

Kit

Product name	Catalog No.	Quantity
PUREfrefx [®] 2.1	PF213-0.25-EX	250 µL for reaction
	PF213-2ML-EX	2 mL for reaction
	PF213-10ML-EX	5x 2 mL for reaction

Contents

Product name	Product No.
Solution I	PF213-11
Solution II	PF201-21
Solution III	PF201-3A1
DHFR DNA	PF001-D2
Cysteine	PF213-6
DTT	PF213-7
GSH	PF213-8



SAFETY DATA SHEET

Page 1 of 9
Revision date: Dec 1st, 2023
PF213-11 (US)
Version 2

Section 1: Identification

Product identifier

Product name: Solution I
Product code: PF213-11

Relevant identified uses of the substance or mixture and uses advised against Relevant identified uses of the product:

This product is for research and development only.

Details of the supplier of the safety data sheet

Name: GeneFrontier Corporation
Address: SHARP Kashiwa Building 4F, 273-1
Kashiwa, Kashiwa-shi, Chiba 277-0005,
Japan
Telephone number: +81-4-7137-6301
Fax number: +81-4-7132-7530
e-mail address: purefrex@genefrontier.com
Emergency telephone number: +81-4-7137-6301

Section 2: Hazard(s) identification

GHS classification and label elements of the product

Classification according to Hazard Communication Standard - 2012 (29 CFR 1910.1200)

Classification of the substance or mixture: Not classified to GHS classification.

Labelling according to Hazard Communication Standard - 2012 (29 CFR 1910.1200)

Label elements: No GHS label element.
No Signal word.

Section 3: Composition/information on ingredients

Mixture/Substance selection: Mixture

Ingredient name	CAS No.	Content (%)
Buffer	Trade secret	0.1 - 1
Mineral A	Trade secret	1 - 5
Mineral B	Trade secret	0.1 - 1
Mineral C	Trade secret	1 - 5
Mineral D	Trade secret	0.1 - 2
Nucleotide A	Trade secret	0.1 - 1
Nucleotide B	Trade secret	0.1 - 1

Note: The figures shown above are not the specifications of the product.

The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

The components not described in this component table are not listed in Table 3 of Annex VI in EU CLP.

Section 4: First-aid measures

Descriptions of first-aid measures

IF INHALED	Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
IF ON SKIN (or hair)	Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
IF IN EYES	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
IF SWALLOWED	Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.

Most important symptoms/effects, both acute and delayed

Specific information on symptom and effect are unknown.

Indication of any immediate medical attention and special treatment needed

Information on indication of any immediate medical attention and special treatment needed is not available.

Section 5: Fire-fighting measures

Extinguishing media

Suitable extinguishing media:

Use appropriate extinguishing media suitable for surrounding facilities.

Unsuitable extinguishing media:

Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture

No information available

Advice for firefighters

Specific fire-fighting measures:

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters:

Firefighters should wear self-contained breathing apparatus with full face piece operated positive pressure mode.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unauthorized personnel away. Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses, or low areas.
Do not wash away into sewers or waterway.

Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

Section 7: Handling and storage

Precautions for safe handling

Preventive measures:

Avoid contact with skin.
Avoid contact with eyes.

Safety treatments:

Use personal protective equipment as required.

Advice on general occupational hygiene:

Do not get in eyes, on skin, or on clothing.
Do not eat, drink or smoke when using this product.
Wash hands thoroughly after handling.

Storage

Conditions for safe storage:

Keep container tightly closed.
Store at temperatures not exceeding designated temperature.
Storage temperature upper limit: -20 °C/ -4 °F

Container and packaging materials for safe handling:

No information available.

Section 8: Exposure controls/personal protection

Control parameters

Adopted value

Adopted value in ACGIH is not available.

OSHA-PEL

OSHA-PEL data is not available.

NIOSH-REL

NIOSH-REL data is not available.

Exposure controls

Appropriate engineering controls:

Eye wash station should be available.

Washing facilities should be available.

Individual protection measures, such as personal protective equipment:

Hand protection Wear protective gloves.

Recommended material(s): impermeable or chemical resistant rubber.

Eye protection Wear safety glasses with side-shields or chemical safety goggles.

Skin and body protection Wear protective clothing.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state: Liquid

Colour: Clear

Odour: None

Odour threshold data is not available.

Melting point/Freezing point data is not available.

Boiling point or initial boiling point data is not available.

Boiling range data is not available.

Flammability (gases, liquids and solids): Non-flammable

Lower and upper explosion limit/flammability limit data is not available.

Flash point data is not available.

Auto-ignition temperature data is not available.

Decomposition temperature data is not available.

pH: 7-8

Kinematic viscosity data is not available.

Solubility

Solubility in water: Soluble

Solubility in solvent data is not available.

n-Octanol/water partition coefficient data is not available.

Vapor pressure data is not available.

Density and/or relative density data is not available.

Relative vapor density (Air=1) data is not available.
Particle characteristics: Not applicable.
Evaporation rate data is not available.

Other information

No information available.

Section 10: Stability and reactivity

Reactivity

Reactivity data is not available.

Chemical stability

Stable under normal storage/handling conditions (see Section 7).

Possibility of hazardous reactions

Possibility of hazardous reactions data is not available.

Conditions to avoid

Conditions to avoid data is not available.

Incompatible materials

Incompatible materials data is not available.

Hazardous decomposition products

Hazardous decomposition products data is not available.

Section 11: Toxicological information

Information on toxicological effects

Acute toxicity	
Acute toxicity (Oral)	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Acute toxicity (Dermal)	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Acute toxicity (Inhalation)	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Irritant properties	
Skin corrosion/irritation	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Serious eye damage/irritation	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Sensitization	
Respiratory sensitization	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Skin sensitization	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Germ cell mutagenicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Carcinogenicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Reproductive toxicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Specific target organ toxicity (STOT)	
STOT-single exposure	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
STOT-repeated exposure	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Aspiration hazard	Classification of the product is not possible (Insufficient data available or no data available).

available or no data available).
Data for components of the product is not available.

Section 12: Ecological information

Toxicity:

Aquatic toxicity

Classification of the product is not possible (Insufficient data available or no data available).
Data for components of the product is not available.

Persistence and degradability:

Persistence and degradability data is not available.

Bioaccumulative potential:

Bioaccumulative potential data is not available.

Mobility in soil:

Mobility in soil data is not available.

Other adverse effects:

Ozone depleting chemical data is not available.

Section 13: Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods:

Dispose of contents/container in accordance with local/national regulation.
Do not dump into sewers, on the ground or into any body of water.

Contaminated packing:

Dispose of container after using the contents completely.

Section 14: Transport information

UN number, UN CLASS

UN No. or ID No.	Not applicable.
UN Proper Shipping Name	Not applicable.
Class or division (Transport hazard class)	Not applicable.
Packing group	Not applicable.

