

## Material Safety Data Sheet

### FavorPrep™ Plant Total RNA Mini Kit

| <b>Cat. No.:</b>            | <b>FAPRK 000-Mini<br/>(4 preps)</b> | <b>FAPRK 001<br/>(50 preps)</b> | <b>FAPRK 001-1<br/>(100 preps)</b> | <b>FAPRK 001-2<br/>(300 preps)</b> |
|-----------------------------|-------------------------------------|---------------------------------|------------------------------------|------------------------------------|
| <b>Contents</b>             |                                     |                                 |                                    |                                    |
| FARB Buffer                 | 1.5 ml × 2                          | 30 ml                           | 60 ml                              | 170 ml                             |
| FAPRB Buffer                | 1.5 ml × 2                          | 30 ml                           | 60 ml                              | 170 ml                             |
| Wash Buffer 1               | 1.5 ml × 2                          | 30 ml                           | 60 ml                              | 170 ml                             |
| Wash Buffer 2 (Concentrate) | 1.5 ml                              | 20 ml                           | 35 ml                              | 50 ml × 2                          |
| RNase-Free Water            | 0.5 ml                              | 6 ml                            | 6 ml                               | 8 ml × 2                           |

**Favorgen Biotech Corp.**

Address: Ping-Tung Agricultural Biotechnology Park  
No. 8-1, Yuanxi 2<sup>nd</sup> Road, Ping Tung 908126,  
TAIWAN

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# Material Safety Data Sheet

According to Regulation (EC) No 1907/2006



## Section 1. IDENTIFICATION

### 1.1 Product Identifier

Commercial Product Name: **FARB Buffer**

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

Product form: Laboratory chemical mixture/Lysis Buffer

Relevant identified uses: For research use only, not for diagnostic use.

Uses advised against:  
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### 1.3 Details of the supplier of the safety data sheet

Company: Favorgen Biotech Corp.

Address: Ping-Tung Agricultural Biotechnology Park No. 8-1, Yuanxi 2<sup>nd</sup> Road, Ping Tung 908126, TAIWAN

Phone Number: +886-8-762-1829

### 1.4 Emergency telephone number

+886-8-762-1829

## Section 2. HAZARDS IDENTIFICATION

### 2.2 Classification of the substance or mixture

Hazard identification Hazard classes/categories

|   |             |
|---|-------------|
| Acute toxicity, oral, dermal and inhalation | Category 4  |
| Skin corrosion                              | Category 1C |
| Serious eye damage                          | Category 1  |

GHS hazard pictograms:



GHS02



GHS07

Signal word: **DANGER**

Hazard statement(s)

H302+H312+H332

H314

H318

Harmful if swallowed, in contact with skin or if inhaled.

Causes severe skin burns and eye damage.

Causes serious eye damage.

Precautionary statement(s)

P280

Wear protective gloves/protective clothing/eye protection/face protection.

P301+P330+P331

IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P302+P352

IF ON SKIN: Wash with plenty of soap and water.

P304+P340

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308+P311

IF exposed or concerned: Immediately call a POISON CENTER/doctor.

### 2.2 Label elements

According to section 1.5.2 of Annex I to CLP

GHS symbol



GHS02



GHS07

DANGER

### 2.3 Other hazards

Not applicable.

## Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances or 3.2 Mixtures

# Material Safety Data Sheet

According to Regulation (EC) No 1907/2006



Chemical **Guanidinium thiocyanate** CAS No.: 593-84-0  
Concentration: 20~50%  
Classification: H302+H312+H332, Acute oral Tox, 4  
H314, Skin corr., 1C  
H318, Eye Dam, 1

Chemical **Acetic acid** CAS No.: 64-19-7  
Concentration: 0.1~1%  
Classification: H314, Skin corr., 1A

Always wear recommended Personal Protective Equipment.

## Section 4. FIRST AID MEASURES

### 4.1 Description of first-aid measures

If inhaled

After inhalation: Fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.

