardous. Do not reuse container.
	AA, standard 250PMOL 10/PK	Absorb spillage to prevent material damage. Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from alkalis. Empty containers retain product residue and can be hazardous. Do not reuse container. Absorb spillage to prevent material damage.
Advice on general occupational hygiene :	Sarcosine	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.
	L-Trytophan	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.
	L-Norvaline	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.
	L-Glutamine	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.
	L-Asparagine	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.
	L-4-Hydroxyproline	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

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	for additional information on hygiene measures.
3,3′-Dithiodipropionic Acid	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.
FMOC reagent 10 ampoules 1ml ea for AAA	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.
OPA reagent, 10 mg/ml, 6 ampoules	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.
AA, std 10pmol 10/PK	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.
AA, std 25pmol 10/PK	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.
AA, standard 100PMOL 10/PK	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.
td 1nmol 10/PK	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.
AA, standard 250PMOL 10/PK	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.

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7.2 Conditions for safe storage, including any incompatibilities	:	Sarcosine	Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
		L-Trytophan	Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
		L-Norvaline	Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
		L-Glutamine	Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
		L-Asparagine	Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from

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	incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
L-4-Hydroxyproline	Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
3,3′-Dithiodipropionic Acid	Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
FMOC reagent 10 ampoules 1ml ea for AAA	Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
OPA reagent, 10 mg/ml, 6 ampoules	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 in a corrosion resistant container with a resistant inner liner. Store locked up. Keep away from metals.

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	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.
AA, std 10pmol 10/PK	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 in a corrosion resistant container with a resistant inner liner. Separate from alkalis. Keep away from metals. 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.
AA, std 25pmol 10/PK	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 in a corrosion resistant container with a resistant inner liner. Separate from alkalis. Keep away from metals. 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.
AA, standard 100PMOL 10/PK	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 in a corrosion resistant container with a resistant inner liner. Separate from alkalis. Keep away from metals. 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.
td 1nmol 10/PK	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 in a corrosion resistant container with a resistant inner liner. Separate from alkalis. Keep away from metals. 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

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		containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
	AA, standard 250PMOL 10/PK	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 in a corrosion resistant container with a resistant inner liner. Separate from alkalis. Keep away from metals. 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.

7.3 Specific end use(s)

Recommendations :	Sarcosine	Industrial applications, Professional applications.
	L-Trytophan	Industrial applications, Professional applications.
	L-Norvaline	Industrial applications, Professional applications.
	L-Glutamine	Industrial applications, Professional applications.
	L-Asparagine	Industrial applications, Professional applications.
	L-4-Hydroxyproline	Industrial applications, Professional applications.
	3,3′-Dithiodipropionic Acid	Industrial applications, Professional applications.
	FMOC reagent 10 ampoules 1ml ea for AAA	Industrial applications, Professional applications.
	OPA reagent, 10 mg/ml, 6 ampoules	Industrial applications, Professional applications.
	AA, std 10pmol 10/PK	Industrial applications, Professional applications.
	AA, std 25pmol 10/PK	Industrial applications, Professional applications.
	AA, standard 100PMOL 10/PK	Industrial applications, Professional applications.
	td 1nmol 10/PK	Industrial applications, Professional applications.
	AA, standard 250PMOL 10/PK	Industrial applications, Professional applications.
Industrial sector specific solutions :	Sarcosine	Not available.
	L-Trytophan	Not available.
	L-Norvaline	Not available.
	L-Glutamine	Not available.
	L-Asparagine	Not available.
	L-4-Hydroxyproline	Not available.
	3,3′-Dithiodipropionic Acid	Not available.
	FMOC reagent 10 ampoules 1ml ea for AAA	Not available.
	OPA reagent, 10 mg/ml, 6 ampoules	Not available.
	AA, std 10pmol 10/PK	Not available.
	AA, std 25pmol 10/PK	Not available.
	AA, standard 100PMOL 10/PK	Not available.
	td 1nmol 10/PK	Not available.
	AA, standard 250PMOL 10/PK	Not available.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Sarcosine Sarcosine	None.
L-Trytophan L-Tryptophan	None.
L-Norvaline Norvaline	None.
L-Glutamine Levoglutamide	None.
L-Asparagine Asparagine	None.
L-4-Hydroxyproline L-4-Hydroxyproline	None.
3,3′-Dithiodipropionic Acid 3,3'-dithiobispropionic acid	None.
FMOC reagent 10 ampoules 1ml ea for AAA Acetonitrile	**ACGIH TLV (United States, 1/2022).** **Absorbed through skin.** TWA: 20 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 40 ppm 8 hours. TWA: 70 mg/m³ 8 hours. STEL: 60 ppm 15 minutes. STEL: 105 mg/m³ 15 minutes. **NIOSH REL (United States, 10/2020).** TWA: 20 ppm 10 hours. TWA: 34 mg/m³ 10 hours. **OSHA PEL (United States, 5/2018).** TWA: 40 ppm 8 hours. TWA: 70 mg/m³ 8 hours. **CAL OSHA PEL (United States, 5/2018).** **Absorbed through skin.** STEL: 105 mg/m³ 15 minutes. STEL: 60 ppm 15 minutes. TWA: 70 mg/m³ 8 hours. TWA: 40 ppm 8 hours.
OPA reagent, 10 mg/ml, 6 ampoules Potassium hydroxide	**ACGIH TLV (United States, 1/2022).** C: 2 mg/m³ **OSHA PEL 1989 (United States, 3/1989).** CEIL: 2 mg/m³ **NIOSH REL (United States, 10/2020).** CEIL: 2 mg/m³ **CAL OSHA PEL (United States, 5/2018).** C: 2 mg/m³
boric acid	**ACGIH TLV (United States, 1/2022). [Borate compounds, Inorganic]**

Section 8. Exposure controls/personal protection

	TWA: 2 mg/m³ 8 hours. Form: Inhalable fraction STEL: 6 mg/m³ 15 minutes. Form: Inhalable fraction
3-Mercaptopropionic acid	None.
Methanol	**ACGIH TLV (United States, 1/2022).** **Absorbed through skin.** TWA: 200 ppm 8 hours. TWA: 262 mg/m³ 8 hours. STEL: 250 ppm 15 minutes. STEL: 328 mg/m³ 15 minutes. **OSHA PEL 1989 (United States, 3/1989).** **Absorbed through skin.** TWA: 200 ppm 8 hours. TWA: 260 mg/m³ 8 hours. STEL: 250 ppm 15 minutes. STEL: 325 mg/m³ 15 minutes. **NIOSH REL (United States, 10/2020).** **Absorbed through skin.** TWA: 200 ppm 10 hours. TWA: 260 mg/m³ 10 hours. STEL: 250 ppm 15 minutes. STEL: 325 mg/m³ 15 minutes. **OSHA PEL (United States, 5/2018).** TWA: 200 ppm 8 hours. TWA: 260 mg/m³ 8 hours. **CAL OSHA PEL (United States, 5/2018).** **Absorbed through skin.** STEL: 325 mg/m³ 15 minutes. STEL: 250 ppm 15 minutes. C: 1000 ppm TWA: 260 mg/m³ 8 hours. TWA: 200 ppm 8 hours.
Phthalaldehyde	**ACGIH TLV (United States, 1/2022).** **Absorbed through skin. Skin sensitizer. Inhalation sensitizer.** C: 0.1 ppb Form: Vapor fraction SL: 25 µg/100 cm²
Potassium thiocyanate	**OSHA PEL 1989 (United States, 3/1989).** **[Cyanides (as CN)] Absorbed through skin.** TWA: 5 mg/m³, (as CN) 8 hours. **OSHA PEL (United States, 5/2018).** **[Cyanides (as CN)] Absorbed through skin.** TWA: 5 mg/m³, (as CN) 8 hours.
Dodecan-1-ol, ethoxylated	None.