IMDG Code (International Maritime Dangerous Goods Regulations)

Not applicable.

IATA Dangerous Goods Regulations

Not applicable.

Environmental hazards

MARPOL Annex III - Prevention of pollution by harmful substances
Marine pollutants (yes/no) : no

Special precautions for user

Not applicable.

Maritime transport in bulk according to IMO instruments

This product is not intended to be carried in bulk.

Section 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture**U.S. Toxic Substances Control Act (TSCA) Inventory**

Chemicals listed in TSCA Inventory
Buffer; Mineral B; Mineral D; Nucleotide A

Superfund Amendments and Reauthorizations Act (SARA), Title III

This product contains no chemicals subjected to reporting levels established by SARA Title III, Section 313.

California proposition 65

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

Other regulatory information

We are not able to check up the regulatory information with regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

Section 16: Other information

GHS classification and labelling:

Not classified/Classification not possible

Reference Book:

Globally Harmonized System of classification and labelling of chemicals, UN
Recommendations on the TRANSPORT OF DANGEROUS GOODS 21th edit., 2019 UN
IMDG Code, 2018 Edition (Incorporating Amendment 39-18)
IATA Dangerous Goods Regulations (62nd Edition) 2021
2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2022 TLVs and BEIs. (ACGIH)
Supplier's data/information
Hazard Communication Standard - 2012 (29 CFR 1910.1200)
GESTIS-Stoffdatenbank
Pub Chem (OPEN CHEMISTRY DATABASE)

[General Disclaimer]

The GHS classification data given here is based on current EU official data (Consolidated version of the CLP Regulation published in 1.3.2022 and Commission delegated regulation (EU) 2021/849 (ATP17)) & US Hazard Communication Standard - 2012.

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

Section 1: Identification

Product identifier

Product name: Solution II
Product code: PF201-21

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

Relevant identified uses of the product:

This product is for research and development only.

Details of the supplier of the safety data sheet

Name: GeneFrontier Corporation
Address: SHARP Kashiwa Building 4F, 273-1
 Kashiwa, Kashiwa-shi, Chiba 277-0005,
 Japan
Telephone number: +81-4-7137-6301
Fax number: +81-4-7132-7530
e-mail address: purefrex@genefrontier.com
Emergency telephone number: +81-4-7137-6301

Section 2: Hazard(s) identification

GHS classification and label elements of the product

Classification according to Hazard Communication Standard - 2012 (29 CFR 1910.1200)

Classification of the substance or mixture: Not classified to GHS classification.

Labelling according to Hazard Communication Standard - 2012 (29 CFR 1910.1200)

Label elements: No GHS label element.
 No Signal word.

Section 3: Composition/information on ingredients

Mixture/Substance selection: Mixture

Ingredient name	CAS No.	Content (%)
Buffer	Trade secret	0.1 - 1
Mineral F	Trade secret	0.1 - 2
Glycerin	56-81-5	25 - 30

Note: The figures shown above are not the specifications of the product.

The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

The components not described in this component table are not listed in Table 3 of Annex VI in EU CLP.

Section 4: First-aid measures

Descriptions of first-aid measures

IF INHALED	Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
IF ON SKIN (or hair)	Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
IF IN EYES	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
IF SWALLOWED	Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.

Most important symptoms/effects, both acute and delayed

Specific information on symptom and effect are unknown.

Indication of any immediate medical attention and special treatment needed

Information on indication of any immediate medical attention and special treatment needed is not available.

Section 5: Fire-fighting measures

Extinguishing media

Suitable extinguishing media:

Use appropriate extinguishing media suitable for surrounding facilities.

Unsuitable extinguishing media:

Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture

No information available

Advice for firefighters

Specific fire-fighting measures:

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters:

Firefighters should wear self-contained breathing apparatus with full face piece operated positive pressure mode.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unauthorized personnel away. Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses, or low areas.
Do not wash away into sewers or waterway.

Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

Section 7: Handling and storage

Precautions for safe handling

Preventive measures:

Avoid contact with skin.
Avoid contact with eyes.

Safety treatments:

Use personal protective equipment as required.

Advice on general occupational hygiene:

Do not get in eyes, on skin, or on clothing.
Do not eat, drink or smoke when using this product.
Wash hands thoroughly after handling.

Storage

Conditions for safe storage:

Keep container tightly closed.
Store at temperatures not exceeding designated temperature.
Storage temperature upper limit: -20 °C/ -4 °F

Container and packaging materials for safe handling:

No information available.

Section 8: Exposure controls/personal protection

Control parameters

Adopted value

Adopted value in ACGIH is not available.

OSHA-PEL

(Glycerin)

TWA: 5 mg/m³ (Respirable fraction)

TWA: 15 mg/m³ (Total dust)

NIOSH-REL

(Glycerin)

See Appendix D

Exposure controls

Appropriate engineering controls:

Eye wash station should be available.

Washing facilities should be available.

Individual protection measures, such as personal protective equipment:

Hand protection

Wear protective gloves.

Recommended material(s): impermeable or chemical resistant rubber.

Eye protection

Wear safety glasses with side-shields or chemical safety goggles.

Skin and body protection

Wear protective clothing.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state: Liquid

Colour: Clear

Odour: None

Odour threshold data is not available.

Melting point/Freezing point data is not available.

Boiling point or initial boiling point data is not available.

Boiling range data is not available.

Flammability (gases, liquids and solids): Non-flammable

Lower and upper explosion limit/flammability limit data is not available.

Flash point data is not available.

Auto-ignition temperature data is not available.

Decomposition temperature data is not available.

pH: 7-8

Kinematic viscosity data is not available.

Solubility

Solubility in water: Soluble

Solubility in solvent data is not available.

n-Octanol/water partition coefficient data is not available.

Vapor pressure data is not available.

Density and/or relative density data is not available.
Relative vapor density (Air=1) data is not available.
Particle characteristics: Not applicable.
Evaporation rate data is not available.

Other information

No information available.

Section 10: Stability and reactivity

Reactivity

Reactivity data is not available.

Chemical stability

Stable under normal storage/handling conditions (see Section 7).

Possibility of hazardous reactions

Possibility of hazardous reactions data is not available.

Conditions to avoid

Conditions to avoid data is not available.

Incompatible materials

Incompatible materials data is not available.

Hazardous decomposition products

Hazardous decomposition products data is not available.

Section 11: Toxicological information

Information on toxicological effects

Acute toxicity	
Acute toxicity (Oral)	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Acute toxicity (Dermal)	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Acute toxicity (Inhalation)	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Irritant properties	
Skin corrosion/irritation	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Serious eye damage/irritation	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Sensitization	
Respiratory sensitization	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Skin sensitization	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Germ cell mutagenicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Carcinogenicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Reproductive toxicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Specific target organ toxicity (STOT)	
STOT-single exposure	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
STOT-repeated exposure	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.

Aspiration hazard

Classification of the product is not possible (Insufficient data available or no data available).

