

## Kit

<b>Product name</b>	<b>Catalog No.</b>	<b>Quantity</b>
PUREfrefx <sup>®</sup> 2.1	PF213-0.25-EX	250 µL for reaction
	PF213-0.25-5-EX	250x5 µL for reaction

## Contents

<b>Product name</b>	<b>Product No.</b>
Solution I	PF213-1
Solution II	PF201-21
Solution III	PF-3A1
DHFR DNA	PF001-D1
Cysteine	PF213-6
DTT	PF213-7
GSH	PF213-8

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

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### 1.1. Product identifier

**Product name:** Solution I  
**Product code:** PF213-1

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

**Recommended uses:** This product is for research and development only.  
**Uses advised against:** No information available.

### 1.3. Details of the supplier of the safety data sheet

**Name of manufacturer :** 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

### 1.4. Emergency telephone number

**Telephone number:** +81-4-7137-6301  
**Opening hours:** 9:15am – 5:55pm Monday - Friday

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## SECTION 2: Hazards identification

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### 2.1. Classification of the substance or mixture

Not classified to GHS classification.

### 2.2. Label elements

No GHS label element.  
No Signal word.

### 2.3. Other hazards

The product does not contain any ingredient designated as PBT and/or vPvB.

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Not applicable.

### 3.2. Mixtures

#### Information on ingredients:

Ingredient name	CAS No.	Content (%)
HAZCODE_EU	EC No.	
Water	7732-18-5	> 85
-	231-791-2	
Buffer	CBI	0.1 - 1
-	CBI	
Mineral A	CBI	1 - 5
-	CBI	
Mineral B	CBI	0.1 - 1
-	CBI	
Mineral C	CBI	1 - 5
-	CBI	
Mineral D	CBI	0.1 - 1
-	CBI	
Nucleotide A	CBI	0.1 - 1
-	CBI	
Nucleotide B	CBI	0.1 - 1
-	CBI	

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

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

#### Components contributing to the hazard:

Not contain PBT/vPvB, REACH SVHC listed ingredient.

Not contain CMR, REACH SVHC listed ingredient.

Not contain Health, REACH SVHC listed ingredient.

Not contain Enviro, REACH SVHC listed ingredient.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

IF INHALED	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. Seek medical attention if irritation occurs.
IF SWALLOWED	Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.

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

No information available.

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

Treat symptomatically.

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### **SECTION 5: Firefighting measures**

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#### **5.1. Extinguishing media**

##### **Suitable extinguishing media:**

Use appropriate extinguishing media suitable for surrounding facilities.

#### **5.2. Special hazards arising from the substance or mixture**

No information available.

#### **5.3. Advice for firefighters**

##### **For specific fire-fighting measures:**

Evacuate non-essential personnel to safe area.

##### **For special protective equipment and precautions for fire-fighters:**

Wear fire/flame resistant/ retardant clothing.

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### **SECTION 6: Accidental release measures**

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#### **6.1. Personal precautions, protective equipment and emergency procedures**

Wear proper protective equipment.

#### **6.2. Environmental precautions**

See SECTION 12 for additional Ecological information.

#### **6.3. 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.

#### **6.4. Reference to other sections**

Refer to SECTION 8 for personal protection.

Refer to SECTION 13 for disposal information.

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### **SECTION 7: Handling and storage**

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#### **7.1. Precautions for safe handling**

##### **Safety treatments:**

Avoid contact with skin.

Avoid contact with eyes.

## 7.2. Conditions for safe storage, including any incompatibilities

### Recommendation for storage:

Store at temperatures not exceeding designated temperature.

Storage temperature upper limit: -20 °C.

## 7.3. Specific end use(s)

No further relevant information available.

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## SECTION 8: Exposure controls/personal protection

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### 8.1. Control parameters

Adopted value

No adopted value data available in ACGIH.

### 8.2. Exposure controls

#### Appropriate engineering controls:

Eye wash station should be available.

Washing facilities should be available.

#### 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.

#### Safety and Health measures:

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.

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## SECTION 9: Physical and chemical properties

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### 9.1. Information on basic physical and chemical properties

Appearance

Physical state

Liquid

Colour

Clear

Odour

None

pH

7 - 8

Flammability

Non-flammable

Solubility

Solubility in water: Soluble

### 9.2. Other information

No information available.

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## **SECTION 10: Stability and reactivity**

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### **10.1. Reactivity**

No data available.

### **10.2. Chemical stability**

Stable under normal storage/handling conditions.

### **10.3. Possibility of hazardous reactions**

No hazardous reaction expected under normal handling.

### **10.4. Conditions to avoid**

No further relevant information available.

### **10.5. Incompatible materials**

No further relevant information available.

### **10.6. Hazardous decomposition products**

No dangerous decomposition products known.

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## **SECTION 11: Toxicological information**

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### **11.1. Information on toxicological effects**

No Acute toxicity data available.  
No Irritant properties (Skin and Eyes) data available.  
No Allergenic and sensitizing effects data available.  
No Mutagenic effects data available.  
No Carcinogenic effects data available.  
No Teratogenic effects data available.  
No reproductive toxicity data available.  
No STOT-single/repeated exposure data available.  
No Aspiration hazard data available.

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## **SECTION 12: Ecological information**

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### **12.1. Ecotoxicity:**

No Aquatic toxicity data available.  
Water solubility  
(Mineral) 256 g/100 ml (20 °C) (ICSC, 2006)

### **12.2. Persistence and degradability:**

No Persistence and degradability data available.

### **12.3. Bioaccumulative potential:**

No Bioaccumulative potential data available.

**12.4. Mobility in soil:**

No Mobility in soil data available.

**12.5. Results of PBT and vPvB assessment:**

No PBT and/or vPvB related data available.

**12.6. Other adverse effects:**

Ozone depleting chemical data not available.

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**SECTION 13: Disposal considerations**

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**13.1. Waste treatment methods**

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

**Contaminated packing:**

Dispose of container after using the contents completely.

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**SECTION 14: Transport information**

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**14.1. UN number, UN CLASS**

UN number	Not applicable to UN number.
IMDG Code (International Maritime Dangerous Goods Regulations)	Not applicable to IMDG Code
IATA Dangerous Goods Regulations	Not applicable to IATA Dangerous Goods Regulations

**14.2. UN proper shipping name**

Not applicable.