Biological exposure indices

Ingredient name	Exposure indices
OPA reagent, 10 mg/ml, 6 ampoules	
Methanol	**ACGIH BEI (United States, 1/2022)** BEI: 15 mg/l, methanol [in urine]. Sampling time: end of shift.

8.2 Exposure controls

Section 8. Exposure controls/personal protection

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.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. 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.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

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

Appearance

Physical state :

Sarcosine	Solid. [Powder. Deliquescent solid.]
L-Trytophan	Solid. [Crystalline powder.]
L-Norvaline	Solid. [Crystalline powder.]
L-Glutamine	Solid. [Needles.]
L-Asparagine	Solid. [Crystals.]
L-4-Hydroxyproline	Solid. [Crystals.]
3,3′-Dithiodipropionic Acid	Solid. [Powder.]
FMOC reagent 10 ampoules 1ml ea for AAA	Liquid. [Clear.]
OPA reagent, 10 mg/ml, 6 ampoules	Liquid.
AA, std 10pmol 10/PK	Liquid.
AA, std 25pmol 10/PK	Liquid.
AA, standard 100PMOL 10/PK	Liquid.

Section 9. Physical and chemical properties and safety characteristics

		td 1nmol 10/PK	Liquid.
		AA, standard 250PMOL 10/PK	Liquid.
Color	:	Sarcosine	Not available.
		L-Trytophan	White to yellowish.
		L-Norvaline	Not available.
		L-Glutamine	Not available.
		L-Asparagine	Not available.
		L-4-Hydroxyproline	White.
		3,3′-Dithiodipropionic Acid	White.
		FMOC reagent 10 ampoules 1ml ea for AAA	Colorless.
		OPA reagent, 10 mg/ml, 6 ampoules	Yellow. [Light]
		AA, std 10pmol 10/PK	Colorless.
		AA, std 25pmol 10/PK	Colorless.
		AA, standard 100PMOL 10/PK	Colorless.
		td 1nmol 10/PK	Colorless.
		AA, standard 250PMOL 10/PK	Colorless.
Odor	:	Sarcosine	Not available.
		L-Trytophan	Odorless.
		L-Norvaline	Not available.
		L-Glutamine	Not available.
		L-Asparagine	Not available.
		L-4-Hydroxyproline	Odorless.
		3,3′-Dithiodipropionic Acid	Unpleasant. [Strong]
		FMOC reagent 10 ampoules 1ml ea for AAA	Ethereal. [Slight]
		OPA reagent, 10 mg/ml, 6 ampoules	Slight
		AA, std 10pmol 10/PK	Not available.
		AA, std 25pmol 10/PK	Not available.
		AA, standard 100PMOL 10/PK	Not available.
		td 1nmol 10/PK	Not available.
		AA, standard 250PMOL 10/PK	Not available.
Odor threshold	:	Sarcosine	Not available.
		L-Trytophan	Not available.
		L-Norvaline	Not available.
		L-Glutamine	Not available.
		L-Asparagine	Not available.
		L-4-Hydroxyproline	Not available.
		3,3′-Dithiodipropionic Acid	Not available.
		FMOC reagent 10 ampoules 1ml ea for AAA	70 ppm
		OPA reagent, 10 mg/ml, 6 ampoules	Not available.
		AA, std 10pmol 10/PK	Not available.
		AA, std 25pmol 10/PK	Not available.
		AA, standard 100PMOL 10/PK	Not available.
		td 1nmol 10/PK	Not available.
		AA, standard 250PMOL 10/PK	Not available.
pH	:	Sarcosine	Not available.
		L-Trytophan	5.5 to 7 [Conc. (% w/w): 1%]
		L-Norvaline	Not available.
		L-Glutamine	Not available.
		L-Asparagine	Not available.
		L-4-Hydroxyproline	Not available.
		3,3′-Dithiodipropionic Acid	Not available.
		FMOC reagent 10 ampoules 1ml ea for AAA	Not available.

Section 9. Physical and chemical properties and safety characteristics

		OPA reagent, 10 mg/ml, 6 ampoules	10.4
		AA, std 10pmol 10/PK	1.5
		AA, std 25pmol 10/PK	1.5
		AA, standard 100PMOL 10/PK	1.5
		td 1nmol 10/PK	1.5
		AA, standard 250PMOL 10/PK	1.5
Melting point/freezing point	:	Sarcosine	208 to 212°C (406.4 to 413.6°F)
		L-Trytophan	278.3 to 279.3°C (532.9 to 534.7°F) [EU A.1]
		L-Norvaline	300°C (572°F)
		L-Glutamine	Decomposes
		L-Asparagine	234 to 235°C (453.2 to 455°F)
		L-4-Hydroxyproline	274°C (525.2°F)
		3,3′-Dithiodipropionic Acid	155 to 158°C (311 to 316.4°F)
		FMOC reagent 10 ampoules 1ml ea for AAA	-45°C (-49°F)
		OPA reagent, 10 mg/ml, 6 ampoules	Not available.
		AA, std 10pmol 10/PK	0°C (32°F)
		AA, std 25pmol 10/PK	0°C (32°F)
		AA, standard 100PMOL 10/PK	0°C (32°F)
		td 1nmol 10/PK	0°C (32°F)
		AA, standard 250PMOL 10/PK	0°C (32°F)
Boiling point, initial boiling point, and boiling range	:	Sarcosine	Not available.
		L-Trytophan	Not available.
		L-Norvaline	Not available.
		L-Glutamine	Not available.
		L-Asparagine	Not available.
		L-4-Hydroxyproline	Not available.
		3,3′-Dithiodipropionic Acid	Not available.
		FMOC reagent 10 ampoules 1ml ea for AAA	81.6°C (178.9°F)
		OPA reagent, 10 mg/ml, 6 ampoules	Not available.
		AA, std 10pmol 10/PK	100°C (212°F)
		AA, std 25pmol 10/PK	100°C (212°F)
		AA, standard 100PMOL 10/PK	100°C (212°F)
		td 1nmol 10/PK	100°C (212°F)
		AA, standard 250PMOL 10/PK	100°C (212°F)
Flash point	:	Sarcosine	Not applicable.
		L-Trytophan	Not applicable.
		L-Norvaline	Not applicable.
		L-Glutamine	Not applicable.
		L-Asparagine	Not applicable.
		L-4-Hydroxyproline	Not applicable.
		3,3′-Dithiodipropionic Acid	Not applicable.
		FMOC reagent 10 ampoules 1ml ea for AAA	Closed cup: 2°C (35.6°F)
		OPA reagent, 10 mg/ml, 6 ampoules	Not available.
		AA, std 10pmol 10/PK	Not available.
		AA, std 25pmol 10/PK	Not available.
		AA, standard 100PMOL 10/PK	Not available.
		td 1nmol 10/PK	Not available.
		AA, standard 250PMOL 10/PK	Not available.

Section 9. Physical and chemical properties and safety characteristics

Ingredient name	Closed cup °C	Closed cup °F	Closed cup Method	Open cup °C	Open cup °F	Open cup Method
OPA reagent, 10 mg/ml, 6 ampoules						
Methanol	9.7	49.5	Abel-Pensky	-	-	-
Phthalaldehyde	>110	>230	Setaflash	-	-	-

Evaporation rate :

Sarcosine	Not available.
L-Trytophan	Not available.
L-Norvaline	Not available.
L-Glutamine	Not available.
L-Asparagine	Not available.
L-4-Hydroxyproline	Not available.
3,3′-Dithiodipropionic Acid	Not available.
FMOC reagent 10 ampoules 1ml ea for AAA	5.79 (butyl acetate = 1)
OPA reagent, 10 mg/ml, 6 ampoules	<1 (butyl acetate = 1)
AA, std 10pmol 10/PK	Not available.
AA, std 25pmol 10/PK	Not available.
AA, standard 100PMOL 10/PK	Not available.
td 1nmol 10/PK	Not available.
AA, standard 250PMOL 10/PK	Not available.