Data for components of the product is not available.

Section 12: Ecological information

Toxicity:

Aquatic toxicity

Classification of the product is not possible (Insufficient data available or no data available).

Data for components of the product is not available.

Water solubility

Mineral F

256 g/100 ml (20°C) (ICSC, 2006)

Glycerin

miscible (ICSC, 2006)

Persistence and degradability:

Persistence and degradability data is not available.

Bioaccumulative potential:

(Glycerin)

log Pow=-1.76 (ICSC, 2006)

Mobility in soil:

Mobility in soil data is not available.

Other adverse effects:

Ozone depleting chemical data is not available.

Section 13: Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods:

Dispose of contents/container in accordance with local/national regulation.

Do not dump into sewers, on the ground or into any body of water.

Contaminated packing:

Dispose of container after using the contents completely.

Section 14: Transport information

UN number, UN CLASS

UN No. or ID No.	Not applicable.
UN Proper Shipping Name	Not applicable.
Class or division (Transport hazard class)	Not applicable.
Packing group	Not applicable.

IMDG Code (International Maritime Dangerous Goods Regulations)

Not applicable.

IATA Dangerous Goods Regulations

Not applicable.

Environmental hazards

MARPOL Annex III - Prevention of pollution by harmful substances
Marine pollutants (yes/no) : no

Special precautions for user

Not applicable.

Maritime transport in bulk according to IMO instruments

This product is not intended to be carried in bulk.

Section 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture**U.S. Toxic Substances Control Act (TSCA) Inventory**

Chemicals listed in TSCA Inventory
Buffer; Mineral F; Glycerin

Superfund Amendments and Reauthorizations Act (SARA), Title III

This product contains no chemicals subjected to reporting levels established by SARA Title III, Section 313.

California proposition 65

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

Other regulatory information

We are not able to check up the regulatory information with regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

Section 16: Other information

GHS classification and labelling:

Not classified/Classification not possible

Reference Book:

Globally Harmonized System of classification and labelling of chemicals, UN
Recommendations on the TRANSPORT OF DANGEROUS GOODS 21th edit., 2019 UN
IMDG Code, 2018 Edition (Incorporating Amendment 39-18)
IATA Dangerous Goods Regulations (62nd Edition) 2021
2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2022 TLVs and BEIs. (ACGIH)
Supplier's data/information
Hazard Communication Standard - 2012 (29 CFR 1910.1200)
GESTIS-Stoffdatenbank
Pub Chem (OPEN CHEMISTRY DATABASE)

[General Disclaimer]

The GHS classification data given here is based on current EU official data (Consolidated version of the CLP Regulation published in 1.3.2022 and Commission delegated regulation (EU) 2021/849 (ATP17)) & US Hazard Communication Standard - 2012.

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

Section 1: Identification

Product identifier

Product name: Solution III
Product code: PF201-3A1

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

Relevant identified uses of the product:

This product is for research and development only.

Details of the supplier of the safety data sheet

Name: GeneFrontier Corporation
Address: SHARP Kashiwa Building 4F, 273-1
Kashiwa, Kashiwa-shi, Chiba 277-0005,
Japan
Telephone number: +81-4-7137-6301
Fax number: +81-4-7132-7530
e-mail address: purefex@genefrontier.com
Emergency telephone number: +81-4-7137-6301

Section 2: Hazard(s) identification

GHS classification and label elements of the product

Classification according to Hazard Communication Standard - 2012 (29 CFR 1910.1200)

Classification of the substance or mixture: Not classified to GHS classification.

Labelling according to Hazard Communication Standard - 2012 (29 CFR 1910.1200)

Label elements: No GHS label element.
No Signal word.

Section 3: Composition/information on ingredients

Mixture/Substance selection: Mixture

Ingredient name	CAS No.	Content (%)
Buffer	Trade secret	0.1 - 1
Mineral B	Trade secret	0.1 - 1
Mineral F	Trade secret	0.1 - 2

Note: The figures shown above are not the specifications of the product.

The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

The components not described in this component table are not listed in Table 3 of Annex VI in EU CLP.

Section 4: First-aid measures

Descriptions of first-aid measures

IF INHALED	Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
IF ON SKIN (or hair)	Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
IF IN EYES	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
IF SWALLOWED	Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.

Most important symptoms/effects, both acute and delayed

Specific information on symptom and effect are unknown.

Indication of any immediate medical attention and special treatment needed

Information on indication of any immediate medical attention and special treatment needed is not available.

Section 5: Fire-fighting measures

Extinguishing media

Suitable extinguishing media:

Use appropriate extinguishing media suitable for surrounding facilities.

Unsuitable extinguishing media:

Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture

No information available

Advice for firefighters

Specific fire-fighting measures:

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters:

Firefighters should wear self-contained breathing apparatus with full face piece operated positive pressure mode.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unauthorized personnel away. Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses, or low areas.

Do not wash away into sewers or waterway.

Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

Section 7: Handling and storage

Precautions for safe handling

Preventive measures:

Avoid contact with skin.

Avoid contact with eyes.

Safety treatments:

Use personal protective equipment as required.

Advice on general occupational hygiene:

Do not get in eyes, on skin, or on clothing.

Do not eat, drink or smoke when using this product.

Wash hands thoroughly after handling.

Storage

Conditions for safe storage:

Keep container tightly closed.

Store at temperatures not exceeding designated temperature.

Storage temperature upper limit: -70 °C/ -94 °F

Container and packaging materials for safe handling:

No information available.

Section 8: Exposure controls/personal protection

Control parameters

Adopted value

Adopted value in ACGIH is not available.

OSHA-PEL

OSHA-PEL data is not available.

NIOSH-REL

NIOSH-REL data is not available.

Exposure controls

Appropriate engineering controls:

Eye wash station should be available.

Washing facilities should be available.

Individual protection measures, such as personal protective equipment:

Hand protection

Wear protective gloves.

Recommended material(s): impermeable or chemical resistant rubber.

Eye protection

Wear safety glasses with side-shields or chemical safety goggles.

Skin and body protection

Wear protective clothing.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state: Liquid

Colour: Clear

Odour: None

Odour threshold data is not available.

Melting point/Freezing point data is not available.

Boiling point or initial boiling point data is not available.

Boiling range data is not available.

Flammability (gases, liquids and solids): Non-flammable

Lower and upper explosion limit/flammability limit data is not available.

Flash point data is not available.

Auto-ignition temperature data is not available.

Decomposition temperature data is not available.

pH: 7-8

Kinematic viscosity data is not available.

Solubility

Solubility in water: Soluble

Solubility in solvent data is not available.

n-Octanol/water partition coefficient data is not available.

Vapor pressure data is not available.

Density and/or relative density data is not available.
Relative vapor density (Air=1) data is not available.
Particle characteristics: Not applicable.
Evaporation rate data is not available.

Other information

No information available.