**14.3. Transport hazard class(es)**

Not applicable.

**14.4. Packing group**

Not applicable.

**14.5. Environmental hazards**

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

**14.6. Special precautions for user**

Not applicable.

**14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code**

Not applicable.

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## **SECTION 15: Regulatory information**

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

No data available.

#### **Other regulatory information:**

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

### **15.2. Chemical safety assessment**

No data available.

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## **SECTION 16: Other information**

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**The product is not applicable to GHS classifications.**

#### **Reference Book:**

Globally Harmonized System of classification and labelling of chemicals, (5th ed., 2013), UN  
Recommendations on the TRANSPORT OF DANGEROUS GOODS 20th edit., 2017 UN  
IMDG Code, 2018 Edition (Incorporating Amendment 39-18)  
IATA Dangerous Goods Regulations (60th Edition) 2019  
Classification, labelling and packaging of substances and mixtures (table3-1 ECNO6182012)  
2016 EMERGENCY RESPONSE GUIDEBOOK(US DOT)  
2019 TLVs and BEIs. (ACGIH)  
<http://monographs.iarc.fr/ENG/Classification/index.php>  
Supplier's data/information  
GESTIS-Stoffdatenbank  
Pub Chem (OPEN CHEMISTRY DATABASE)

#### **[Disclaimer]**

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.

The GHS classification data given here is based on current EU official data (EU CLP published in 01.03.2018).



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

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### 1.1. Product identifier

**Product name:** Solution II  
**Product code:** PF201-21

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

**Recommended uses:** This product is for research and development only.  
**Uses advised against:** No information available.

### 1.3. Details of the supplier of the safety data sheet

**Name of manufacturer :** 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

### 1.4. Emergency telephone number

**Telephone number:** +81-4-7137-6301  
**Opening hours:** 9:15am – 5:55pm Monday - Friday

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## SECTION 2: Hazards identification

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### 2.1. Classification of the substance or mixture

Not classified to GHS classification.

### 2.2. Label elements

No GHS label element.  
No Signal word.

### 2.3. Other hazards

The product does not contain any ingredient designated as PBT and/or vPvB.

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## SECTION 3: Composition/information on ingredients

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### 3.1. Substances

Not applicable.

### 3.2. Mixtures

#### Information on ingredients:

Ingredient name	CAS No.	Content (%)
HAZCODE_EU	EC No.	
Water	7732-18-5	> 70
-	231-791-2	
Buffer	CBI	0.1 - 1
-	CBI	
Mineral	CBI	0.1 - 1
-	CBI	
Glycerol	56-81-5	25 - 30
-	200-289-5	

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

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

#### Components contributing to the hazard:

Not contain PBT/vPvB, REACH SVHC listed ingredient.

Not contain CMR, REACH SVHC listed ingredient.

Not contain Health, REACH SVHC listed ingredient.

Not contain Enviro, REACH SVHC listed ingredient.

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## SECTION 4: First aid measures

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### 4.1. Description of first aid measures

IF INHALED	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. Seek medical attention if irritation occurs.
IF SWALLOWED	Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.

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

No information available.

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

Treat symptomatically.

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## **SECTION 5: Firefighting measures**

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### **5.1. Extinguishing media**

#### **Suitable extinguishing media:**

Use appropriate extinguishing media suitable for surrounding facilities.

### **5.2. Special hazards arising from the substance or mixture**

No information available.

### **5.3. Advice for firefighters**

#### **For specific fire-fighting measures:**

Evacuate non-essential personnel to safe area.

#### **For special protective equipment and precautions for fire-fighters:**

Wear fire/flame resistant/ retardant clothing.

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## **SECTION 6: Accidental release measures**

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### **6.1. Personal precautions, protective equipment and emergency procedures**

Wear proper protective equipment.

### **6.2. Environmental precautions**

See SECTION 12 for additional Ecological information.

### **6.3. 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.

### **6.4. Reference to other sections**

Refer to SECTION 8 for personal protection.

Refer to SECTION 13 for disposal information.

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## **SECTION 7: Handling and storage**

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### **7.1. Precautions for safe handling**

#### **Safety treatments:**

Avoid contact with skin.

Avoid contact with eyes.

### **7.2. Conditions for safe storage, including any incompatibilities**

#### **Recommendation for storage:**

Keep container tightly closed.

Store at temperatures not exceeding designated temperature.

Storage temperature upper limit: -20 °C

### **7.3. Specific end use(s)**

No further relevant information available.

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## SECTION 8: Exposure controls/personal protection

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### 8.1. Control parameters

Adopted value No adopted value data available in ACGIH.

### 8.2. Exposure controls

#### Appropriate engineering controls:

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

#### 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.

#### Safety and Health measures:

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.

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## SECTION 9: Physical and chemical properties

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### 9.1. Information on basic physical and chemical properties

Appearance	
Physical state	Liquid
Colour	Clear
Odour	None
pH	7 - 8
Flammability	Non-flammable
Solubility	Solubility in water: Soluble

### 9.2. Other information

No information available.

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## SECTION 10: Stability and reactivity

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### 10.1. Reactivity

No data available.

### 10.2. Chemical stability

Stable under normal storage/handling conditions.

### 10.3. Possibility of hazardous reactions

No hazardous reaction expected under normal handling.

#### 10.4. Conditions to avoid

No further relevant information available.

#### 10.5. Incompatible materials

No further relevant information available.

#### 10.6. Hazardous decomposition products

No dangerous decomposition products known.

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### SECTION 11: Toxicological information

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#### 11.1. Information on toxicological effects

No Acute toxicity data available.  
No Irritant properties (Skin and Eyes) data available.  
No Allergenic and sensitizing effects data available.  
No Mutagenic effects data available.  
No Carcinogenic effects data available.  
No Teratogenic effects data available.  
No reproductive toxicity data available.  
No STOT-single/repeated exposure data available.  
No Aspiration hazard data available.