Flammability :

Sarcosine	Not available.
L-Trytophan	Not available.
L-Norvaline	Not available.
L-Glutamine	Not available.
L-Asparagine	Not available.
L-4-Hydroxyproline	Not available.
3,3′-Dithiodipropionic Acid	Not available.
FMOC reagent 10 ampoules 1ml ea for AAA	Not applicable.
OPA reagent, 10 mg/ml, 6 ampoules	Not applicable.
AA, std 10pmol 10/PK	Not applicable.
AA, std 25pmol 10/PK	Not applicable.
AA, standard 100PMOL 10/PK	Not applicable.
td 1nmol 10/PK	Not applicable.
AA, standard 250PMOL 10/PK	Not applicable.

Lower and upper explosion limit/flammability limit :

Sarcosine	Not applicable.
L-Trytophan	Not applicable.
L-Norvaline	Not applicable.
L-Glutamine	Not applicable.
L-Asparagine	Not applicable.
L-4-Hydroxyproline	Not applicable.
3,3′-Dithiodipropionic Acid	Not applicable.
FMOC reagent 10 ampoules 1ml ea for AAA	Lower: 4.4% Upper: 16%
OPA reagent, 10 mg/ml, 6 ampoules	Not available.
AA, std 10pmol 10/PK	Not available.
AA, std 25pmol 10/PK	Not available.
AA, standard 100PMOL 10/PK	Not available.
td 1nmol 10/PK	Not available.
AA, standard 250PMOL 10/PK	Not available.

Section 9. Physical and chemical properties and safety characteristics

Vapor pressure :

L-Trytophan 0 kPa (0 mm Hg)
L-Glutamine 0.0000000025 kPa (0.000000019 mm Hg)
L-Asparagine 0.0000000064 kPa (0.000000048 mm Hg)
L-4-Hydroxyproline 0 kPa (0 mm Hg)

Ingredient name	Vapor Pressure at 20˚C			Vapor pressure at 50˚C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
FMOC reagent 10 ampoules 1ml ea for AAA						
Acetonitrile	70.89	9.5	-	-	-	-
OPA reagent, 10 mg/ml, 6 ampoules						
Methanol	126.96	16.9	-	-	-	-
water	17.5	2.3	-	92.258	12.3	-
AA, std 10pmol 10/PK						
water	17.5	2.3	-	92.258	12.3	-
AA, std 25pmol 10/PK						
water	17.5	2.3	-	92.258	12.3	-
AA, standard 100PMOL 10/PK						
water	17.5	2.3	-	92.258	12.3	-
td 1nmol 10/PK						
water	17.5	2.3	-	92.258	12.3	-
AA, standard 250PMOL 10/PK						
water	17.5	2.3	-	92.258	12.3	-

Relative vapor density :

Sarcosine Not applicable.
L-Trytophan Not applicable.
L-Norvaline Not applicable.
L-Glutamine Not applicable.
L-Asparagine Not applicable.
L-4-Hydroxyproline 4.5 [Air = 1]
3,3′-Dithiodipropionic Acid Not applicable.
FMOC reagent 10 ampoules 1ml ea for AAA Not available.
OPA reagent, 10 mg/ml, 6 ampoules Not available.

Section 9. Physical and chemical properties and safety characteristics

		AA, std 10pmol 10/PK	Not available.
		AA, std 25pmol 10/PK	Not available.
		AA, standard 100PMOL 10/PK	Not available.
		td 1nmol 10/PK	Not available.
		AA, standard 250PMOL 10/PK	Not available.
Relative density	:	Sarcosine	Not available.
		L-Trytophan	1.34
		L-Norvaline	Not available.
		L-Glutamine	1.469 [OECD 109]
		L-Asparagine	1.54 [OECD 109]
		L-4-Hydroxyproline	1.479 [OECD 109]
		3,3′-Dithiodipropionic Acid	Not available.
		FMOC reagent 10 ampoules 1ml ea for AAA	0.78
		OPA reagent, 10 mg/ml, 6 ampoules	1.045
		AA, std 10pmol 10/PK	Not available.
		AA, std 25pmol 10/PK	Not available.
		AA, standard 100PMOL 10/PK	Not available.
		td 1nmol 10/PK	Not available.
		AA, standard 250PMOL 10/PK	Not available.

Solubility(ies) :

Media	Result
Sarcosine	
water	Soluble
L-Trytophan	
water	Soluble
diethyl ether	Insoluble
L-Norvaline	
water	Soluble
L-Glutamine	
water	Soluble
L-Asparagine	
water	Soluble
methanol	Insoluble
diethyl ether	Insoluble
L-4-Hydroxyproline	
water	Soluble
3,3′-Dithiodipropionic Acid	
water	Soluble
FMOC reagent 10 ampoules 1ml ea for AAA	
water	Soluble
OPA reagent, 10 mg/ml, 6 ampoules	
water	Soluble
AA, std 10pmol 10/PK	
water	Soluble
AA, std 25pmol 10/PK	
water	Soluble
AA, standard 100PMOL 10/PK	
water	Soluble
td 1nmol 10/PK	
water	Soluble
AA, standard 250PMOL 10/PK	
water	Soluble

Section 9. Physical and chemical properties and safety characteristics

Partition coefficient: n-octanol/water :

Sarcosine	-2.78
L-Trytophan	-1.06
L-Norvaline	-2.11
L-Glutamine	-3.64
L-Asparagine	-3.82
L-4-Hydroxyproline	-3.17
3,3′-Dithiodipropionic Acid	Not available.
FMOC reagent 10 ampoules 1ml ea for AAA	<1
OPA reagent, 10 mg/ml, 6 ampoules	Not applicable.
AA, std 10pmol 10/PK	Not applicable.
AA, std 25pmol 10/PK	Not applicable.
AA, standard 100PMOL 10/PK	Not applicable.
td 1nmol 10/PK	Not applicable.
AA, standard 250PMOL 10/PK	Not applicable.

Auto-ignition temperature :

Sarcosine	Not applicable.
L-Trytophan	>400°C (>752°F) [VDI 2263]
L-Norvaline	Not applicable.
L-Glutamine	Not applicable.
L-Asparagine	Not applicable.
L-4-Hydroxyproline	Not applicable.
3,3′-Dithiodipropionic Acid	Not applicable.
FMOC reagent 10 ampoules 1ml ea for AAA	524°C (975.2°F)

Ingredient name	°C	°F	Method
OPA reagent, 10 mg/ml, 6 ampoules			
Methanol	455	851	DIN 51794

Decomposition temperature :

Sarcosine	212°C (413.6°F)
L-Trytophan	289°C (552.2°F)
L-Norvaline	Not available.
L-Glutamine	185°C (365°F)
L-Asparagine	Not available.
L-4-Hydroxyproline	275°C (527°F)
3,3′-Dithiodipropionic Acid	Not available.
FMOC reagent 10 ampoules 1ml ea for AAA	Not available.
OPA reagent, 10 mg/ml, 6 ampoules	Not available.
AA, std 10pmol 10/PK	Not available.
AA, std 25pmol 10/PK	Not available.
AA, standard 100PMOL 10/PK	Not available.
td 1nmol 10/PK	Not available.
AA, standard 250PMOL 10/PK	Not available.

Viscosity :

Sarcosine	Not applicable.
L-Trytophan	Not applicable.
L-Norvaline	Not applicable.
L-Glutamine	Not applicable.
L-Asparagine	Not applicable.
L-4-Hydroxyproline	Not applicable.
3,3′-Dithiodipropionic Acid	Not applicable.
FMOC reagent 10 ampoules 1ml ea for AAA	Not available.
OPA reagent, 10 mg/ml, 6 ampoules	Not available.
AA, std 10pmol 10/PK	Not available.
AA, std 25pmol 10/PK	Not available.

Section 9. Physical and chemical properties and safety characteristics

	AA, standard 100PMOL 10/PK	Not available.
	td 1nmol 10/PK	Not available.
	AA, standard 250PMOL 10/PK	Not available.