Section 10: Stability and reactivity

Reactivity

Reactivity data is not available.

Chemical stability

Stable under normal storage/handling conditions (see Section 7).

Possibility of hazardous reactions

Possibility of hazardous reactions data is not available.

Conditions to avoid

Conditions to avoid data is not available.

Incompatible materials

Incompatible materials data is not available.

Hazardous decomposition products

Hazardous decomposition products data is not available.

Section 11: Toxicological information

Information on toxicological effects

Acute toxicity	
Acute toxicity (Oral)	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Acute toxicity (Dermal)	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Acute toxicity (Inhalation)	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Irritant properties	
Skin corrosion/irritation	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Serious eye damage/irritation	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Sensitization	
Respiratory sensitization	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Skin sensitization	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Germ cell mutagenicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Carcinogenicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Reproductive toxicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Specific target organ toxicity (STOT)	
STOT-single exposure	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
STOT-repeated exposure	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Aspiration hazard	Classification of the product is not possible (Insufficient data available or no data available).

available or no data available).
Data for components of the product is not available.

Section 12: Ecological information

Toxicity:

Aquatic toxicity	Classification of the product is not possible (Insufficient data available or no data available).	
	Data for components of the product is not available.	
Water solubility	Mineral F	256 g/100 ml (20°C) (ICSC, 2006)

Persistence and degradability:

Persistence and degradability data is not available.

Bioaccumulative potential:

Bioaccumulative potential data is not available.

Mobility in soil:

Mobility in soil data is not available.

Other adverse effects:

Ozone depleting chemical data is not available.

Section 13: Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods:

Dispose of contents/container in accordance with local/national regulation.
Do not dump into sewers, on the ground or into any body of water.

Contaminated packing:

Dispose of container after using the contents completely.

Section 14: Transport information

UN number, UN CLASS

UN No. or ID No.	Not applicable.
UN Proper Shipping Name	Not applicable.
Class or division (Transport hazard class)	Not applicable.
Packing group	Not applicable.

IMDG Code (International Maritime Dangerous Goods Regulations)

Not applicable.

IATA Dangerous Goods Regulations

Not applicable.

Environmental hazards

MARPOL Annex III - Prevention of pollution by harmful substances
Marine pollutants (yes/no) : no

Special precautions for user

Not applicable.

Maritime transport in bulk according to IMO instruments

This product is not intended to be carried in bulk.

Section 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture**U.S. Toxic Substances Control Act (TSCA) Inventory**

Chemicals listed in TSCA Inventory
Buffer; Mineral B; Mineral F

Superfund Amendments and Reauthorizations Act (SARA), Title III

This product contains no chemicals subjected to reporting levels established by SARA Title III, Section 313.

California proposition 65

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

Other regulatory information

We are not able to check up the regulatory information with regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

Section 16: Other information

GHS classification and labelling:

Not classified/Classification not possible

Reference Book:

Globally Harmonized System of classification and labelling of chemicals, UN
Recommendations on the TRANSPORT OF DANGEROUS GOODS 21th edit., 2019 UN
IMDG Code, 2018 Edition (Incorporating Amendment 39-18)
IATA Dangerous Goods Regulations (62nd Edition) 2021
2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2022 TLVs and BEIs. (ACGIH)
Supplier's data/information
Hazard Communication Standard - 2012 (29 CFR 1910.1200)
GESTIS-Stoffdatenbank
Pub Chem (OPEN CHEMISTRY DATABASE)

[General Disclaimer]

The GHS classification data given here is based on current EU official data (Consolidated version of the CLP Regulation published in 1.3.2022 and Commission delegated regulation (EU) 2021/849 (ATP17)) & US Hazard Communication Standard - 2012.

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

Section 1: Identification

Product identifier

Product name: DHFR DNA
Product code: PF001-D2

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

Relevant identified uses of the product:

This product is for research and development only.

Details of the supplier of the safety data sheet

Name: GeneFrontier Corporation
Address: SHARP Kashiwa Building 4F, 273-1
Kashiwa, Kashiwa-shi, Chiba 277-0005,
Japan
Telephone number: +81-4-7137-6301
Fax number: +81-4-7132-7530
e-mail address: purefex@genefrontier.com
Emergency telephone number: +81-4-7137-6301

Section 2: Hazard(s) identification

GHS classification and label elements of the product

Classification according to Hazard Communication Standard - 2012 (29 CFR 1910.1200)

Classification of the substance or mixture: Not classified to GHS classification.

Labelling according to Hazard Communication Standard - 2012 (29 CFR 1910.1200)

Label elements: No GHS label element.
No Signal word.

Section 3: Composition/information on ingredients

Mixture/Substance selection: Mixture

Ingredient name	CAS No.	Content (%)
DNA	-	< 0.1

Note: The figures shown above are not the specifications of the product.

The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

The components not described in this component table are not listed in Table 3 of Annex VI in EU CLP.

Section 4: First-aid measures

Descriptions of first-aid measures

IF INHALED	Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
IF ON SKIN (or hair)	Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
IF IN EYES	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
IF SWALLOWED	Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.

Most important symptoms/effects, both acute and delayed

Specific information on symptom and effect are unknown.

Indication of any immediate medical attention and special treatment needed

Information on indication of any immediate medical attention and special treatment needed is not available.

Section 5: Fire-fighting measures

Extinguishing media

Suitable extinguishing media:

Use appropriate extinguishing media suitable for surrounding facilities.

Unsuitable extinguishing media:

Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture

No information available

Advice for firefighters

Specific fire-fighting measures:

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters:

Firefighters should wear self-contained breathing apparatus with full face piece operated positive pressure mode.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unauthorized personnel away. Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses, or low areas.
Do not wash away into sewers or waterway.

Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

Section 7: Handling and storage

Precautions for safe handling

Preventive measures:

Avoid contact with skin.
Avoid contact with eyes.

Safety treatments:

Use personal protective equipment as required.

Advice on general occupational hygiene:

Do not get in eyes, on skin, or on clothing.
Do not eat, drink or smoke when using this product.
Wash hands thoroughly after handling.

Storage

Conditions for safe storage:

Keep container tightly closed.
Store at temperatures not exceeding designated temperature.
Storage temperature upper limit: -20 °C/ -4 °F

Container and packaging materials for safe handling:

No information available.

Section 8: Exposure controls/personal protection

Control parameters

Adopted value

Adopted value in ACGIH is not available.

OSHA-PEL

OSHA-PEL data is not available.

NIOSH-REL

NIOSH-REL data is not available.

Exposure controls

Appropriate engineering controls:

Eye wash station should be available.

Washing facilities should be available.

Individual protection measures, such as personal protective equipment:

Hand protection

Wear protective gloves.

Recommended material(s): impermeable or chemical resistant rubber.

Eye protection

Wear safety glasses with side-shields or chemical safety goggles.

Skin and body protection

Wear protective clothing.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state: Liquid

Colour: Clear

Odour: None

Odour threshold data is not available.