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### SECTION 12: Ecological information

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#### 12.1. Ecotoxicity:

No Aquatic toxicity data available.  
Water solubility  
(Mineral) 256 g/100 ml (20 °C) (ICSC, 2006)  
(Glycerol) miscible (ICSC, 2006)

#### 12.2. Persistence and degradability:

No Persistence and degradability data available.

#### 12.3. Bioaccumulative potential:

(Glycerol) log Pow=-1.76 (ICSC, 2006)

#### 12.4. Mobility in soil:

No Mobility in soil data available.

#### 12.5. Results of PBT and vPvB assessment:

No PBT and/or vPvB related data available.

#### 12.6. Other adverse effects:

Ozone depleting chemical data not available.

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## SECTION 13: Disposal considerations

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### 13.1. Waste treatment methods

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

#### Contaminated packing:

Dispose of container after using the contents completely.

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## SECTION 14: Transport information

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### 14.1. UN number, UN CLASS

Not applicable.

IMDG Code (International Maritime Dangerous Goods Regulations) Not applicable.

IATA Dangerous Goods Regulations Not applicable.

### 14.2. UN proper shipping name

Not applicable.

IMDG Code (International Maritime Dangerous Goods Regulations) Not applicable.

IATA Dangerous Goods Regulations Not applicable.

### 14.3. Transport hazard class(es)

Not applicable.

IMDG Code (International Maritime Dangerous Goods Regulations) Not applicable.

IATA Dangerous Goods Regulations Not applicable.

### 14.4. Packing group

Not applicable.

IMDG Code (International Maritime Dangerous Goods Regulations) Not applicable.

IATA Dangerous Goods Regulations Not applicable.

### 14.5. Environmental hazards

MARPOL Annex III - Prevention of pollution by harmful substances

Marine pollutants (yes/no) : no

### 14.6. Special precautions for user

Not applicable.

### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code

Not applicable.

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## SECTION 15: Regulatory information

---

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

No data available.

**Other regulatory information:**

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

**15.2. Chemical safety assessment**

No data available.

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**SECTION 16: Other information**

---

**The product is not applicable to GHS classifications.**

**Reference Book:**

Globally Harmonized System of classification and labelling of chemicals, (5th ed., 2013), UN  
Recommendations on the TRANSPORT OF DANGEROUS GOODS 20th edit., 2017 UN  
IMDG Code, 2018 Edition (Incorporating Amendment 39-18)  
IATA Dangerous Goods Regulations (60th Edition) 2019  
Classification, labelling and packaging of substances and mixtures (table3-1 ECNO6182012)  
2016 EMERGENCY RESPONSE GUIDEBOOK(US DOT)  
2019 TLVs and BEIs. (ACGIH)  
<http://monographs.iarc.fr/ENG/Classification/index.php>  
Supplier's data/information  
GESTIS-Stoffdatenbank  
Pub Chem (OPEN CHEMISTRY DATABASE)

**[Disclaimer]**

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.

The GHS classification data given here is based on current EU official data (EU CLP published in 01.03.2018).

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

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### 1.1. Product identifier

**Product name:** Solution III  
**Product code:** PF-3A1

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

**Recommended uses:** This product is for research and development only.  
**Uses advised against:** No information available.

### 1.3. Details of the supplier of the safety data sheet

**Name of manufacturer :** 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

### 1.4. Emergency telephone number

**Telephone number:** +81-4-7137-6301  
**Opening hours:** 9:15am – 5:55pm Monday - Friday

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## SECTION 2: Hazards identification

---

### 2.1. Classification of the substance or mixture

Not classified to GHS classification.

### 2.2. Label elements

No GHS label element.  
No Signal word.

### 2.3. Other hazards

The product does not contain any ingredient designated as PBT and/or vPvB.



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## SECTION 3: Composition/information on ingredients

---

### 3.1. Substances

Not applicable.

### 3.2. Mixtures

#### Information on ingredients:

Ingredient name HAZCODE_EU	CAS No. EC No.	Content (%)
Water -	7732-18-5 231-791-2	> 90
Buffer -	CBI CBI	0.1 - 1
Mineral A -	CBI CBI	0.1 - 1
Mineral B -	CBI CBI	0.1 - 1

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

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

#### Components contributing to the hazard:

Not contain PBT/vPvB, REACH SVHC listed ingredient.

Not contain CMR, REACH SVHC listed ingredient.

Not contain Health, REACH SVHC listed ingredient.

Not contain Enviro, REACH SVHC listed ingredient.

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## SECTION 4: First aid measures

---

### 4.1. Description of first aid measures

IF INHALED	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. Seek medical attention if irritation occurs.
IF SWALLOWED	Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.

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

No information available.

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

Treat symptomatically.

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## **SECTION 5: Firefighting measures**

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### **5.1. Extinguishing media**

#### **Suitable extinguishing media:**

Use appropriate extinguishing media suitable for surrounding facilities.

### **5.2. Special hazards arising from the substance or mixture**

No information available.

### **5.3. Advice for firefighters**

#### **For specific fire-fighting measures:**

Evacuate non-essential personnel to safe area.

#### **For special protective equipment and precautions for fire-fighters:**

Wear fire/flame resistant/ retardant clothing.

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## **SECTION 6: Accidental release measures**

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### **6.1. Personal precautions, protective equipment and emergency procedures**

Wear proper protective equipment.

### **6.2. Environmental precautions**

See SECTION 12 for additional Ecological information.

### **6.3. 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.

### **6.4. Reference to other sections**

Refer to SECTION 8 for personal protection.

Refer to SECTION 13 for disposal information.

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## **SECTION 7: Handling and storage**

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### **7.1. Precautions for safe handling**

#### **Safety treatments:**

Avoid contact with skin.

Avoid contact with eyes.

### **7.2. Conditions for safe storage, including any incompatibilities**

#### **Recommendation for storage:**

Store at temperatures not exceeding designated temperature.

Storage temperature upper limit: -70 °C.

### **7.3. Specific end use(s)**

No further relevant information available.

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## SECTION 8: Exposure controls/personal protection

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### 8.1. Control parameters

Adopted value No adopted value data available in ACGIH.

### 8.2. Exposure controls

#### Appropriate engineering controls:

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

#### 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.

#### Safety and Health measures:

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.