Particle characteristics

Median particle size	:	Sarcosine	Not available.
		L-Trytophan	Not available.
		L-Norvaline	Not available.
		L-Glutamine	Not available.
		L-Asparagine	Not available.
		L-4-Hydroxyproline	Not available.
		3,3′-Dithiodipropionic Acid	Not available.
		FMOC reagent 10 ampoules 1ml ea for AAA	Not applicable.
		OPA reagent, 10 mg/ml, 6 ampoules	Not applicable.
		AA, std 10pmol 10/PK	Not applicable.
		AA, std 25pmol 10/PK	Not applicable.
		AA, standard 100PMOL 10/PK	Not applicable.
		td 1nmol 10/PK	Not applicable.
		AA, standard 250PMOL 10/PK	Not applicable.

Section 10. Stability and reactivity

10.1 Reactivity	:	Sarcosine	No specific test data related to reactivity available for this product or its ingredients.
		L-Trytophan	No specific test data related to reactivity available for this product or its ingredients.
		L-Norvaline	No specific test data related to reactivity available for this product or its ingredients.
		L-Glutamine	No specific test data related to reactivity available for this product or its ingredients.
		L-Asparagine	No specific test data related to reactivity available for this product or its ingredients.
		L-4-Hydroxyproline	No specific test data related to reactivity available for this product or its ingredients.
		3,3′-Dithiodipropionic Acid	No specific test data related to reactivity available for this product or its ingredients.
		FMOC reagent 10 ampoules 1ml ea for AAA	No specific test data related to reactivity available for this product or its ingredients.
		OPA reagent, 10 mg/ml, 6 ampoules	No specific test data related to reactivity available for this product or its ingredients.
		AA, std 10pmol 10/PK	No specific test data related to reactivity available for this product or its ingredients.
		AA, std 25pmol 10/PK	No specific test data related to reactivity available for this product or its ingredients.
		AA, standard 100PMOL 10/PK	No specific test data related to reactivity available for this product or its ingredients.
		td 1nmol 10/PK	No specific test data related to reactivity available for this product or its ingredients.
		AA, standard 250PMOL 10/PK	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	:	Sarcosine	The product is stable.
		L-Trytophan	The product is stable.
		L-Norvaline	The product is stable.
		L-Glutamine	The product is stable.
		L-Asparagine	The product is stable.
		L-4-Hydroxyproline	The product is stable.
		3,3′-Dithiodipropionic Acid	The product is stable.
		FMOC reagent 10 ampoules 1ml	The product is stable.

Section 10. Stability and reactivity

	ea for AAA	
	OPA reagent, 10 mg/ml, 6 ampoules	The product is stable.
	AA, std 10pmol 10/PK	The product is stable.
	AA, std 25pmol 10/PK	The product is stable.
	AA, standard 100PMOL 10/PK	The product is stable.
	td 1nmol 10/PK	The product is stable.
	AA, standard 250PMOL 10/PK	The product is stable.

10.3 Possibility of hazardous reactions :

Sarcosine	Under normal conditions of storage and use, hazardous reactions will not occur.
L-Trytophan	Under normal conditions of storage and use, hazardous reactions will not occur.
L-Norvaline	Under normal conditions of storage and use, hazardous reactions will not occur.
L-Glutamine	Under normal conditions of storage and use, hazardous reactions will not occur.
L-Asparagine	Under normal conditions of storage and use, hazardous reactions will not occur.
L-4-Hydroxyproline	Under normal conditions of storage and use, hazardous reactions will not occur.
3,3′-Dithiodipropionic Acid	Under normal conditions of storage and use, hazardous reactions will not occur.
FMOC reagent 10 ampoules 1ml ea for AAA	Under normal conditions of storage and use, hazardous reactions will not occur.
OPA reagent, 10 mg/ml, 6 ampoules	Under normal conditions of storage and use, hazardous reactions will not occur.
AA, std 10pmol 10/PK	Under normal conditions of storage and use, hazardous reactions will not occur.
AA, std 25pmol 10/PK	Under normal conditions of storage and use, hazardous reactions will not occur.
AA, standard 100PMOL 10/PK	Under normal conditions of storage and use, hazardous reactions will not occur.
td 1nmol 10/PK	Under normal conditions of storage and use, hazardous reactions will not occur.
AA, standard 250PMOL 10/PK	Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid :

Sarcosine	Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Prevent dust accumulation.
L-Trytophan	Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Prevent dust accumulation.
L-Norvaline	Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Prevent dust accumulation.

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	L-Glutamine	Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Prevent dust accumulation.
	L-Asparagine	Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Prevent dust accumulation.
	L-4-Hydroxyproline	Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Prevent dust accumulation.
	3,3′-Dithiodipropionic Acid	Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Prevent dust accumulation.
	FMOC reagent 10 ampoules 1ml ea for AAA	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Store away from direct sunlight.
	OPA reagent, 10 mg/ml, 6 ampoules	No specific data.
	AA, std 10pmol 10/PK	No specific data.
	AA, std 25pmol 10/PK	No specific data.
	AA, standard 100PMOL 10/PK	No specific data.
	td 1nmol 10/PK	No specific data.
	AA, standard 250PMOL 10/PK	No specific data.
10.5 Incompatible materials :	Sarcosine	Reactive or incompatible with the following materials: oxidizing materials
	L-Trytophan	Reactive or incompatible with the following materials: oxidizing materials
	L-Norvaline	Reactive or incompatible with the following materials: oxidizing materials
	L-Glutamine	Reactive or incompatible with the following materials: oxidizing materials
	L-Asparagine	Reactive or incompatible with the following materials: oxidizing materials
	L-4-Hydroxyproline	Reactive or incompatible with the following materials: oxidizing materials
	3,3′-Dithiodipropionic Acid	Reactive or incompatible with the following materials:

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		oxidizing materials
	FMOC reagent 10 ampoules 1ml ea for AAA	Reactive or incompatible with the following materials: oxidizing materials
	OPA reagent, 10 mg/ml, 6 ampoules	Reactive or incompatible with the following materials: metals
	AA, std 10pmol 10/PK	Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air. Reactive or incompatible with the following materials: alkalis metals
	AA, std 25pmol 10/PK	Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air. Reactive or incompatible with the following materials: alkalis metals
	AA, standard 100PMOL 10/PK	Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air. Reactive or incompatible with the following materials: alkalis metals
	td 1nmol 10/PK	Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air. Reactive or incompatible with the following materials: alkalis metals
	AA, standard 250PMOL 10/PK	Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air. Reactive or incompatible with the following materials: alkalis metals
10.6 Hazardous decomposition products :	Sarcosine	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	L-Trytophan	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	L-Norvaline	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	L-Glutamine	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	L-Asparagine	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	L-4-Hydroxyproline	Under normal conditions of storage and use, hazardous decomposition products should not be

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	produced.
3,3′-Dithiodipropionic Acid	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
FMOC reagent 10 ampoules 1ml ea for AAA	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
OPA reagent, 10 mg/ml, 6 ampoules	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
AA, std 10pmol 10/PK	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
AA, std 25pmol 10/PK	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
AA, standard 100PMOL 10/PK	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
td 1nmol 10/PK	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
AA, standard 250PMOL 10/PK	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
L-Trytophan				
L-Tryptophan	LD50 Oral	Rat	>16 g/kg	-
L-Glutamine				
Levoglutamide	LD50 Oral	Rat	7500 mg/kg	-
FMOC reagent 10 ampoules 1ml ea for AAA				
Acetonitrile	LC50 Inhalation Vapor	Rat	17100 ppm	4 hours
	LD50 Oral	Rat	2460 mg/kg	-
OPA reagent, 10 mg/ml, 6 ampoules				
Potassium hydroxide	LD50 Oral	Rat	273 mg/kg	-
boric acid	LC50 Inhalation Dusts and mists	Rat - Male, Female	>2.12 mg/l	4 hours
	LD50 Dermal	Rabbit - Male, Female	>2000 mg/kg	-
3-Mercaptopropionic acid	LC50 Inhalation Dusts and mists	Rat - Male, Female	1818 mg/m³	4 hours
	LD50 Oral	Rat	96 mg/kg	-
Methanol	LC50 Inhalation Vapor	Rat	189.95 mg/l	1 hours
	LC50 Inhalation Vapor	Rat	145000 ppm	1 hours
	LC50 Inhalation Vapor	Rat	83.84 mg/l	4 hours
	LC50 Inhalation Vapor	Rat	64000 ppm	4 hours
	LD50 Dermal	Rabbit	15800 mg/kg	-
	LD50 Oral	Rat	5600 mg/kg	-
Phthalaldehyde	LD50 Dermal	Rat	>2000 mg/kg	-