In case of skin contact

After skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower.

In case of eye contact

After eye contact: Rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed

After swallowing: Immediately make victim drink water (two glasses at most). Consult a physician.

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

Symptoms. Burning sensation. Note to physicians Treat symptomatically.

H302 - Harmful if swallowed.

H314 - Causes severe skin burns and eye damage.

H318 - Causes serious eye damage.

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

No data available.

## Section 5. FIRE-FIGHTING MEASURES

### 5.1 Extinguishing media

Suitable Extinguishing media: water foam carbon dioxide (CO<sub>2</sub>) dry powder; All extinguishers can be used.

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

None known.

### 5.3 Advice for firefighters

No specific fire or explosion hazard.

### 5.4 Additional Information

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## Section 6. ACCIDENTAL RELEASE MEASURE

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

Do not breathe vapours/Ensure adequate ventilation/Avoid contact with skin, eyes or clothing/ Use personal protection equipment/Regular staff training is necessary.

### 6.2 Environmental precautions

Do not allow mixture to enter ground water system.

### 6.3 Methods and material for containment and cleaning up

Soak up with inert absorbent material.

### 6.4 Reference to other sections

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## Section 7. HANDLING AND STORAGE

# Material Safety Data Sheet

According to Regulation (EC) No 1907/2006



## 7.1 Precautions for safe handling

Always wear recommended Personal Protective Equipment.

## 7.2 Conditions for safe storage, including any incompatibilities

Keep in a dry, cool, and well-ventilated place.

## 7.3 Specific end use(s)

For research use only.

## Section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters:

#### Ingredients with workplace control parameters

Chemical: **Acetic acid**

CAS No.: 64-19-7

NIOSH: REL (TWA) (mg/m<sup>3</sup>) 25 mg/m<sup>3</sup>

NIOSH: REL (TWA) (ppm) 10 ppm

NIOSH: REL (STEL) (mg/m<sup>3</sup>) 37.5 mg/m<sup>3</sup>

NIOSH: REL (STEL) (ppm) 15 ppm

### 8.2 Exposure controls

Good ventilation and exhaust system in the workplace, and the floor has drainage and washing facilities, which can resist the erosion of chemicals. Must maintain the highest level of cleanliness in the workplace.

#### Personal protective equipment

**Eye/face protection:** Safety glasses. Used to prevent splash hazards. Government standards such as NIOSH (US) or EN 166(EU). Safety glasses.

**Skin protection:** Recommended to avoid contamination with these hazards.

**Hand protection:** Protective gloves, Use for short times chemical resistant latex gloves with code EN 374-3 level 1.

**Respiratory protection:** Not necessary, if the workplace is well-ventilated.

**Personal Hygiene:** Wash hands before breaks and at the end of work. Handle in accordance with good industrial hygiene and safety practice.

## Section 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Appearance: liquid/Odor: characteristic/pH: 4.0~5.0

### 9.2 Other information

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## Section 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available.

### 10.2 Chemical stability

Decompositions are not observed during the expiration period under recommended conditions.

### 10.3 Possibility of hazardous reactions

Note: Thiocyanates can develop poisonous gas in contact with strong acids. Keep away from oxidizing agents, and acidic or alkaline.

### 10.4 Conditions to avoid

Not necessary.

### 10.5 Incompatible materials

Note: Avoid contact with strong acids or alkalines.

### 10.6 Hazardous decomposition products

Decompositions are not observed during the expiration period under recommended conditions.