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## SECTION 9: Physical and chemical properties

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### 9.1. Information on basic physical and chemical properties

Appearance	
Physical state	Liquid
Colour	Clear
Odour	None
pH	7 - 8
Flammability	Non-flammable
Solubility	Solubility in water: Soluble

### 9.2. Other information

No information available.

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## SECTION 10: Stability and reactivity

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### 10.1. Reactivity

No data available.

### 10.2. Chemical stability

Stable under normal storage/handling conditions.

### 10.3. Possibility of hazardous reactions

No hazardous reaction expected under normal handling.

#### **10.4. Conditions to avoid**

No further relevant information available.

#### **10.5. Incompatible materials**

No further relevant information available.

#### **10.6. Hazardous decomposition products**

No dangerous decomposition products known.

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### **SECTION 11: Toxicological information**

---

#### **11.1. Information on toxicological effects**

No Acute toxicity data available.  
No Irritant properties (Skin and Eyes) data available.  
No Allergenic and sensitizing effects data available.  
No Mutagenic effects data available.  
No Carcinogenic effects data available.  
No Teratogenic effects data available.  
No reproductive toxicity data available.  
No STOT-single/repeated exposure data available.  
No Aspiration hazard data available.

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### **SECTION 12: Ecological information**

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#### **12.1. Ecotoxicity:**

No Aquatic toxicity data available.  
Water solubility  
(Mineral A)                      256 g/100 ml (20 °C) (ICSC, 2006)

#### **12.2. Persistence and degradability:**

No Persistence and degradability data available.

#### **12.3. Bioaccumulative potential:**

No Bioaccumulative potential data available.

#### **12.4. Mobility in soil:**

No Mobility in soil data available.

#### **12.5. Results of PBT and vPvB assessment:**

No PBT and/or vPvB related data available.

#### **12.6. Other adverse effects:**

Ozone depleting chemical data not available.

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## **SECTION 13: Disposal considerations**

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### **13.1. Waste treatment methods**

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

#### **Contaminated packing:**

Dispose of container after using the contents completely.

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## **SECTION 14: Transport information**

---

### **14.1. UN number, UN CLASS**

UN number	Not applicable to UN number.
IMDG Code (International Maritime Dangerous Goods Regulations)	Not applicable to IMDG Code
IATA Dangerous Goods Regulations	Not applicable to IATA Dangerous Goods Regulations

### **14.2. UN proper shipping name**

Not applicable.

### **14.3. Transport hazard class(es)**

Not applicable.

### **14.4. Packing group**

Not applicable.

### **14.5. Environmental hazards**

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

### **14.6. Special precautions for user**

Not applicable.

### **14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code**

Not applicable.

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## **SECTION 15: Regulatory information**

---

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

No data available.

#### **Other regulatory information:**

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

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## 15.2. Chemical safety assessment

No data available.

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## SECTION 16: Other information

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**The product is not applicable to GHS classifications.**

### Reference Book:

Globally Harmonized System of classification and labelling of chemicals, (5th ed., 2013), UN  
Recommendations on the TRANSPORT OF DANGEROUS GOODS 20th edit., 2017 UN  
IMDG Code, 2018 Edition (Incorporating Amendment 39-18)  
IATA Dangerous Goods Regulations (60th Edition) 2019  
Classification, labelling and packaging of substances and mixtures (table3-1 ECNO6182012)  
2016 EMERGENCY RESPONSE GUIDEBOOK(US DOT)  
2019 TLVs and BEIs. (ACGIH)  
<http://monographs.iarc.fr/ENG/Classification/index.php>  
Supplier's data/information  
GESTIS-Stoffdatenbank  
Pub Chem (OPEN CHEMISTRY DATABASE)

### [Disclaimer]

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.

The GHS classification data given here is based on current EU official data (EU CLP published in 01.03.2018).

---

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

---

### 1.1. Product identifier

**Product name:** DHFR DNA  
**Product code:** PF001-D1

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

**Recommended uses:** This product is for research and development only.  
**Uses advised against:** No information available.

### 1.3. Details of the supplier of the safety data sheet

**Name of manufacturer :** 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

### 1.4. Emergency telephone number

**Telephone number:** +81-4-7137-6301  
**Opening hours:** 9:15am – 5:55pm Monday - Friday

---

## SECTION 2: Hazards identification

---

### 2.1. Classification of the substance or mixture

Not classified to GHS classification.

### 2.2. Label elements

No GHS label element.  
No Signal word.

### 2.3. Other hazards

The product does not contain any ingredient designated as PBT and/or vPvB.

---

## SECTION 3: Composition/information on ingredients

---

### 3.1. Substances

Not applicable.

### 3.2. Mixtures

#### Information on ingredients:

Ingredient name HAZCODE_EU	CAS No. EC No.	Content (%)
Water -	7732-18-5 231-791-2	> 95
Nucleotide A -	CBI CBI	< 0.1
Nucleotide B -	CBI CBI	< 0.1
Nucleotide C -	CBI CBI	< 0.1
Nucleotide D -	CBI CBI	< 0.1

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

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

#### Components contributing to the hazard:

Not contain PBT/vPvB, REACH SVHC listed ingredient.

Not contain CMR, REACH SVHC listed ingredient.

Not contain Health, REACH SVHC listed ingredient.

Not contain Enviro, REACH SVHC listed ingredient.

---

## SECTION 4: First aid measures

---

### 4.1. Description of first aid measures

IF INHALED	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. Seek medical attention if irritation occurs.
IF SWALLOWED	Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.

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

No information available.

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

Treat symptomatically.



---

## **SECTION 5: Firefighting measures**

---

### **5.1. Extinguishing media**

#### **Suitable extinguishing media:**

Use appropriate extinguishing media suitable for surrounding facilities.

### **5.2. Special hazards arising from the substance or mixture**

No information available.

### **5.3. Advice for firefighters**

#### **For specific fire-fighting measures:**

Evacuate non-essential personnel to safe area.

#### **For special protective equipment and precautions for fire-fighters:**

Wear fire/flame resistant/ retardant clothing.

---

## **SECTION 6: Accidental release measures**

---

### **6.1. Personal precautions, protective equipment and emergency procedures**

Wear proper protective equipment.

### **6.2. Environmental precautions**

See SECTION 12 for additional Ecological information.