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	LD50 Oral	Rat	238.12 mg/kg	-
Potassium thiocyanate	LD50 Oral	Rat	854 mg/kg	-
Dodecan-1-ol, ethoxylated	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
	LD50 Oral	Rat - Female	1000 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
FMOC reagent 10 ampoules 1ml ea for AAA					
Acetonitrile	Eyes - Moderate irritant	Rabbit	-	24 hours 100 uL	-
	Skin - Mild irritant	Rabbit	-	500 mg	-
OPA reagent, 10 mg/ml, 6 ampoules					
Potassium hydroxide	Eyes - Moderate irritant	Rabbit	-	24 hours 1 mg	-
	Skin - Severe irritant	Guinea pig	-	24 hours 50 mg	-
	Skin - Severe irritant	Rabbit	-	24 hours 50 mg	-
Methanol	Eyes - Moderate irritant	Rabbit	-	24 hours 100 mg	-
	Eyes - Moderate irritant	Rabbit	-	40 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 mg	-
Dodecan-1-ol, ethoxylated	Eyes - Severe irritant	Rabbit	-	24 hours 750 ug	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 mg	-

Sensitization

Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
3,3′-Dithiodipropionic Acid			
3,3'-dithiobispropionic acid	Category 3	-	Respiratory tract irritation
OPA reagent, 10 mg/ml, 6 ampoules			
Methanol	Category 1	-	central nervous system (CNS), optic nerve
Phthalaldehyde	Category 3	-	Respiratory tract

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Dodecan-1-ol, ethoxylated	Category 3	-	irritation Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
FMOC reagent 10 ampoules 1ml ea for AAA Acetonitrile	Category 2	-	blood system, central nervous system (CNS), kidneys, liver

Aspiration hazard

Not available.

Information on the likely routes of exposure :

Sarcosine	Not available.
L-Trytophan	Not available.
L-Norvaline	Not available.
L-Glutamine	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
L-Asparagine	Not available.
L-4-Hydroxyproline	Not available.
3,3′-Dithiodipropionic Acid	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
FMOC reagent 10 ampoules 1ml ea for AAA	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
OPA reagent, 10 mg/ml, 6 ampoules	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
AA, std 10pmol 10/PK	Not available.
AA, std 25pmol 10/PK	Not available.
AA, standard 100PMOL 10/PK	Not available.
td 1nmol 10/PK	Not available.
AA, standard 250PMOL 10/PK	Not available.

Potential acute health effects

Eye contact :

Sarcosine	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.
L-Trytophan	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.
L-Norvaline	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.
L-Glutamine	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.
L-Asparagine	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.
L-4-Hydroxyproline	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.
3,3′-Dithiodipropionic Acid	Causes serious eye irritation.
FMOC reagent 10 ampoules 1ml ea for AAA	Causes serious eye irritation.
OPA reagent, 10 mg/ml, 6 ampoules	Causes serious eye damage.

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		AA, std 10pmol 10/PK	No known significant effects or critical hazards.
		AA, std 25pmol 10/PK	No known significant effects or critical hazards.
		AA, standard 100PMOL 10/PK	No known significant effects or critical hazards.
		td 1nmol 10/PK	No known significant effects or critical hazards.
		AA, standard 250PMOL 10/PK	No known significant effects or critical hazards.
Inhalation	:	Sarcosine	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
		L-Trytophan	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
		L-Norvaline	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
		L-Glutamine	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
		L-Asparagine	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
		L-4-Hydroxyproline	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
		3,3′-Dithiodipropionic Acid	May cause respiratory irritation.
		FMOC reagent 10 ampoules 1ml ea for AAA	Harmful if inhaled.
		OPA reagent, 10 mg/ml, 6 ampoules	No known significant effects or critical hazards.
		AA, std 10pmol 10/PK	No known significant effects or critical hazards.
		AA, std 25pmol 10/PK	No known significant effects or critical hazards.
		AA, standard 100PMOL 10/PK	No known significant effects or critical hazards.
		td 1nmol 10/PK	No known significant effects or critical hazards.
		AA, standard 250PMOL 10/PK	No known significant effects or critical hazards.
Skin contact	:	Sarcosine	No known significant effects or critical hazards.
		L-Trytophan	No known significant effects or critical hazards.
		L-Norvaline	No known significant effects or critical hazards.
		L-Glutamine	No known significant effects or critical hazards.
		L-Asparagine	No known significant effects or critical hazards.
		L-4-Hydroxyproline	No known significant effects or critical hazards.
		3,3′-Dithiodipropionic Acid	Causes skin irritation.
		FMOC reagent 10 ampoules 1ml ea for AAA	Harmful in contact with skin.
		OPA reagent, 10 mg/ml, 6 ampoules	Causes severe burns. May cause an allergic skin reaction.
		AA, std 10pmol 10/PK	No known significant effects or critical hazards.
		AA, std 25pmol 10/PK	No known significant effects or critical hazards.
		AA, standard 100PMOL 10/PK	No known significant effects or critical hazards.
		td 1nmol 10/PK	No known significant effects or critical hazards.
		AA, standard 250PMOL 10/PK	No known significant effects or critical hazards.
Ingestion	:	Sarcosine	No known significant effects or critical hazards.
		L-Trytophan	No known significant effects or critical hazards.
		L-Norvaline	No known significant effects or critical hazards.
		L-Glutamine	No known significant effects or critical hazards.
		L-Asparagine	No known significant effects or critical hazards.
		L-4-Hydroxyproline	No known significant effects or critical hazards.
		3,3′-Dithiodipropionic Acid	No known significant effects or critical hazards.
		FMOC reagent 10 ampoules 1ml ea for AAA	Harmful if swallowed.
		OPA reagent, 10 mg/ml, 6 ampoules	Severely corrosive to the digestive tract. Causes severe burns. Harmful if swallowed.

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AA, std 10pmol 10/PK	No known significant effects or critical hazards.
AA, std 25pmol 10/PK	No known significant effects or critical hazards.
AA, standard 100PMOL 10/PK	No known significant effects or critical hazards.
td 1nmol 10/PK	No known significant effects or critical hazards.
AA, standard 250PMOL 10/PK	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact :

Sarcosine	Adverse symptoms may include the following: irritation redness
L-Trytophan	Adverse symptoms may include the following: irritation redness
L-Norvaline	Adverse symptoms may include the following: irritation redness
L-Glutamine	Adverse symptoms may include the following: irritation redness
L-Asparagine	Adverse symptoms may include the following: irritation redness
L-4-Hydroxyproline	Adverse symptoms may include the following: irritation redness
3,3′-Dithiodipropionic Acid	Adverse symptoms may include the following: pain or irritation watering redness
FMOC reagent 10 ampoules 1ml ea for AAA	Adverse symptoms may include the following: pain or irritation watering redness
OPA reagent, 10 mg/ml, 6 ampoules	Adverse symptoms may include the following: pain watering redness
AA, std 10pmol 10/PK	No specific data.
AA, std 25pmol 10/PK	No specific data.
AA, standard 100PMOL 10/PK	No specific data.
td 1nmol 10/PK	No specific data.
AA, standard 250PMOL 10/PK	No specific data.