## Section 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

# Material Safety Data Sheet

According to Regulation (EC) No 1907/2006



## Acute toxicity

Harmful if swallowed.

| Chemical Name                                | Oral LD50 (Rat) | Dermal LD50 (Rabbit) | Inhalation LC50 (Rat)                  |
|--|-----------------|----------------------|--|
| Guanidinium thiocyanate<br>CAS No.: 593-84-0 | 1,578 mg/kg     | 2,926 mg/kg          | 29.26 mg/l<br>Exposure time: 4 h/vapor |
| Acetic acid<br>CAS No.: 64-19-7              | 3310 mg/kg      | 1,016 mg/kg          | 11.4 mg/l                              |

### Skin corrosion/irritation

### Serious eye damage/irritation

### Respiratory or skin sensitization

### Germ cell mutagenicity

### Carcinogenicity

### Reproductive toxicity

### Specific target organ toxicity (STOT) – single exposure

### Specific target organ toxicity (STOT) – repeated exposure

### Aspiration hazard

Causes skin irritation.

Causes eye damage.

Not Classified

Not Classified

Not Classified

Not Classified

May cause drowsiness or dizziness.

Not Classified

Not Classified

## 11.2 Information on other hazards

No data available.

## Section 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

Following information is valid for pure substances.

#### Guanidinium thiocyanate

CAS No.: 593-84-0LC50

Toxicity to fish:

LC50 (Poecilia reticulata (guppy)): 89.1 mg/l

Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:

EC50 (Daphnia): 42.4 mg/l

Exposure time: 48 h

Toxicity to fish (Chronic toxicity):

NOEC (Poecilia reticulata (guppy)): 25 mg/l

Exposure time: 96 d

### 12.2 Persistence and degradability

No data available.

### 12.3 Bioaccumulative potential

No data available.

### 12.4 Mobility in soil

No data available.

### 12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

### 12.6 Endocrine disrupting properties

No data available.

### 12.7 Other adverse effects

No additional data available.

## Section 13. DISPOSAL CONSIDERATIONS

Refer to local regulations.

### 13.1 Waste treatment methods

Dispose of contents/container in accordance with local regulation.

Empty containers should be taken to an approved waste handling site for recycling or disposal.

## Section 14. TRANSPORT INFORMATION

# Material Safety Data Sheet

According to Regulation (EC) No 1907/2006



## 14.1 UN number

ADR/RID: -

IMDG: -

IATA: -

## 14.2 UN proper shipping name

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IMDG: Not dangerous goods

## 14.3 Transport hazard class(es)

ADR/RID: -

IMDG: -

IATA: -

## 14.4 Packaging group

ADR/RID: -

IMDG: -

IATA: -

## 14.5 Environmental hazards

ADR/RID: No

IMDG Marine pollutant: No

IATA-DGR: No

## 14.6 Special precautions for user

None.

## 14.7 Maritime transport in bulk according to IMO instruments

Not Applicable.

### Further information

Not classified as dangerous in transport regulations.

## Section 15. REGULATIONS INFORMATION

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

Look for your country-specific regulations.

### 15.2 Chemical safety assessment

Not necessary.

## Section 16. REGULATIONS INFORMATION

### 16.1 List of R, H and P phrases

Full text of H-Statements referred to under sections 2 and 3.

### 16.2 Training Advice

Regular safety training.

### 16.3 Recommended Restriction on Use

Only for professional/research user.

## Section 1. IDENTIFICATION

### 1.1 Product Identifier

Commercial Product Name: **FAPRB Buffer**

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

Product form: Laboratory chemical mixture/Lysis Buffer

Relevant identified uses: For research use only, not for diagnostic use.

Uses advised against:

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

Company: Favorgen Biotech Corp.

Address: Ping-Tung Agricultural Biotechnology Park No. 8-1, Yuanxi 2<sup>nd</sup> Road, Ping Tung 908126, TAIWAN

Phone Number: +886-8-762-1829

# Material Safety Data Sheet

According to Regulation (EC) No 1907/2006



**1.4 Emergency telephone number**  
+886-8-762-1829

## Section 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

Hazard identification Hazard classes/categories

|                                   |            |
|-----------------------------------|------------|
| Acute oral toxicity               | Category 4 |
| Skin corrosion/irritation         | Category 2 |
| Serious eye damage/eye irritation | Category 2 |

GHS hazard pictograms:



GHS07

Signal word: **WARNING**

Hazard statement(s)

|      |  |
|------|--|
| H302 | Harmful if swallowed                               |
| H315 | Causes skin irritation                             |
| H319 | Causes serious eye irritation.                     |
| H412 | Harmful to aquatic life with long lasting effects. |

Precautionary statement(s)

|                    |   |
|--------------------|---|
| P264               | Wash hands thoroughly after handling  |
| P270               | Do not eat, drink or smoke when using this product  |
| P273               | Avoid release to the environment  |
| P280               | Wear protective gloves/protective clothing/eye protection/face protection   |
| P330               | Rinse mouth   |
| P301 + P310        | IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician  |
| P332 + P313        | IF SKIN irritation occurs: Get medical advice/attention.  |
| P302 + P352        | IF ON SKIN: Wash with plenty of soap and water  |
| P305 + P351 + P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing |

### 2.2 Label elements

According to section 1.5.2 of Annex I to CLP

GHS symbol



GHS07

WARNING

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

## Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances or 3.2 Mixtures

Chemical: **Guanidine hydrochloride** CAS No.: 50-01-1  
Concentration: 36~50%  
Classification: H302, Acute oral Tox. 4  
H315, Skin Irritation 2  
H319, Eye Irritation 2

Chemical: **Polyoxyethylene sorbitan monolaurate (Tween® 20)** CAS No.: 9005-64-5  
Concentration: 1~10%  
Classification: No criteria for classification or naming of chemical not required.

## Section 4. FIRST AID MEASURES

### 4.1 Description of first-aid measures

**If inhaled**

After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.

**In case of skin contact**

After skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower.

# Material Safety Data Sheet

According to Regulation (EC) No 1907/2006



## In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

## If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

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

H302 - Harmful if swallowed.

H315 - Causes skin irritation.

H319 - Causes serious eye irritation.

H412 - Harmful to aquatic life.

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

No data available

## Section 5. FIRE-FIGHTING MEASURES

### 5.1 Extinguishing media

All extinguishers can be used.

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

None known.

### 5.3 Advice for firefighters

No specific fire or explosion hazard.

### 5.4 Additional Information

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## Section 6. ACCIDENTAL RELEASE MEASURE

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

Do not breathe vapours/Ensure adequate ventilation/Avoid contact with skin, eyes or clothing/Use personal protection equipment/Regular staff training is necessary.

### 6.2 Environmental precautions

Do not allow mixture to enter ground water system.

### 6.3 Methods and material for containment and cleaning up

Soak up with inert absorbent material.

### 6.4 Reference to other sections

---

## Section 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Always wear recommended Personal Protective Equipment.

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

Keep in a dry, cool, and well-ventilated place.

### 7.3 Specific end use(s)

For research use only.

## Section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters: None

Chemical: Guanidine hydrochloride

CAS No.: 50-01-1

NIOSH: not listed

OSHA: not listed

Chemical: Polyoxyethylene sorbitan monolaurate

CAS No.: 9005-64-5



# Material Safety Data Sheet

According to Regulation (EC) No 1907/2006



## 8.2 Exposure controls

Good ventilation and exhaust system in the workplace, and the floor has drainage and washing facilities, which can resist the erosion of chemicals. Must maintain the highest level of cleanliness in the workplace.

### Personal protective equipment

**Eye/face protection:** Safety glasses. Used to prevent splash hazards. Government standards such as NIOSH (US) or EN 166(EU).

**Skin protection:** Recommended to avoid contamination with these hazards.

**Hand protection:** Protective gloves, use for short times chemical resistant latex gloves with code EN 374-3 level 1.

**Respiratory protection:** Not necessary, if the workplace is well-ventilated.

**Personal Hygiene:** Wash hands before breaks and at the end of work. Handle in accordance with good industrial hygiene and safety practice.

## Section 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Appearance: liquid/Color: slightly yellow/Odor: odorless/pH: 5.5~6.5

### 9.2 Other information

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## Section 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available.