Melting point/Freezing point data is not available.

Boiling point or initial boiling point data is not available.

Boiling range data is not available.

Flammability (gases, liquids and solids): Non-flammable

Lower and upper explosion limit/flammability limit data is not available.

Flash point data is not available.

Auto-ignition temperature data is not available.

Decomposition temperature data is not available.

pH: 7-8

Kinematic viscosity data is not available.

Solubility

Solubility in water: Soluble

Solubility in solvent data is not available.

n-Octanol/water partition coefficient data is not available.

Vapor pressure data is not available.

Density and/or relative density data is not available.
Relative vapor density (Air=1) data is not available.
Particle characteristics: Not applicable.
Evaporation rate data is not available.

Other information

No information available.

Section 10: Stability and reactivity

Reactivity

Reactivity data is not available.

Chemical stability

Stable under normal storage/handling conditions (see Section 7).

Possibility of hazardous reactions

Possibility of hazardous reactions data is not available.

Conditions to avoid

Conditions to avoid data is not available.

Incompatible materials

Incompatible materials data is not available.

Hazardous decomposition products

Hazardous decomposition products data is not available.

Section 11: Toxicological information

Information on toxicological effects

Acute toxicity	
Acute toxicity (Oral)	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Acute toxicity (Dermal)	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Acute toxicity (Inhalation)	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Irritant properties	
Skin corrosion/irritation	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Serious eye damage/irritation	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Sensitization	
Respiratory sensitization	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Skin sensitization	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Germ cell mutagenicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Carcinogenicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Reproductive toxicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Specific target organ toxicity (STOT)	
STOT-single exposure	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
STOT-repeated exposure	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Aspiration hazard	Classification of the product is not possible (Insufficient data available or no data available).

available or no data available).

Data for components of the product is not available.

Section 12: Ecological information

Toxicity:

Aquatic toxicity

Classification of the product is not possible (Insufficient data available or no data available).

Data for components of the product is not available.

Persistence and degradability:

Persistence and degradability data is not available.

Bioaccumulative potential:

Bioaccumulative potential data is not available.

Mobility in soil:

Mobility in soil data is not available.

Other adverse effects:

Ozone depleting chemical data is not available.

Section 13: Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods:

Dispose of contents/container in accordance with local/national regulation.

Do not dump into sewers, on the ground or into any body of water.

Contaminated packing:

Dispose of container after using the contents completely.

Section 14: Transport information

UN number, UN CLASS

UN No. or ID No.	Not applicable.
UN Proper Shipping Name	Not applicable.
Class or division (Transport hazard class)	Not applicable.
Packing group	Not applicable.

IMDG Code (International Maritime Dangerous Goods Regulations)

Not applicable.

IATA Dangerous Goods Regulations

Not applicable.

Environmental hazards

MARPOL Annex III - Prevention of pollution by harmful substances
Marine pollutants (yes/no) : no

Special precautions for user

Not applicable.

Maritime transport in bulk according to IMO instruments

This product is not intended to be carried in bulk.

Section 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture**U.S. Toxic Substances Control Act (TSCA) Inventory**

Chemicals listed in TSCA Inventory
None

Superfund Amendments and Reauthorizations Act (SARA), Title III

This product contains no chemicals subjected to reporting levels established by SARA Title III, Section 313.

California proposition 65

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

Other regulatory information

We are not able to check up the regulatory information with regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

Section 16: Other information

GHS classification and labelling:

Not classified/Classification not possible

Reference Book:

Globally Harmonized System of classification and labelling of chemicals, UN
Recommendations on the TRANSPORT OF DANGEROUS GOODS 21th edit., 2019 UN
IMDG Code, 2018 Edition (Incorporating Amendment 39-18)
IATA Dangerous Goods Regulations (62nd Edition) 2021
2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2022 TLVs and BEIs. (ACGIH)
Supplier's data/information
Hazard Communication Standard - 2012 (29 CFR 1910.1200)
GESTIS-Stoffdatenbank
Pub Chem (OPEN CHEMISTRY DATABASE)

[General Disclaimer]

The GHS classification data given here is based on current EU official data (Consolidated version of the CLP Regulation published in 1.3.2022 and Commission delegated regulation (EU) 2021/849 (ATP17)) & US Hazard Communication Standard - 2012.

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

Section 1: Identification

Product identifier

Product name: Cysteine
Product code: PF213-6

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

Relevant identified uses of the product:

This product is for research and development only.

Details of the supplier of the safety data sheet

Name: GeneFrontier Corporation
Address: SHARP Kashiwa Building 4F, 273-1
Kashiwa, Kashiwa-shi, Chiba 277-0005,
Japan
Telephone number: +81-4-7137-6301
Fax number: +81-4-7132-7530
e-mail address: purefrefx@genefrontier.com
Emergency telephone number: +81-4-7137-6301

Section 2: Hazard(s) identification

GHS classification and label elements of the product

Classification according to Hazard Communication Standard - 2012 (29 CFR 1910.1200)

Classification of the substance or mixture: Not classified to GHS classification.

Labelling according to Hazard Communication Standard - 2012 (29 CFR 1910.1200)

Label elements: No GHS label element.
No Signal word.

Section 3: Composition/information on ingredients

Mixture/Substance selection: Mixture

Ingredient name	CAS No.	Content (%)
L Cysteine	52-90-4	0.1 - 0.2

Note: The figures shown above are not the specifications of the product.

The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

The components not described in this component table are not listed in Table 3 of Annex VI in EU CLP.

Section 4: First-aid measures

Descriptions of first-aid measures

IF INHALED	Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
IF ON SKIN (or hair)	Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
IF IN EYES	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
IF SWALLOWED	Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.

Most important symptoms/effects, both acute and delayed

Specific information on symptom and effect are unknown.

Indication of any immediate medical attention and special treatment needed

Information on indication of any immediate medical attention and special treatment needed is not available.

Section 5: Fire-fighting measures

Extinguishing media

Suitable extinguishing media:

Use appropriate extinguishing media suitable for surrounding facilities.

Unsuitable extinguishing media:

Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture

No information available

Advice for firefighters

Specific fire-fighting measures:

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters:

Firefighters should wear self-contained breathing apparatus with full face piece operated positive pressure mode.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unauthorized personnel away. Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses, or low areas.
Do not wash away into sewers or waterway.

Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

Section 7: Handling and storage

Precautions for safe handling

Preventive measures:

Avoid contact with skin.
Avoid contact with eyes.

Safety treatments:

Use personal protective equipment as required.

Advice on general occupational hygiene:

Do not get in eyes, on skin, or on clothing.
Do not eat, drink or smoke when using this product.
Wash hands thoroughly after handling.

Storage

Conditions for safe storage:

Keep container tightly closed.
Store at temperatures not exceeding designated temperature.
Storage temperature upper limit: -20 °C/ -4 °F

Container and packaging materials for safe handling:

No information available.