Inhalation :

Sarcosine	Adverse symptoms may include the following: respiratory tract irritation coughing
L-Trytophan	Adverse symptoms may include the following: respiratory tract irritation coughing
L-Norvaline	Adverse symptoms may include the following: respiratory tract irritation coughing
L-Glutamine	Adverse symptoms may include the following: respiratory tract irritation coughing
L-Asparagine	Adverse symptoms may include the following: respiratory tract irritation coughing
L-4-Hydroxyproline	Adverse symptoms may include the following:

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			respiratory tract irritation coughing
		3,3′-Dithiodipropionic Acid	Adverse symptoms may include the following: respiratory tract irritation coughing
		FMOC reagent 10 ampoules 1ml ea for AAA	No specific data.
		OPA reagent, 10 mg/ml, 6 ampoules	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations
		AA, std 10pmol 10/PK	No specific data.
		AA, std 25pmol 10/PK	No specific data.
		AA, standard 100PMOL 10/PK	No specific data.
		td 1nmol 10/PK	No specific data.
		AA, standard 250PMOL 10/PK	No specific data.
Skin contact	:	Sarcosine	No specific data.
		L-Trytophan	No specific data.
		L-Norvaline	No specific data.
		L-Glutamine	No specific data.
		L-Asparagine	No specific data.
		L-4-Hydroxyproline	No specific data.
		3,3′-Dithiodipropionic Acid	Adverse symptoms may include the following: irritation redness
		FMOC reagent 10 ampoules 1ml ea for AAA	No specific data.
		OPA reagent, 10 mg/ml, 6 ampoules	Adverse symptoms may include the following: pain or irritation redness blistering may occur reduced fetal weight increase in fetal deaths skeletal malformations
		AA, std 10pmol 10/PK	No specific data.
		AA, std 25pmol 10/PK	No specific data.
		AA, standard 100PMOL 10/PK	No specific data.
		td 1nmol 10/PK	No specific data.
		AA, standard 250PMOL 10/PK	No specific data.
Ingestion	:	Sarcosine	No specific data.
		L-Trytophan	No specific data.
		L-Norvaline	No specific data.
		L-Glutamine	No specific data.
		L-Asparagine	No specific data.
		L-4-Hydroxyproline	No specific data.
		3,3′-Dithiodipropionic Acid	No specific data.
		FMOC reagent 10 ampoules 1ml ea for AAA	No specific data.
		OPA reagent, 10 mg/ml, 6 ampoules	Adverse symptoms may include the following: stomach pains reduced fetal weight increase in fetal deaths skeletal malformations
		AA, std 10pmol 10/PK	No specific data.
		AA, std 25pmol 10/PK	No specific data.
		AA, standard 100PMOL 10/PK	No specific data.
		td 1nmol 10/PK	No specific data.

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AA, standard 250PMOL 10/PK	No specific data.

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

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General :	Sarcosine	Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.
	L-Trytophan	Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.
	L-Norvaline	Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.
	L-Glutamine	Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.
	L-Asparagine	Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.
	L-4-Hydroxyproline	Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.
	3,3′-Dithiodipropionic Acid	Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.
	FMOC reagent 10 ampoules 1ml ea for AAA	May cause damage to organs through prolonged or repeated exposure.
	OPA reagent, 10 mg/ml, 6 ampoules	Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
	AA, std 10pmol 10/PK	No known significant effects or critical hazards.
	AA, std 25pmol 10/PK	No known significant effects or critical hazards.
	AA, standard 100PMOL 10/PK	No known significant effects or critical hazards.
	td 1nmol 10/PK	No known significant effects or critical hazards.
	AA, standard 250PMOL 10/PK	No known significant effects or critical hazards.
Carcinogenicity :	Sarcosine	No known significant effects or critical hazards.
	L-Trytophan	No known significant effects or critical hazards.
	L-Norvaline	No known significant effects or critical hazards.
	L-Glutamine	No known significant effects or critical hazards.
	L-Asparagine	No known significant effects or critical hazards.
	L-4-Hydroxyproline	No known significant effects or critical hazards.
	3,3′-Dithiodipropionic Acid	No known significant effects or critical hazards.
	FMOC reagent 10 ampoules 1ml ea for AAA	No known significant effects or critical hazards.
	OPA reagent, 10 mg/ml, 6 ampoules	No known significant effects or critical hazards.
	AA, std 10pmol 10/PK	No known significant effects or critical hazards.
	AA, std 25pmol 10/PK	No known significant effects or critical hazards.
	AA, standard 100PMOL 10/PK	No known significant effects or critical hazards.
	td 1nmol 10/PK	No known significant effects or critical hazards.
	AA, standard 250PMOL 10/PK	No known significant effects or critical hazards.

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Mutagenicity	:	Sarcosine	No known significant effects or critical hazards.
		L-Trytophan	No known significant effects or critical hazards.
		L-Norvaline	No known significant effects or critical hazards.
		L-Glutamine	No known significant effects or critical hazards.
		L-Asparagine	No known significant effects or critical hazards.
		L-4-Hydroxyproline	No known significant effects or critical hazards.
		3,3′-Dithiodipropionic Acid	No known significant effects or critical hazards.
		FMOC reagent 10 ampoules 1ml ea for AAA	No known significant effects or critical hazards.
		OPA reagent, 10 mg/ml, 6 ampoules	No known significant effects or critical hazards.
		AA, std 10pmol 10/PK	No known significant effects or critical hazards.
		AA, std 25pmol 10/PK	No known significant effects or critical hazards.
		AA, standard 100PMOL 10/PK	No known significant effects or critical hazards.
		td 1nmol 10/PK	No known significant effects or critical hazards.
		AA, standard 250PMOL 10/PK	No known significant effects or critical hazards.
Reproductive toxicity	:	Sarcosine	No known significant effects or critical hazards.
		L-Trytophan	No known significant effects or critical hazards.
		L-Norvaline	No known significant effects or critical hazards.
		L-Glutamine	No known significant effects or critical hazards.
		L-Asparagine	No known significant effects or critical hazards.
		L-4-Hydroxyproline	No known significant effects or critical hazards.
		3,3′-Dithiodipropionic Acid	No known significant effects or critical hazards.
		FMOC reagent 10 ampoules 1ml ea for AAA	No known significant effects or critical hazards.
		OPA reagent, 10 mg/ml, 6 ampoules	May damage fertility or the unborn child.
		AA, std 10pmol 10/PK	No known significant effects or critical hazards.
		AA, std 25pmol 10/PK	No known significant effects or critical hazards.
		AA, standard 100PMOL 10/PK	No known significant effects or critical hazards.
		td 1nmol 10/PK	No known significant effects or critical hazards.
		AA, standard 250PMOL 10/PK	No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
L-Glutamine					
Levoglutamide	7500	N/A	N/A	N/A	N/A
FMOC reagent 10 ampoules 1ml ea for AAA					
FMOC reagent 10 ampoules 1ml ea for AAA	502.5	1105.5	N/A	11.1	N/A
Acetonitrile	500	1100	N/A	11	N/A
OPA reagent, 10 mg/ml, 6 ampoules					
OPA reagent, 10 mg/ml, 6 ampoules	1501.1	12231.3	N/A	150.0	56.6
Potassium hydroxide	273	N/A	N/A	N/A	N/A
boric acid	5100	N/A	N/A	N/A	N/A
3-Mercaptopropionic acid	96	N/A	N/A	N/A	1.818
Methanol	100	300	N/A	3	N/A
Phthalaldehyde	238.12	2500	N/A	N/A	N/A
Potassium thiocyanate	854	1100	N/A	N/A	1.5
Dodecan-1-ol, ethoxylated	1000	2500	N/A	N/A	N/A

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Other information	:	FMOC reagent 10 ampoules 1ml ea for AAA	Adverse symptoms may include the following: May cause headache, weakness, dizziness, shortness of breath, cyanosis, rapid heart beat, unconsciousness and possible death.
		OPA reagent, 10 mg/ml, 6 ampoules	Adverse symptoms may include the following: blurred or double vision, Eye contact can result in corneal damage or blindness. Repeated or prolonged exposure to the substance can produce liver damage. May cause eye irritation. Repeated or prolonged exposure to the substance can produce reproductive system damage. Narcotic effect. May cause nervous system disturbances.