### 10.2 Chemical stability

No data available.

### 10.3 Possibility of hazardous reactions

**Note:** Can form very reactive substances with oxidizing agents.

### 10.4 Conditions to avoid

Not necessary.

### 10.5 Incompatible materials

**Note:** Avoid contact with strong acids or alkalines.

### 10.6 Hazardous decomposition products

Decompositions are not observed during the expiration period under recommended conditions.

## Section 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

Acute toxicity

Not Classified

| Chemical Name   | Oral LD50 (Rat)      | Dermal LD50 (Rabbit) | Inhalation LC50 (Rat)            |
|---|----------------------|----------------------|----------------------------------|
| Guanidine hydrochloride<br>CAS No.: 50-01-1                   | 475-907 mg/kg        | 2000 mg/kg           | [4h] 3181-7655 µg/m <sup>3</sup> |
| Polyoxyethylene sorbitan<br>monolaurate<br>CAS No.: 9005-64-5 | No data<br>available | No data available    | No data available                |

**Skin corrosion/irritation**

Skin irritation/ Irritating to eyes

**Serious eye damage/irritation**

Not Classified

**Respiratory or skin sensitization**

Not Classified

**Germ cell mutagenicity**

Not Classified

**Carcinogenicity**

Not Classified

**Reproductive toxicity**

Not Classified

**Specific target organ toxicity (STOT) – single exposure**

Not Classified

**Specific target organ toxicity (STOT) – repeated exposure**

Not Classified

**Aspiration hazard**

Not Classified

# Material Safety Data Sheet

According to Regulation (EC) No 1907/2006



## 11.2 Information on other hazards

No data available.

## Section 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

Following information is valid for pure substances.

Chemical: Guanidine hydrochloride

CAS No.: 50-01-1

LC50leuciscus idus/96h: 1759 mg/L

WGK (DE): 1 WGK No.: 0788

Storage class (VCI): 12

Chemical: Polyoxyethylene sorbitan monolaurate (Tween® 20)

CAS No.: 9005-64-5

WGK (DE): 1

Storage class (VCI): 10-11

### 12.2 Persistence and degradability

No data available.

### 12.3 Bioaccumulative potential

No data available.

### 12.4 Mobility in soil

No data available.

### 12.5 Results of PBT and vPvB assessment

No data available.

### 12.6 Endocrine disrupting properties

No data available.

### 12.7 Other adverse effects

No data available.

## Section 13. DISPOSAL CONSIDERATIONS

Refer to local regulations.

### 13.1 Waste treatment methods

Dispose of contents/container in accordance with local regulation.

Empty containers should be taken to an approved waste handling site for recycling or disposal.

## Section 14. TRANSPORT INFORMATION

### 14.1 UN number

ADR/RID: -

IMDG: -

IATA: -

### 14.2 UN proper shipping name

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IMDG: Not dangerous goods

### 14.3 Transport hazard class(es)

ADR/RID: -

IMDG: -

IATA: -

### 14.4 Packaging group

ADR/RID: -

IMDG: -

IATA: -

### 14.5 Environmental hazards

ADR/RID: No

IMDG Marine pollutant: No

IATA-DGR: No

### 14.6 Special precautions for user

None.

# Material Safety Data Sheet

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## 14.7 Maritime transport in bulk according to IMO instruments

Not applicable.

### Further information

Not classified as dangerous in transport regulations.

## Section 15. REGULATIONS INFORMATION

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

Look for your country-specific regulations.

### 15.2 Chemical safety assessment

Not necessary.

## Section 16. OTHER INFORMATION

### 16.1 List of R, H and P phrases

Full text of H-Statements referred to under sections 2 and 3.

### 16.2 Training Advice

Regular safety training.

### 16.3 Recommended Restriction on Use

Only for professional/research user.