Section 8: Exposure controls/personal protection

Control parameters

Adopted value
Adopted value in ACGIH is not available.
OSHA-PEL
OSHA-PEL data is not available.
NIOSH-REL
NIOSH-REL data is not available.

Exposure controls

Appropriate engineering controls:

- Eye wash station should be available.
- Washing facilities should be available.

Individual protection measures, such as personal protective equipment:

- | | |
|--------------------------|---|
| Hand protection | Wear protective gloves.
Recommended material(s): impermeable or chemical resistant rubber. |
| Eye protection | Wear safety glasses with side-shields or chemical safety goggles. |
| Skin and body protection | Wear protective clothing. |

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

- Physical state: Liquid
- Colour: Clear
- Odour: None
- Odour threshold data is not available.
- Melting point/Freezing point data is not available.
- Boiling point or initial boiling point data is not available.
- Boiling range data is not available.
- Flammability (gases, liquids and solids): Non-flammable
- Lower and upper explosion limit/flammability limit data is not available.
- Flash point data is not available.
- Auto-ignition temperature data is not available.
- Decomposition temperature data is not available.
- pH: 7-8
- Kinematic viscosity data is not available.
- Solubility
 - Solubility in water: Soluble
 - Solubility in solvent data is not available.
- n-Octanol/water partition coefficient data is not available.
- Vapor pressure data is not available.
- Density and/or relative density data is not available.
- Relative vapor density (Air=1) data is not available.
- Particle characteristics: Not applicable.
- Evaporation rate data is not available.

Other information

- No information available.

Section 10: Stability and reactivity

Reactivity

Reactivity data is not available.

Chemical stability

Stable under normal storage/handling conditions (see Section 7).

Possibility of hazardous reactions

Possibility of hazardous reactions data is not available.

Conditions to avoid

Conditions to avoid data is not available.

Incompatible materials

Incompatible materials data is not available.

Hazardous decomposition products

Hazardous decomposition products data is not available.

Section 11: Toxicological information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral) Classification of the product is not possible (Insufficient data available or no data available).

Data for components of the product is not available.

Acute toxicity (Dermal) Classification of the product is not possible (Insufficient data available or no data available).

Data for components of the product is not available.

Acute toxicity (Inhalation) Classification of the product is not possible (Insufficient data available or no data available).

Data for components of the product is not available.

Irritant properties

Skin corrosion/irritation Classification of the product is not possible (Insufficient data available or no data available).

Data for components of the product is not available.

Serious eye damage/irritation Classification of the product is not possible (Insufficient data available or no data available).

Data for components of the product is not available.

Sensitization

Respiratory sensitization Classification of the product is not possible (Insufficient data available or no data available).

Data for components of the product is not available.

Skin sensitization	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Germ cell mutagenicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Carcinogenicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Reproductive toxicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Specific target organ toxicity (STOT)	
STOT-single exposure	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
STOT-repeated exposure	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Aspiration hazard	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.

Section 12: Ecological information

Toxicity:

Aquatic toxicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
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Persistence and degradability:

Persistence and degradability data is not available.

Bioaccumulative potential:

Bioaccumulative potential data is not available.

Mobility in soil:

Mobility in soil data is not available.

Other adverse effects:

Ozone depleting chemical data is not available.

Section 13: Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods:

Dispose of contents/container in accordance with local/national regulation.
Do not dump into sewers, on the ground or into any body of water.

Contaminated packing:

Dispose of container after using the contents completely.

Section 14: Transport information

UN number, UN CLASS

UN No. or ID No.	Not applicable.
UN Proper Shipping Name	Not applicable.
Class or division (Transport hazard class)	Not applicable.
Packing group	Not applicable.

IMDG Code (International Maritime Dangerous Goods Regulations)

Not applicable.

IATA Dangerous Goods Regulations

Not applicable.

Environmental hazards

MARPOL Annex III - Prevention of pollution by harmful substances
Marine pollutants (yes/no) : no

Special precautions for user

Not applicable.

Maritime transport in bulk according to IMO instruments

This product is not intended to be carried in bulk.

Section 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture**U.S. Toxic Substances Control Act (TSCA) Inventory**

Chemicals listed in TSCA Inventory
L Cysteine

Superfund Amendments and Reauthorizations Act (SARA), Title III

This product contains no chemicals subjected to reporting levels established by SARA Title III, Section 313.

California proposition 65

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

Other regulatory information

We are not able to check up the regulatory information with regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

Section 16: Other information

GHS classification and labelling:

Not classified/Classification not possible

Reference Book:

Globally Harmonized System of classification and labelling of chemicals, UN
Recommendations on the TRANSPORT OF DANGEROUS GOODS 21th edit., 2019 UN
IMDG Code, 2018 Edition (Incorporating Amendment 39-18)
IATA Dangerous Goods Regulations (62nd Edition) 2021
2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2022 TLVs and BEIs. (ACGIH)
Supplier's data/information
Hazard Communication Standard - 2012 (29 CFR 1910.1200)
GESTIS-Stoffdatenbank
Pub Chem (OPEN CHEMISTRY DATABASE)

[General Disclaimer]

The GHS classification data given here is based on current EU official data (Consolidated version of the CLP Regulation published in 1.3.2022 and Commission delegated regulation (EU) 2021/849 (ATP17)) & US Hazard Communication Standard - 2012.

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

Section 1: Identification

Product identifier

Product name: DTT
Product code: PF213-7

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

Relevant identified uses of the product:

This product is for research and development only.

Details of the supplier of the safety data sheet

Name: GeneFrontier Corporation
Address: SHARP Kashiwa Building 4F, 273-1
Kashiwa, Kashiwa-shi, Chiba 277-0005,
Japan
Telephone number: +81-4-7137-6301
Fax number: +81-4-7132-7530
e-mail address: purefrefx@genefrontier.com
Emergency telephone number: +81-4-7137-6301

Section 2: Hazard(s) identification

GHS classification and label elements of the product

Classification according to Hazard Communication Standard - 2012 (29 CFR 1910.1200)

Classification of the substance or mixture: Not classified to GHS classification.

Labelling according to Hazard Communication Standard - 2012 (29 CFR 1910.1200)

Label elements: No GHS label element.
No Signal word.

Section 3: Composition/information on ingredients

Mixture/Substance selection: Mixture

Ingredient name	CAS No.	Content (%)
Dithiothreitol	3483-12-3	0.5 - 1.0

Note: The figures shown above are not the specifications of the product.

The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

The components not described in this component table are not listed in Table 3 of Annex VI in EU CLP.

Section 4: First-aid measures

Descriptions of first-aid measures

IF INHALED	Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
IF ON SKIN (or hair)	Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
IF IN EYES	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
IF SWALLOWED	Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.

Most important symptoms/effects, both acute and delayed

Specific information on symptom and effect are unknown.