### **6.3. 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.

### **6.4. Reference to other sections**

Refer to SECTION 8 for personal protection.

Refer to SECTION 13 for disposal information.

---

## **SECTION 7: Handling and storage**

---

### **7.1. Precautions for safe handling**

#### **Safety treatments:**

Avoid contact with skin.

Avoid contact with eyes.

### **7.2. Conditions for safe storage, including any incompatibilities**

#### **Recommendation for storage:**

Store at temperatures not exceeding designated temperature.

Storage temperature upper limit: -20 °C.

### **7.3. Specific end use(s)**

No further relevant information available.

---

## SECTION 8: Exposure controls/personal protection

---

### 8.1. Control parameters

Adopted value No adopted value data available in ACGIH.

### 8.2. Exposure controls

#### Appropriate engineering controls:

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

#### 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.

#### Safety and Health measures:

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.

---

## SECTION 9: Physical and chemical properties

---

### 9.1. Information on basic physical and chemical properties

Appearance	
Physical state	Liquid
Colour	Clear
Odour	None
pH	7 - 8
Flammability	Non-flammable
Solubility	Solubility in water: Soluble

### 9.2. Other information

No information available.

---

## SECTION 10: Stability and reactivity

---

### 10.1. Reactivity

No data available.

### 10.2. Chemical stability

Stable under normal storage/handling conditions.

### 10.3. Possibility of hazardous reactions

No hazardous reaction expected under normal handling.

#### **10.4. Conditions to avoid**

No further relevant information available.

#### **10.5. Incompatible materials**

No further relevant information available.

#### **10.6. Hazardous decomposition products**

No dangerous decomposition products known.

---

### **SECTION 11: Toxicological information**

---

#### **11.1. Information on toxicological effects**

No Acute toxicity data available.  
No Irritant properties (Skin and Eyes) data available.  
No Allergenic and sensitizing effects data available.  
No Mutagenic effects data available.  
No Carcinogenic effects data available.  
No Teratogenic effects data available.  
No reproductive toxicity data available.  
No STOT-single/repeated exposure data available.  
No Aspiration hazard data available.

---

### **SECTION 12: Ecological information**

---

#### **12.1. Ecotoxicity:**

No Aquatic toxicity data available.

#### **12.2. Persistence and degradability:**

No Persistence and degradability data available.

#### **12.3. Bioaccumulative potential:**

No Bioaccumulative potential data available.

#### **12.4. Mobility in soil:**

No Mobility in soil data available.

#### **12.5. Results of PBT and vPvB assessment:**

No PBT and/or vPvB related data available.

#### **12.6. Other adverse effects:**

Ozone depleting chemical data not available.

---

### **SECTION 13: Disposal considerations**

---

#### **13.1. Waste treatment methods**

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

**Contaminated packing:**

Dispose of container after using the contents completely.

---

**SECTION 14: Transport information**

---

**14.1. UN number, UN CLASS**

UN number	Not applicable to UN number.
IMDG Code (International Maritime Dangerous Goods Regulations)	Not applicable to IMDG Code
IATA Dangerous Goods Regulations	Not applicable to IATA Dangerous Goods Regulations

**14.2. UN proper shipping name**

Not applicable.

**14.3. Transport hazard class(es)**

Not applicable.

**14.4. Packing group**

Not applicable.

**14.5. Environmental hazards**

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

**14.6. Special precautions for user**

Not applicable.

**14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code**

Not applicable.

---

**SECTION 15: Regulatory information**

---

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

No data available.

**Other regulatory information:**

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

**15.2. Chemical safety assessment**

No data available.

---

## **SECTION 16: Other information**

---

**The product is not applicable to GHS classifications.**

### **Reference Book:**

Globally Harmonized System of classification and labelling of chemicals, (5th ed., 2013), UN  
Recommendations on the TRANSPORT OF DANGEROUS GOODS 20th edit., 2017 UN  
IMDG Code, 2018 Edition (Incorporating Amendment 39-18)  
IATA Dangerous Goods Regulations (60th Edition) 2019  
Classification, labelling and packaging of substances and mixtures (table3-1 ECNO6182012)  
2016 EMERGENCY RESPONSE GUIDEBOOK(US DOT)  
2019 TLVs and BEIs. (ACGIH)  
<http://monographs.iarc.fr/ENG/Classification/index.php>  
Supplier's data/information  
GESTIS-Stoffdatenbank  
Pub Chem (OPEN CHEMISTRY DATABASE)

### **[Disclaimer]**

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.

The GHS classification data given here is based on current EU official data (EU CLP published in 01.03.2018).

---

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

---

### 1.1. Product identifier

**Product name:** Cysteine  
**Product code:** PF213-6

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

**Recommended uses:** This product is for research and development only.  
**Uses advised against:** No information available.

### 1.3. Details of the supplier of the safety data sheet

**Name of manufacturer :** 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

### 1.4. Emergency telephone number

**Telephone number:** +81-4-7137-6301  
**Opening hours:** 9:15am – 5:55pm Monday – Friday

---

## SECTION 2: Hazards identification

---

### 2.1. Classification of the substance or mixture

Not classified to GHS classification.

### 2.2. Label elements

No GHS label element.  
No Signal word.

### 2.3. Other hazards

The product does not contain any ingredient designated as PBT and/or vPvB.

---

## SECTION 3 : Composition/information on ingredients

---

### 3.1. Substances

Not applicable.

### 3.2. Mixtures

#### Information on ingredients:

Ingredient name	CAS No.	Content (%)
HAZCODE_EU	EC No.	
Water	7732-18-5	> 99
-	231-791-2	
L Cysteine	52-90-4	0.1 - 0.2
-	200-158-2	

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

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

#### Components contributing to the hazard:

Not contain PBT/vPvB, REACH SVHC listed ingredient.

Not contain CMR, REACH SVHC listed ingredient.

Not contain Health, REACH SVHC listed ingredient.

Not contain Enviro, REACH SVHC listed ingredient.

---

## SECTION 4: First aid measures

---

### 4.1. Description of first aid measures

IF INHALED	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. Seek medical attention if irritation occurs.
IF SWALLOWED	Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.

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

No information available.