## Section 1. IDENTIFICATION

### 1.1 Product Identifier

Commercial Product Name: Wash Buffer 1

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

Product form: Laboratory chemical mixture

Relevant identified uses: For research use only, not for diagnostic use.

Uses advised against:

-----

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

Company: Favorgen Biotech Corp.

Address: Ping-Tung Agricultural Biotechnology Park No. 8-1, Yuanxi 2<sup>nd</sup> Road, Ping Tung 908126, TAIWAN

Phone Number: +886-8-762-1829

### 1.4 Emergency telephone number

+886-8-762-1829

## Section 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

Hazard identification Hazard classes/categories

|                                   |            |
|-----------------------------------|------------|
| Acute oral toxicity               | Category 4 |
| Skin corrosion/irritation         | Category 2 |
| Serious eye damage/eye irritation | Category 2 |

GHS hazard pictograms:



GHS07

Signal word: **WARNING**

Hazard statement(s)

H302

Harmful if swallowed

# Material Safety Data Sheet

According to Regulation (EC) No 1907/2006



|                            |   |
|----------------------------|---|
| H315                       | Causes skin irritation  |
| H319                       | Causes serious eye irritation   |
| H412                       | Harmful to aquatic life with long lasting effects   |
| Precautionary statement(s) |   |
| P264                       | Wash hands thoroughly after handling  |
| P270                       | Do not eat, drink or smoke when using this product  |
| P273                       | Avoid release to the environment  |
| P280                       | Wear protective gloves/protective clothing/ eye protection/ face protection   |
| P301 + P310                | IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician  |
| P302 + P352                | IF ON SKIN: Wash with plenty of soap and water  |
| P305 + P351 + P338         | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing |
| P330                       | Rinse mouth   |
| P332 + P313                | If skin irritation occurs: Get medical advice/attention   |

## 2.2 Label elements

According to section 1.5.2 of Annex I to CLP

GHS symbol



WARNING

Hazard contents

Guanidine hydrochloride, 36~50%, CAS-No. 50-01-1

## 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

## Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances or 3.2 Mixtures

|                 |  |                  |
|-----------------|--|------------------|
| Chemical:       | <b>Guanidine hydrochloride</b>   | CAS No.: 50-01-1 |
| Concentration:  | 36~50%   |                  |
| Classification: | H302, Acute oral Tox. 4,<br>H315, Skin Irrit. 2,<br>H319, Eye Irrit. 2 |                  |

## Section 4. FIRST AID MEASURES

### 4.1 Description of first-aid measures

#### If inhaled

After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.

#### In case of skin contact

After skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower.

#### In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

#### If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

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

H302 - Harmful if swallowed.  
H315 - Causes skin irritation.  
H319 - Causes serious eye irritation.  
H412 - Harmful to aquatic life.

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

No data available.

## Section 5. FIRE-FIGHTING MEASURES

### 5.1 Extinguishing media

# Material Safety Data Sheet

According to Regulation (EC) No 1907/2006



All extinguishers can be used.

## 5.2 Special hazards arising from the substance or mixture

None known.

## 5.3 Advice for firefighters

No specific fire or explosion hazard.

## 5.4 Additional Information

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## Section 6. ACCIDENTAL RELEASE MEASURE

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

Do not breathe vapours/Ensure adequate ventilation/Avoid contact with skin, eyes or clothing/Use personal protection equipment/Regular staff training is necessary.

### 6.2 Environmental precautions

Do not allow mixture to enter ground water system.

### 6.3 Methods and material for containment and cleaning up

Soak up with inert absorbent material.

### 6.4 Reference to other sections

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## Section 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Always wear recommended Personal Protective Equipment.

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

Keep in a dry, cool, and well-ventilated place.

### 7.3 Specific end use(s)

For research use only.

## Section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters: None

Chemical: Guanidine hydrochloride  
NIOSH: not listed  
OSHA: not listed

CAS No.: 50-01-1

### 8.2 Exposure controls

Good ventilation and exhaust system in the workplace, and the floor has drainage and washing facilities, which can resist the erosion of chemicals. Must maintain the highest level of cleanliness in the workplace.