Indication of any immediate medical attention and special treatment needed

Information on indication of any immediate medical attention and special treatment needed is not available.

Section 5: Fire-fighting measures

Extinguishing media

Suitable extinguishing media:

Use appropriate extinguishing media suitable for surrounding facilities.

Unsuitable extinguishing media:

Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture

No information available

Advice for firefighters

Specific fire-fighting measures:

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters:

Firefighters should wear self-contained breathing apparatus with full face piece operated positive pressure mode.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unauthorized personnel away. Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses, or low areas.
Do not wash away into sewers or waterway.

Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

Section 7: Handling and storage

Precautions for safe handling

Preventive measures:

Avoid contact with skin.
Avoid contact with eyes.

Safety treatments:

Use personal protective equipment as required.

Advice on general occupational hygiene:

Do not get in eyes, on skin, or on clothing.
Do not eat, drink or smoke when using this product.
Wash hands thoroughly after handling.

Storage

Conditions for safe storage:

Keep container tightly closed.
Store at temperatures not exceeding designated temperature.
Storage temperature upper limit: -20 °C/ -4 °F

Container and packaging materials for safe handling:

No information available.

Section 8: Exposure controls/personal protection

Control parameters

Adopted value
Adopted value in ACGIH is not available.
OSHA-PEL
OSHA-PEL data is not available.
NIOSH-REL
NIOSH-REL data is not available.

Exposure controls

Appropriate engineering controls:

- Eye wash station should be available.
- Washing facilities should be available.

Individual protection measures, such as personal protective equipment:

- | | |
|--------------------------|---|
| Hand protection | Wear protective gloves.
Recommended material(s): impermeable or chemical resistant rubber. |
| Eye protection | Wear safety glasses with side-shields or chemical safety goggles. |
| Skin and body protection | Wear protective clothing. |

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

- Physical state: Liquid
- Colour: Clear
- Odour: None
- Odour threshold data is not available.
- Melting point/Freezing point data is not available.
- Boiling point or initial boiling point data is not available.
- Boiling range data is not available.
- Flammability (gases, liquids and solids): Non-flammable
- Lower and upper explosion limit/flammability limit data is not available.
- Flash point data is not available.
- Auto-ignition temperature data is not available.
- Decomposition temperature data is not available.
- pH: 7-8
- Kinematic viscosity data is not available.
- Solubility
 - Solubility in water: Soluble
 - Solubility in solvent data is not available.
- n-Octanol/water partition coefficient data is not available.
- Vapor pressure data is not available.
- Density and/or relative density data is not available.
- Relative vapor density (Air=1) data is not available.
- Particle characteristics: Not applicable.
- Evaporation rate data is not available.

Other information

- No information available.

Section 10: Stability and reactivity

Reactivity

Reactivity data is not available.

Chemical stability

Stable under normal storage/handling conditions (see Section 7).

Possibility of hazardous reactions

Possibility of hazardous reactions data is not available.

Conditions to avoid

Conditions to avoid data is not available.

Incompatible materials

Incompatible materials data is not available.

Hazardous decomposition products

Hazardous decomposition products data is not available.

Section 11: Toxicological information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

Classification of the product is not possible (Insufficient data available or no data available).

Data for components of the product is not available.

Acute toxicity (Dermal)

Classification of the product is not possible (Insufficient data available or no data available).

Data for components of the product is not available.

Acute toxicity (Inhalation)

Classification of the product is not possible (Insufficient data available or no data available).

Data for components of the product is not available.

Irritant properties

Skin corrosion/irritation

Classification of the product is not possible (Insufficient data available or no data available).

Data for components of the product is not available.

Serious eye damage/irritation

Classification of the product is not possible (Insufficient data available or no data available).

Data for components of the product is not available.

Sensitization

Respiratory sensitization

Classification of the product is not possible (Insufficient data available or no data available).

Data for components of the product is not available.

Skin sensitization	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Germ cell mutagenicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Carcinogenicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Reproductive toxicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Specific target organ toxicity (STOT)	
STOT-single exposure	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
STOT-repeated exposure	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Aspiration hazard	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.

Section 12: Ecological information

Toxicity:

Aquatic toxicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
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Persistence and degradability:

Persistence and degradability data is not available.

Bioaccumulative potential:

Bioaccumulative potential data is not available.

Mobility in soil:

Mobility in soil data is not available.

Other adverse effects:

Ozone depleting chemical data is not available.

Section 13: Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods:

Dispose of contents/container in accordance with local/national regulation.
Do not dump into sewers, on the ground or into any body of water.

Contaminated packing:

Dispose of container after using the contents completely.

Section 14: Transport information

UN number, UN CLASS

UN No. or ID No.	Not applicable.
UN Proper Shipping Name	Not applicable.
Class or division (Transport hazard class)	Not applicable.
Packing group	Not applicable.

IMDG Code (International Maritime Dangerous Goods Regulations)

Not applicable.

IATA Dangerous Goods Regulations

Not applicable.

Environmental hazards

MARPOL Annex III - Prevention of pollution by harmful substances
Marine pollutants (yes/no) : no

Special precautions for user

Not applicable.

Maritime transport in bulk according to IMO instruments

This product is not intended to be carried in bulk.

Section 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture**U.S. Toxic Substances Control Act (TSCA) Inventory**

Chemicals listed in TSCA Inventory
Dithiothreitol

Superfund Amendments and Reauthorizations Act (SARA), Title III

This product contains no chemicals subjected to reporting levels established by SARA Title III, Section 313.

California proposition 65

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

Other regulatory information

We are not able to check up the regulatory information with regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

Section 16: Other information

GHS classification and labelling:

Not classified/Classification not possible

Reference Book:

Globally Harmonized System of classification and labelling of chemicals, UN
Recommendations on the TRANSPORT OF DANGEROUS GOODS 21th edit., 2019 UN
IMDG Code, 2018 Edition (Incorporating Amendment 39-18)
IATA Dangerous Goods Regulations (62nd Edition) 2021
2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2022 TLVs and BEIs. (ACGIH)
Supplier's data/information
Hazard Communication Standard - 2012 (29 CFR 1910.1200)
GESTIS-Stoffdatenbank
Pub Chem (OPEN CHEMISTRY DATABASE)

[General Disclaimer]

The GHS classification data given here is based on current EU official data (Consolidated version of the CLP Regulation published in 1.3.2022 and Commission delegated regulation (EU) 2021/849 (ATP17)) & US Hazard Communication Standard - 2012.

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

Section 1: Identification

Product identifier

Product name: GSH
Product code: PF213-8

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

Relevant identified uses of the product:

This product is for research and development only.