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

Treat symptomatically.

---

## SECTION 5: Firefighting measures

---

### 5.1. Extinguishing media

#### Suitable extinguishing media:

Use appropriate extinguishing media suitable for surrounding facilities.

## **5.2. Special hazards arising from the substance or mixture**

No information available.

## **5.3. Advice for firefighters**

### **For specific fire-fighting measures:**

Evacuate non-essential personnel to safe area.

### **For special protective equipment and precautions for fire-fighters:**

Wear fire/flame resistant/ retardant clothing.

---

## **SECTION 6: Accidental release measures**

---

### **6.1. Personal precautions, protective equipment and emergency procedures**

Wear proper protective equipment.

### **6.2. Environmental precautions**

See SECTION 12 for additional Ecological information.

### **6.3. 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.

### **6.4. Reference to other sections**

Refer to SECTION 8 for personal protection.

Refer to SECTION 13 for disposal information.

---

## **SECTION 7: Handling and storage**

---

### **7.1. Precautions for safe handling**

#### **Safety treatments:**

Avoid contact with skin.

Avoid contact with eyes.

### **7.2. Conditions for safe storage, including any incompatibilities**

#### **Recommendation for storage:**

Store at temperatures not exceeding designated temperature.

Storage temperature upper limit: -20 °C.

### **7.3. Specific end use(s)**

No further relevant information available.

---

## **SECTION 8: Exposure controls/personal protection**

---

### **8.1. Control parameters**

Adopted value

No adopted value data available in ACGIH.

---



## 8.2. Exposure controls

### Appropriate engineering controls:

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

### 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.

### Safety and Health measures:

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.

---

## SECTION 9: Physical and chemical properties

---

### 9.1. Information on basic physical and chemical properties

Appearance	
Physical state	Liquid
Colour	Clear
Odour	None
pH	7 - 8
Flammability	Non-flammable
Solubility	Solubility in water: Soluble

### 9.2. Other information

No information available.

---

## SECTION 10: Stability and reactivity

---

### 10.1. Reactivity

No data available.

### 10.2. Chemical stability

Stable under normal storage/handling conditions.

### 10.3. Possibility of hazardous reactions

No hazardous reaction expected under normal handling.

### 10.4. Conditions to avoid

No further relevant information available.

#### **10.5. Incompatible materials**

No further relevant information available.

#### **10.6. Hazardous decomposition products**

No dangerous decomposition products known.

---

### **SECTION 11: Toxicological information**

---

#### **11.1. Information on toxicological effects**

No Acute toxicity data available.  
No Irritant properties (Skin and Eyes) data available.  
No Allergenic and sensitizing effects data available.  
No Mutagenic effects data available.  
No Carcinogenic effects data available.  
No Teratogenic effects data available.  
No reproductive toxicity data available.  
No STOT-single/repeated exposure data available.  
No Aspiration hazard data available.

---

### **SECTION 12: Ecological information**

---

#### **12.1. Ecotoxicity:**

No Aquatic toxicity data available.

#### **12.2. Persistence and degradability:**

No Persistence and degradability data available.

#### **12.3. Bioaccumulative potential:**

No Bioaccumulative potential data available.

#### **12.4. Mobility in soil:**

No Mobility in soil data available.

#### **12.5. Results of PBT and vPvB assessment:**

No PBT and/or vPvB related data available.

#### **12.6. Other adverse effects:**

Ozone depleting chemical data not available.

---

### **SECTION 13: Disposal considerations**

---

#### **13.1. Waste treatment methods**

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

#### **Contaminated packing:**

Dispose of container after using the contents completely.

---

---

## **SECTION 14: Transport information**

---

### **14.1. UN number, UN CLASS**

UN number	Not applicable to UN number.
IMDG Code (International Maritime Dangerous Goods Regulations)	Not applicable to IMDG Code
IATA Dangerous Goods Regulations	Not applicable to IATA Dangerous Goods Regulations

### **14.2. UN proper shipping name**

Not applicable.

### **14.3. Transport hazard class(es)**

Not applicable.

### **14.4. Packing group**

Not applicable.

### **14.5. Environmental hazards**

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

### **14.6. Special precautions for user**

Not applicable.

### **14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code**

Not applicable.

---

## **SECTION 15: Regulatory information**

---

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

No data available.

#### **Other regulatory information:**

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

### **15.2. Chemical safety assessment**

No data available.

---

## **SECTION 16: Other information**

---

**The product is not applicable to GHS classifications.**

### **Reference Book:**

Globally Harmonized System of classification and labelling of chemicals, (5th ed., 2013), UN  
Recommendations on the TRANSPORT OF DANGEROUS GOODS 20th edit., 2017 UN  
IMDG Code, 2018 Edition (Incorporating Amendment 39-18)  
IATA Dangerous Goods Regulations (60th Edition) 2019  
Classification, labelling and packaging of substances and mixtures (table3-1 ECNO6182012)  
2016 EMERGENCY RESPONSE GUIDEBOOK(US DOT)  
2019 TLVs and BEIs. (ACGIH)  
<http://monographs.iarc.fr/ENG/Classification/index.php>  
Supplier's data/information  
GESTIS-Stoffdatenbank  
Pub Chem (OPEN CHEMISTRY DATABASE)

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The GHS classification data given here is based on current EU official data (EU CLP published in 01.03.2018).

---

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

---

### 1.1. Product identifier

**Product name:** DTT  
**Product code:** PF213-7

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

**Recommended uses:** This product is for research and development only.  
**Uses advised against:** No information available.

### 1.3. Details of the supplier of the safety data sheet

**Name of manufacturer :** 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

### 1.4. Emergency telephone number

**Telephone number:** +81-4-7137-6301  
**Opening hours:** 9:15am – 5:55pm Monday – Friday

---

## SECTION 2: Hazards identification

---

### 2.1. Classification of the substance or mixture

Not classified to GHS classification.

### 2.2. Label elements

No GHS label element.  
No Signal word.

### 2.3. Other hazards

The product does not contain any ingredient designated as PBT and/or vPvB.

---

## SECTION 3 : Composition/information on ingredients

---

### 3.1. Substances

Not applicable.