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12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
L-Glutamine			
Levoglutamide	Acute EC50 >100 mg/l Fresh water	Algae	72 hours
	Acute EC50 >100 mg/l Fresh water	Daphnia	48 hours
	Acute NOEC 100 mg/l Fresh water	Algae	72 hours
	Acute NOEC 100 mg/l Fresh water	Daphnia	48 hours
L-Asparagine			
Asparagine	Acute EC50 >100 mg/l Fresh water	Algae - *Pseudokirchneriella subcapitata*	72 hours
	Acute NOEC 100 mg/l Fresh water	Algae - *Pseudokirchneriella subcapitata*	72 hours
L-4-Hydroxyproline			
L-4-Hydroxyproline	Acute EC50 71.6 mg/l Fresh water	Algae - *Pseudokirchneriella subcapitata*	72 hours
	Acute EC50 >100 mg/l Fresh water	Daphnia	48 hours
	Acute NOEC 25 mg/l Fresh water	Algae - *Pseudokirchneriella subcapitata*	72 hours
	Acute NOEC 100 mg/l Fresh water	Daphnia	48 hours
FMOC reagent 10 ampoules 1ml ea for AAA			
Acetonitrile	Acute IC50 3685000 µg/l Fresh water	Aquatic plants - *Lemna minor*	96 hours
	Acute LC50 3600000 µg/l Fresh water	Daphnia - *Daphnia magna*	48 hours
	Acute LC50 1000000 µg/l Fresh water	Fish - *Pimephales promelas*	96 hours
	Chronic NOEC 1000000 µg/l Fresh water	Aquatic plants - *Lemna minor*	96 hours
	Chronic NOEC 160000 µg/l Fresh water	Daphnia - *Daphnia magna*	21 days
OPA reagent, 10 mg/ml, 6 ampoules			
Potassium hydroxide	Acute LC50 80 ppm Fresh water	Fish - *Gambusia affinis* - Adult	96 hours
boric acid	Acute LC50 45.5 mg/l Fresh water	Crustaceans - *Ceriodaphnia dubia*	48 hours
	Acute LC50 133000 µg/l Fresh water	Daphnia - *Daphnia magna* - Neonate	48 hours
	Acute LC50 75 mg/l Marine water	Fish - *Pagrus major*	96 hours
	Chronic NOEC 6000 µg/l Fresh water	Daphnia - *Daphnia magna*	21 days
	Chronic NOEC 2100 µg/l Fresh water	Fish - *Oncorhynchus mykiss*	87 days
3-Mercaptopropionic acid	Acute EC50 26 mg/l Fresh water	Algae	72 hours
	Acute EC50 9 mg/l Fresh water	Daphnia	48 hours
	Acute LC50 98 mg/l Fresh water	Fish	96 hours
	Acute NOEC 4.1 mg/l Fresh water	Algae	72 hours

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Methanol	Acute EC50 2736 mg/l Marine water	Algae - *Ulva pertusa*	96 hours
	Acute LC50 2500000 µg/l Marine water	Crustaceans - *Crangon crangon* - Adult	48 hours
	Acute LC50 3289 mg/l Fresh water	Daphnia - *Daphnia magna* - Neonate	48 hours
	Acute LC50 290 mg/l Fresh water	Fish - *Danio rerio* - Egg	96 hours
	Chronic NOEC 9.96 mg/l Marine water	Algae - *Ulva pertusa*	96 hours
Phthalaldehyde	Acute EC50 90 ppb Fresh water	Daphnia - *Daphnia magna*	48 hours
	Acute LC50 20 ppb Fresh water	Fish - *Oncorhynchus mykiss*	96 hours
Potassium thiocyanate	Acute LC50 11000 µg/l Fresh water	Daphnia - *Daphnia pulex*	48 hours
	Acute LC50 13.3 mg/l Fresh water	Fish - *Salvelinus fontinalis*	96 hours
	Chronic NOEC 1100 µg/l Fresh water	Fish - *Lepomis macrochirus* - Juvenile (Fledgling, Hatchling, Weanling)	124 days
Dodecan-1-ol, ethoxylated	Acute LC50 6460 µg/l Fresh water	Daphnia - *Daphnia magna*	48 hours
	Acute LC50 1500 µg/l Fresh water	Fish - *Salmo salar* - Parr	96 hours

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
L-Trytophan				
L-Tryptophan	OECD 301B Ready Biodegradability - CO_2 Evolution Test	77 % - 28 days	-	-
FMOC reagent 10 ampoules 1ml ea for AAA				
Acetonitrile	OECD 310 Ready Biodegradability - CO_2 in Sealed Vessels (Headspace Test)	70 % - Readily - 21 days	-	Activated sludge
OPA reagent, 10 mg/ml, 6 ampoules				
3-Mercaptopropionic acid	301A Ready Biodegradability - DOC Die-Away Test	96 % - Readily - 28 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
L-Trytophan			
L-Tryptophan	-	-	Readily
L-Glutamine			
Levoglutamide	-	-	Readily
L-Asparagine			
Asparagine	-	-	Readily
L-4-Hydroxyproline			
L-4-Hydroxyproline	-	-	Readily
3,3'-Dithiodipropionic Acid			
3,3'-dithiobispropionic acid	-	-	Readily

Section 12. Ecological information

FMOC reagent 10 ampoules 1ml ea for AAA			
Acetonitrile	-	-	Readily
OPA reagent, 10 mg/ml, 6 ampoules			
boric acid	-	-	Not readily
3-Mercaptopropionic acid	-	-	Readily
Methanol	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Sarcosine			
Sarcosine	-2.78	-	Low
L-Trytophan			
L-Tryptophan	-1.06	-	Low
L-Norvaline			
Norvaline	-2.11	-	Low
L-Glutamine			
Levoglutamide	-3.64	-	Low
L-Asparagine			
Asparagine	-3.82	-	Low
L-4-Hydroxyproline			
L-4-Hydroxyproline	-3.17	-	Low
FMOC reagent 10 ampoules 1ml ea for AAA			
FMOC reagent 10 ampoules 1ml ea for AAA	<1	-	Low
Acetonitrile	-0.34	3	Low
OPA reagent, 10 mg/ml, 6 ampoules			
boric acid	-1.09	-	Low
3-Mercaptopropionic acid	-2.32	-	Low
Methanol	-0.77	<10	Low
Phthalaldehyde	0.99	-	Low
Potassium thiocyanate	-2.52	-	Low

12.4 Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

12.5 Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

13.1 Waste treatment methods

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. 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.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
FMOC reagent 10 ampoules 1ml ea for AAA			
Acetonitrile (I,T)	75-05-8	Listed	U003
OPA reagent, 10 mg/ml, 6 ampoules			
Methanol (I)	67-56-1	Listed	U154

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

Section 14. Transport information

DOT / TDG / Mexico / IMDG / IATA : Not regulated.