Details of the supplier of the safety data sheet

Name: GeneFrontier Corporation
Address: SHARP Kashiwa Building 4F, 273-1
Kashiwa, Kashiwa-shi, Chiba 277-0005,
Japan
Telephone number: +81-4-7137-6301
Fax number: +81-4-7132-7530
e-mail address: purefrefx@genefrontier.com
Emergency telephone number: +81-4-7137-6301

Section 2: Hazard(s) identification

GHS classification and label elements of the product

Classification according to Hazard Communication Standard - 2012 (29 CFR 1910.1200)

Classification of the substance or mixture: Not classified to GHS classification.

Labelling according to Hazard Communication Standard - 2012 (29 CFR 1910.1200)

Label elements: No GHS label element.
No Signal word.

Section 3: Composition/information on ingredients

Mixture/Substance selection: Mixture

Ingredient name	CAS No.	Content (%)
L-Glutathione reduced	70-18-8	2 - 3

Note: The figures shown above are not the specifications of the product.

The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

The components not described in this component table are not listed in Table 3 of Annex VI in EU CLP.

Section 4: First-aid measures

Descriptions of first-aid measures

IF INHALED	Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
IF ON SKIN (or hair)	Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
IF IN EYES	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
IF SWALLOWED	Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.

Most important symptoms/effects, both acute and delayed

Specific information on symptom and effect are unknown.

Indication of any immediate medical attention and special treatment needed

Information on indication of any immediate medical attention and special treatment needed is not available.

Section 5: Fire-fighting measures

Extinguishing media

Suitable extinguishing media:

Use appropriate extinguishing media suitable for surrounding facilities.

Unsuitable extinguishing media:

Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture

No information available

Advice for firefighters

Specific fire-fighting measures:

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters:

Firefighters should wear self-contained breathing apparatus with full face piece operated positive pressure mode.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unauthorized personnel away. Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses, or low areas.
Do not wash away into sewers or waterway.

Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

Section 7: Handling and storage

Precautions for safe handling

Preventive measures:

Avoid contact with skin.
Avoid contact with eyes.

Safety treatments:

Use personal protective equipment as required.

Advice on general occupational hygiene:

Do not get in eyes, on skin, or on clothing.
Do not eat, drink or smoke when using this product.
Wash hands thoroughly after handling.

Storage

Conditions for safe storage:

Keep container tightly closed.
Store at temperatures not exceeding designated temperature.
Storage temperature upper limit: -20 °C/ -4 °F

Container and packaging materials for safe handling:

No information available.

Section 8: Exposure controls/personal protection

Control parameters

Adopted value
Adopted value in ACGIH is not available.
OSHA-PEL
OSHA-PEL data is not available.
NIOSH-REL
NIOSH-REL data is not available.

Exposure controls

Appropriate engineering controls:

- Eye wash station should be available.
- Washing facilities should be available.

Individual protection measures, such as personal protective equipment:

- | | |
|--------------------------|---|
| Hand protection | Wear protective gloves.
Recommended material(s): impermeable or chemical resistant rubber. |
| Eye protection | Wear safety glasses with side-shields or chemical safety goggles. |
| Skin and body protection | Wear protective clothing. |

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

- Physical state: Liquid
- Colour: Clear
- Odour: None
- Odour threshold data is not available.
- Melting point/Freezing point data is not available.
- Boiling point or initial boiling point data is not available.
- Boiling range data is not available.
- Flammability (gases, liquids and solids): Non-flammable
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- Flash point data is not available.
- Auto-ignition temperature data is not available.
- Decomposition temperature data is not available.
- pH: 7-8
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- Solubility
 - Solubility in water: Soluble
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- n-Octanol/water partition coefficient data is not available.
- Vapor pressure data is not available.
- Density and/or relative density data is not available.
- Relative vapor density (Air=1) data is not available.
- Particle characteristics: Not applicable.
- Evaporation rate data is not available.

Other information

- No information available.

Section 10: Stability and reactivity

Reactivity

Reactivity data is not available.

Chemical stability

Stable under normal storage/handling conditions (see Section 7).

Possibility of hazardous reactions

Possibility of hazardous reactions data is not available.

Conditions to avoid

Conditions to avoid data is not available.

Incompatible materials

Incompatible materials data is not available.

Hazardous decomposition products

Hazardous decomposition products data is not available.

Section 11: Toxicological information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

Classification of the product is not possible (Insufficient data available or no data available).

Data for components of the product is not available.

Acute toxicity (Dermal)

Classification of the product is not possible (Insufficient data available or no data available).

Data for components of the product is not available.

Acute toxicity (Inhalation)

Classification of the product is not possible (Insufficient data available or no data available).

Data for components of the product is not available.

Irritant properties

Skin corrosion/irritation

Classification of the product is not possible (Insufficient data available or no data available).

Data for components of the product is not available.

Serious eye
damage/irritation

Classification of the product is not possible (Insufficient data available or no data available).

Data for components of the product is not available.

Sensitization

Respiratory sensitization

Classification of the product is not possible (Insufficient data available or no data available).

Data for components of the product is not available.

Skin sensitization	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Germ cell mutagenicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Carcinogenicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Reproductive toxicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
Specific target organ toxicity (STOT)	
STOT-single exposure	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
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Aspiration hazard	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.

Section 12: Ecological information

Toxicity:

Aquatic toxicity	Classification of the product is not possible (Insufficient data available or no data available). Data for components of the product is not available.
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Persistence and degradability:

Persistence and degradability data is not available.

Bioaccumulative potential:

Bioaccumulative potential data is not available.

Mobility in soil:

Mobility in soil data is not available.

Other adverse effects:

Ozone depleting chemical data is not available.

Section 13: Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods:

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Do not dump into sewers, on the ground or into any body of water.

Contaminated packing:

Dispose of container after using the contents completely.

Section 14: Transport information

UN number, UN CLASS

UN No. or ID No.	Not applicable.
UN Proper Shipping Name	Not applicable.
Class or division (Transport hazard class)	Not applicable.
Packing group	Not applicable.

IMDG Code (International Maritime Dangerous Goods Regulations)

Not applicable.

IATA Dangerous Goods Regulations

Not applicable.

Environmental hazards

MARPOL Annex III - Prevention of pollution by harmful substances
Marine pollutants (yes/no) : no

Special precautions for user

Not applicable.

Maritime transport in bulk according to IMO instruments

This product is not intended to be carried in bulk.

Section 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture**U.S. Toxic Substances Control Act (TSCA) Inventory**

Chemicals listed in TSCA Inventory
L-Glutathione reduced

Superfund Amendments and Reauthorizations Act (SARA), Title III

This product contains no chemicals subjected to reporting levels established by SARA Title III, Section 313.

California proposition 65

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

Other regulatory information

We are not able to check up the regulatory information with regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

Section 16: Other information

GHS classification and labelling:

Not classified/Classification not possible

Reference Book:

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2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2022 TLVs and BEIs. (ACGIH)
Supplier's data/information
Hazard Communication Standard - 2012 (29 CFR 1910.1200)
GESTIS-Stoffdatenbank
Pub Chem (OPEN CHEMISTRY DATABASE)

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This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.