### 3.2. Mixtures

#### Information on ingredients:

Ingredient name	CAS No.	Content (%)
HAZCODE_EU	EC No.	
Water	7732-18-5	> 99
-	231-791-2	
DL-Dithiothreitol	3483-12-3	0.5 – 1.0
-	222-468-7	

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

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

#### Components contributing to the hazard:

Not contain PBT/vPvB, REACH SVHC listed ingredient.

Not contain CMR, REACH SVHC listed ingredient.

Not contain Health, REACH SVHC listed ingredient.

Not contain Enviro, REACH SVHC listed ingredient.

---

## SECTION 4: First aid measures

---

### 4.1. Description of first aid measures

IF INHALED	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. Seek medical attention if irritation occurs.
IF SWALLOWED	Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.

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

No information available.

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

Treat symptomatically.

---

## SECTION 5: Firefighting measures

---

### 5.1. Extinguishing media

#### Suitable extinguishing media:

Use appropriate extinguishing media suitable for surrounding facilities.

## **5.2. Special hazards arising from the substance or mixture**

No information available.

## **5.3. Advice for firefighters**

### **For specific fire-fighting measures:**

Evacuate non-essential personnel to safe area.

### **For special protective equipment and precautions for fire-fighters:**

Wear fire/flame resistant/ retardant clothing.

---

## **SECTION 6: Accidental release measures**

---

### **6.1. Personal precautions, protective equipment and emergency procedures**

Wear proper protective equipment.

### **6.2. Environmental precautions**

See SECTION 12 for additional Ecological information.

### **6.3. 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.

### **6.4. Reference to other sections**

Refer to SECTION 8 for personal protection.

Refer to SECTION 13 for disposal information.

---

## **SECTION 7: Handling and storage**

---

### **7.1. Precautions for safe handling**

#### **Safety treatments:**

Avoid contact with skin.

Avoid contact with eyes.

### **7.2. Conditions for safe storage, including any incompatibilities**

#### **Recommendation for storage:**

Store at temperatures not exceeding designated temperature.

Storage temperature upper limit: -20 °C.

### **7.3. Specific end use(s)**

No further relevant information available.

---

## **SECTION 8: Exposure controls/personal protection**

---

### **8.1. Control parameters**

Adopted value

No adopted value data available in ACGIH.

---

## 8.2. Exposure controls

### Appropriate engineering controls:

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

### 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.

### Safety and Health measures:

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.

---

## SECTION 9: Physical and chemical properties

---

### 9.1. Information on basic physical and chemical properties

Appearance	
Physical state	Liquid
Colour	Clear
Odour	Slight characteristic odour
pH	7 - 8
Flammability	Non-flammable
Solubility	Solubility in water: Soluble

### 9.2. Other information

No information available.

---

## SECTION 10: Stability and reactivity

---

### 10.1. Reactivity

No data available.

### 10.2. Chemical stability

Stable under normal storage/handling conditions.

### 10.3. Possibility of hazardous reactions

No hazardous reaction expected under normal handling.

### 10.4. Conditions to avoid

No further relevant information available.



#### **10.5. Incompatible materials**

No further relevant information available.

#### **10.6. Hazardous decomposition products**

No dangerous decomposition products known.

---

### **SECTION 11: Toxicological information**

---

#### **11.1. Information on toxicological effects**

No Acute toxicity data available.  
No Irritant properties (Skin and Eyes) data available.  
No Allergenic and sensitizing effects data available.  
No Mutagenic effects data available.  
No Carcinogenic effects data available.  
No Teratogenic effects data available.  
No reproductive toxicity data available.  
No STOT-single/repeated exposure data available.  
No Aspiration hazard data available.

---

### **SECTION 12: Ecological information**

---

#### **12.1. Ecotoxicity:**

No Aquatic toxicity data available.

#### **12.2. Persistence and degradability:**

No Persistence and degradability data available.

#### **12.3. Bioaccumulative potential:**

No Bioaccumulative potential data available.

#### **12.4. Mobility in soil:**

No Mobility in soil data available.

#### **12.5. Results of PBT and vPvB assessment:**

No PBT and/or vPvB related data available.

#### **12.6. Other adverse effects:**

Ozone depleting chemical data not available.

---

### **SECTION 13: Disposal considerations**

---

#### **13.1. Waste treatment methods**

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

#### **Contaminated packing:**

Dispose of container after using the contents completely.

---

---

## **SECTION 14: Transport information**

---

### **14.1. UN number, UN CLASS**

UN number	Not applicable to UN number.
IMDG Code (International Maritime Dangerous Goods Regulations)	Not applicable to IMDG Code
IATA Dangerous Goods Regulations	Not applicable to IATA Dangerous Goods Regulations

### **14.2. UN proper shipping name**

Not applicable.

### **14.3. Transport hazard class(es)**

Not applicable.

### **14.4. Packing group**

Not applicable.

### **14.5. Environmental hazards**

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

### **14.6. Special precautions for user**

Not applicable.

### **14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code**

Not applicable.

---

## **SECTION 15: Regulatory information**

---

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

No data available.

#### **Other regulatory information:**

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

### **15.2. Chemical safety assessment**

No data available.

---

## **SECTION 16: Other information**

---

**The product is not applicable to GHS classifications.**

### **Reference Book:**

Globally Harmonized System of classification and labelling of chemicals, (5th ed., 2013), UN  
Recommendations on the TRANSPORT OF DANGEROUS GOODS 20th edit., 2017 UN  
IMDG Code, 2018 Edition (Incorporating Amendment 39-18)  
IATA Dangerous Goods Regulations (60th Edition) 2019  
Classification, labelling and packaging of substances and mixtures (table3-1 ECNO6182012)  
2016 EMERGENCY RESPONSE GUIDEBOOK(US DOT)  
2019 TLVs and BEIs. (ACGIH)  
<http://monographs.iarc.fr/ENG/Classification/index.php>  
Supplier's data/information  
GESTIS-Stoffdatenbank  
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## SECTION 1: Identification of the substance/mixture and of the company/undertaking

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### 1.1. Product identifier

**Product name:** GSH  
**Product code:** PF213-8

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

**Recommended uses:** This product is for research and development only.  
**Uses advised against:** No information available.