Additional information

Remarks: De minimis quantities

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

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

U.S. Federal regulations : **TSCA 4(a) proposed test rules**: Glycine

TSCA 8(a) PAIR: Acetonitrile

TSCA 8(a) CDR Exempt/Partial exemption: Not determined

Clean Water Act (CWA) 307: Acetonitrile; Potassium thiocyanate

Clean Water Act (CWA) 311: Potassium hydroxide; Hydrochloric acid

Section 15. Regulatory information

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ (lbs)	SARA 302 TPQ (gallons)	SARA 304 RQ (lbs)	SARA 304 RQ (gallons)
AA, std 10pmol 10/PK Hydrochloric acid	<1	Yes.	500	-	5000	-
AA, std 25pmol 10/PK Hydrochloric acid	<1	Yes.	500	-	5000	-
AA, standard 100PMOL 10/PK Hydrochloric acid	<1	Yes.	500	-	5000	-
td 1nmol 10/PK Hydrochloric acid	<1	Yes.	500	-	5000	-
AA, standard 250PMOL 10/PK Hydrochloric acid	<1	Yes.	500	-	5000	-

SARA 304 RQ : 3500000 lbs / 1589000 kg

SARA 311/312

Classification :

Sarcosine	COMBUSTIBLE DUSTS
L-Trytophan	COMBUSTIBLE DUSTS
L-Norvaline	COMBUSTIBLE DUSTS
L-Glutamine	COMBUSTIBLE DUSTS
L-Asparagine	COMBUSTIBLE DUSTS
L-4-Hydroxyproline	COMBUSTIBLE DUSTS
Dithiodiproprionic	COMBUSTIBLE DUSTS
	SKIN IRRITATION - Category 2
	EYE IRRITATION - Category 2A
	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
FMOC reagent 10 ampoules 1ml ea for AAA	FLAMMABLE LIQUIDS - Category 2
	ACUTE TOXICITY (oral) - Category 4
	ACUTE TOXICITY (dermal) - Category 4
	ACUTE TOXICITY (inhalation) - Category 4
	EYE IRRITATION - Category 2A
	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
OPA reagent, 10 mg/ml, 6 ampoules	CORROSIVE TO METALS - Category 1
	ACUTE TOXICITY (oral) - Category 4
	SKIN CORROSION - Category 1A
	SERIOUS EYE DAMAGE - Category 1
	SKIN SENSITIZATION - Category 1
	TOXIC TO REPRODUCTION - Category 1B
	HNOC - Corrosive to digestive tract [severe]
AA, std 10pmol 10/PK	CORROSIVE TO METALS - Category 1
AA, std 25pmol 10/PK	CORROSIVE TO METALS - Category 1

Section 15. Regulatory information

AA, standard 100PMOL 10/PK	CORROSIVE TO METALS - Category 1
td 1nmol 10/PK	CORROSIVE TO METALS - Category 1
AA, standard 250PMOL 10/PK	CORROSIVE TO METALS - Category 1

Composition/information on ingredients

Name	%	Classification
Sarcosine		
Sarcosine	100	COMBUSTIBLE DUSTS
L-Trytophan		
L-Tryptophan	100	COMBUSTIBLE DUSTS
L-Norvaline		
Norvaline	100	COMBUSTIBLE DUSTS
L-Glutamine		
Levoglutamide	100	COMBUSTIBLE DUSTS
L-Asparagine		
Asparagine	100	COMBUSTIBLE DUSTS
L-4-Hydroxyproline		
L-4-Hydroxyproline	100	COMBUSTIBLE DUSTS
3,3′-Dithiodipropionic Acid		
3,3'-dithiobispropionic acid	100	COMBUSTIBLE DUSTS SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
FMOC reagent 10 ampoules 1ml ea for AAA		
Acetonitrile	≥90	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
OPA reagent, 10 mg/ml, 6 ampoules		
Potassium hydroxide	≤10	CORROSIVE TO METALS - Category 1 ACUTE TOXICITY (oral) - Category 3 SKIN CORROSION - Category 1A SERIOUS EYE DAMAGE - Category 1 HNOC - Corrosive to digestive tract [severe]
boric acid	≤5	TOXIC TO REPRODUCTION - Category 1B
3-Mercaptopropionic acid	≤3	CORROSIVE TO METALS - Category 1 ACUTE TOXICITY (oral) - Category 3 ACUTE TOXICITY (inhalation) - Category 4 SKIN CORROSION - Category 1B SERIOUS EYE DAMAGE - Category 1 HNOC - Corrosive to digestive tract
Methanol	<3	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (oral) - Category 3 ACUTE TOXICITY (dermal) - Category 3 ACUTE TOXICITY (inhalation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 1
Phthalaldehyde	≤2.4	ACUTE TOXICITY (oral) - Category 3 SKIN CORROSION - Category 1 SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
Potassium thiocyanate	≤2.4	ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4

Section 15. Regulatory information

		ACUTE TOXICITY (inhalation) - Category 4 SERIOUS EYE DAMAGE - Category 1

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	**FMOC reagent 10 ampoules 1ml ea for AAA** Acetonitrile **OPA reagent, 10 mg/ml, 6 ampoules** Methanol	 75-05-8 67-56-1	 ≥90 <3
Supplier notification	**FMOC reagent 10 ampoules 1ml ea for AAA** Acetonitrile **OPA reagent, 10 mg/ml, 6 ampoules** Methanol	 75-05-8 67-56-1	 ≥90 <3

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : The following components are listed: ACETONITRILE

New York : The following components are listed: Acetonitrile

New Jersey : The following components are listed: ACETONITRILE; METHYL ALCOHOL

Pennsylvania : The following components are listed: ACETONITRILE

California Prop. 65

⚠ **WARNING**: This product can expose you to Methanol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Ingredient name	No significant risk level	Maximum acceptable dosage level
OPA reagent, 10 mg/ml, 6 ampoules Methanol	-	Yes.

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

Australia : Not determined.

Canada : Not determined.

China : Not determined.

Japan : **Japan inventory (CSCL)**: Not determined.
Japan inventory (ISHL): Not determined.

Section 15. Regulatory information

New Zealand : Not determined.

Philippines : All components are listed or exempted.

Republic of Korea : Not determined.

Taiwan : All components are listed or exempted.

Thailand : Not determined.

Turkey : Not determined.

United States : Not determined.

Viet Nam : All components are listed or exempted.

Section 16. Other information

Procedure used to derive the classification

Classification	Justification
Sarcosine	
COMBUSTIBLE DUSTS	On basis of test data
L-Trytophan	
COMBUSTIBLE DUSTS	On basis of test data
L-Norvaline	
COMBUSTIBLE DUSTS	On basis of test data
L-Glutamine	
COMBUSTIBLE DUSTS	On basis of test data
L-Asparagine	
COMBUSTIBLE DUSTS	On basis of test data
L-4-Hydroxyproline	
COMBUSTIBLE DUSTS	On basis of test data
3,3′-Dithiodipropionic Acid	
COMBUSTIBLE DUSTS	On basis of test data
SKIN IRRITATION - Category 2	Expert judgment
EYE IRRITATION - Category 2A	Expert judgment
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3	Expert judgment
FMOC reagent 10 ampoules 1ml ea for AAA	
FLAMMABLE LIQUIDS - Category 2	On basis of test data
ACUTE TOXICITY (oral) - Category 4	Calculation method
ACUTE TOXICITY (dermal) - Category 4	Calculation method
ACUTE TOXICITY (inhalation) - Category 4	Calculation method
EYE IRRITATION - Category 2A	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2	Calculation method
OPA reagent, 10 mg/ml, 6 ampoules	
CORROSIVE TO METALS - Category 1	Expert judgment
ACUTE TOXICITY (oral) - Category 4	Calculation method
SKIN CORROSION - Category 1A	Calculation method
SERIOUS EYE DAMAGE - Category 1	Calculation method
SKIN SENSITIZATION - Category 1	Calculation method
TOXIC TO REPRODUCTION - Category 1B	Calculation method
AQUATIC HAZARD (LONG-TERM) - Category 2	Calculation method
AA, std 10pmol 10/PK	
CORROSIVE TO METALS - Category 1	Expert judgment

Section 16. Other information

AA, std 25pmol 10/PK CORROSIVE TO METALS - Category 1	Expert judgment
AA, standard 100PMOL 10/PK CORROSIVE TO METALS - Category 1	Expert judgment
td 1nmol 10/PK CORROSIVE TO METALS - Category 1	Expert judgment
AA, standard 250PMOL 10/PK CORROSIVE TO METALS - Category 1	Expert judgment

History

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Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
UN = United Nations

Indicates information that has changed from previously issued version.

Notice to reader

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