### 1.3. Details of the supplier of the safety data sheet

**Name of manufacturer :** 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

### 1.4. Emergency telephone number

**Telephone number:** +81-4-7137-6301  
**Opening hours:** 9:15am – 5:55pm Monday – Friday

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## SECTION 2: Hazards identification

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### 2.1. Classification of the substance or mixture

Not classified to GHS classification.

### 2.2. Label elements

No GHS label element.  
No Signal word.

### 2.3. Other hazards

The product does not contain any ingredient designated as PBT and/or vPvB.

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## SECTION 3 : Composition/information on ingredients

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### 3.1. Substances

Not applicable.

### 3.2. Mixtures

#### Information on ingredients:

Ingredient name	CAS No.	Content (%)
HAZCODE_EU	EC No.	
Water	7732-18-5	> 97
-	231-791-2	
L-Glutathione reduced	70-18-8	2 - 3
-	200-725-4	

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

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

#### Components contributing to the hazard:

Not contain PBT/vPvB, REACH SVHC listed ingredient.

Not contain CMR, REACH SVHC listed ingredient.

Not contain Health, REACH SVHC listed ingredient.

Not contain Enviro, REACH SVHC listed ingredient.

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## SECTION 4: First aid measures

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### 4.1. Description of first aid measures

IF INHALED	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. Seek medical attention if irritation occurs.
IF SWALLOWED	Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.

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

No information available.

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

Treat symptomatically.

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## SECTION 5: Firefighting measures

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### 5.1. Extinguishing media

#### Suitable extinguishing media:

Use appropriate extinguishing media suitable for surrounding facilities.

## **5.2. Special hazards arising from the substance or mixture**

No information available.

## **5.3. Advice for firefighters**

### **For specific fire-fighting measures:**

Evacuate non-essential personnel to safe area.

### **For special protective equipment and precautions for fire-fighters:**

Wear fire/flame resistant/ retardant clothing.

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## **SECTION 6: Accidental release measures**

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### **6.1. Personal precautions, protective equipment and emergency procedures**

Wear proper protective equipment.

### **6.2. Environmental precautions**

See SECTION 12 for additional Ecological information.

### **6.3. 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.

### **6.4. Reference to other sections**

Refer to SECTION 8 for personal protection.

Refer to SECTION 13 for disposal information.

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## **SECTION 7: Handling and storage**

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### **7.1. Precautions for safe handling**

#### **Safety treatments:**

Avoid contact with skin.

Avoid contact with eyes.

### **7.2. Conditions for safe storage, including any incompatibilities**

#### **Recommendation for storage:**

Store at temperatures not exceeding designated temperature.

Storage temperature upper limit: -20 °C.

### **7.3. Specific end use(s)**

No further relevant information available.

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## **SECTION 8: Exposure controls/personal protection**

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### **8.1. Control parameters**

Adopted value

No adopted value data available in ACGIH.

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## 8.2. Exposure controls

### Appropriate engineering controls:

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

### 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.

### Safety and Health measures:

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.

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## SECTION 9: Physical and chemical properties

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### 9.1. Information on basic physical and chemical properties

Appearance	
Physical state	Liquid
Colour	Clear
Odour	None
pH	7 - 8
Flammability	Non-flammable
Solubility	Solubility in water: Soluble

### 9.2. Other information

No information available.

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## SECTION 10: Stability and reactivity

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### 10.1. Reactivity

No data available.

### 10.2. Chemical stability

Stable under normal storage/handling conditions.

### 10.3. Possibility of hazardous reactions

No hazardous reaction expected under normal handling.

### 10.4. Conditions to avoid

No further relevant information available.

#### **10.5. Incompatible materials**

No further relevant information available.

#### **10.6. Hazardous decomposition products**

No dangerous decomposition products known.

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### **SECTION 11: Toxicological information**

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#### **11.1. Information on toxicological effects**

No Acute toxicity data available.  
No Irritant properties (Skin and Eyes) data available.  
No Allergenic and sensitizing effects data available.  
No Mutagenic effects data available.  
No Carcinogenic effects data available.  
No Teratogenic effects data available.  
No reproductive toxicity data available.  
No STOT-single/repeated exposure data available.  
No Aspiration hazard data available.

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### **SECTION 12: Ecological information**

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#### **12.1. Ecotoxicity:**

No Aquatic toxicity data available.

#### **12.2. Persistence and degradability:**

No Persistence and degradability data available.

#### **12.3. Bioaccumulative potential:**

No Bioaccumulative potential data available.

#### **12.4. Mobility in soil:**

No Mobility in soil data available.

#### **12.5. Results of PBT and vPvB assessment:**

No PBT and/or vPvB related data available.

#### **12.6. Other adverse effects:**

Ozone depleting chemical data not available.

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### **SECTION 13: Disposal considerations**

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#### **13.1. Waste treatment methods**

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

#### **Contaminated packing:**

Dispose of container after using the contents completely.

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## **SECTION 14: Transport information**

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### **14.1. UN number, UN CLASS**

UN number	Not applicable to UN number.
IMDG Code (International Maritime Dangerous Goods Regulations)	Not applicable to IMDG Code
IATA Dangerous Goods Regulations	Not applicable to IATA Dangerous Goods Regulations

### **14.2. UN proper shipping name**

Not applicable.

### **14.3. Transport hazard class(es)**

Not applicable.

### **14.4. Packing group**

Not applicable.

### **14.5. Environmental hazards**

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

### **14.6. Special precautions for user**

Not applicable.

### **14.7. Transport in bulk according to Annex II of MARPOL 73/78 and IBC code**

Not applicable.

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## **SECTION 15: Regulatory information**

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

No data available.

#### **Other regulatory information:**

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

### **15.2. Chemical safety assessment**

No data available.

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## **SECTION 16: Other information**

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**The product is not applicable to GHS classifications.**

### **Reference Book:**

Globally Harmonized System of classification and labelling of chemicals, (5th ed., 2013), UN  
Recommendations on the TRANSPORT OF DANGEROUS GOODS 20th edit., 2017 UN  
IMDG Code, 2018 Edition (Incorporating Amendment 39-18)  
IATA Dangerous Goods Regulations (60th Edition) 2019  
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