#### Personal protective equipment

**Eye/face protection:** Safety glasses. Used to prevent splash hazards. Government standards such as NIOSH (US) or EN 166(EU).

**Skin protection:** Recommended to avoid contamination with these hazards.

**Hand protection:** Protective gloves, use for short times chemical resistant latex gloves with code EN 374-3 level 1.

**Respiratory protection:** Not necessary, if the workplace is well-ventilated.

**Personal Hygiene:** Wash hands before breaks and at the end of work. Handle in accordance with good industrial hygiene and safety practice.

## Section 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Appearance: liquid/Color: clear/Odor: odorless/pH: 4.0~4.5

# Material Safety Data Sheet

According to Regulation (EC) No 1907/2006



## 9.2 Other information

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## Section 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available.

### 10.2 Chemical stability

No data available.

### 10.3 Possibility of hazardous reactions

**Note:** Can form very reactive substances with oxidizing agents.

### 10.4 Conditions to avoid

Not necessary.

### 10.5 Incompatible materials

**Note:** Avoid contact with strong acids or alkalines.

### 10.6 Hazardous decomposition products

Decompositions are not observed during the expiration period under recommended conditions.

## Section 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

Not Classified

| Chemical Name                               | Oral LD50 (Rat) | Dermal LD50 (Rabbit) | Inhalation LC50 (Rat)            |
|---|-----------------|----------------------|----------------------------------|
| Guanidine hydrochloride<br>CAS No.: 50-01-1 | 475-907 mg/kg   | 2000 mg/kg           | [4h] 3181-7655 µg/m <sup>3</sup> |

#### Skin corrosion/irritation

Skin irritation/Irritating to eyes

#### Serious eye damage/irritation

Not Classified

#### Respiratory or skin sensitization

Not Classified

#### Germ cell mutagenicity

Not Classified

#### Carcinogenicity

Not Classified

#### Reproductive toxicity

Not Classified

#### Specific target organ toxicity (STOT) – single exposure

Not Classified

#### Specific target organ toxicity (STOT) – repeated exposure

Not Classified

#### Aspiration hazard

Not Classified

### 11.2 Information on other hazards

No data available.

## Section 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

Following information is valid for pure substances.

Guanidine hydrochloride

CAS No.: 50-01-1

LC50leuciscus idus/96h: 1759 mg/L

WGK (DE): 1 WGK No.: 0788

Storage class (VCI): 12

### 12.2 Persistence and degradability

No data available.

### 12.3 Bioaccumulative potential

No data available.

### 12.4 Mobility in soil

No data available.

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## 12.5 Results of PBT and vPvB assessment

No data available.

## 12.6 Endocrine disrupting properties

No data available.

## 12.7 Other adverse effects

No data available.

## Section 13. DISPOSAL CONSIDERATIONS

Refer to local regulations.

### 13.1 Waste treatment methods

Dispose of contents/container in accordance with local regulation.

Empty containers should be taken to an approved waste handling site for recycling or disposal.

## Section 14. TRANSPORT INFORMATION

### 14.1 UN number

ADR/RID: -

IMDG: -

IATA: -

### 14.2 UN proper shipping name

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IMDG: Not dangerous goods

### 14.3 Transport hazard class(es)

ADR/RID: -

IMDG: -

IATA: -

### 14.4 Packaging group

ADR/RID: -

IMDG: -

IATA: -

### 14.5 Environmental hazards

ADR/RID: No

IMDG Marine pollutant: No

IATA-DGR: No

### 14.6 Special precautions for user

None.

### 14.7 Maritime transport in bulk according to IMO instruments

Not Applicable.

#### Further information

Not classified as dangerous in transport regulations.

## Section 15. REGULATIONS INFORMATION

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

Look for your country-specific regulations.

### 15.2 Chemical safety assessment

Not necessary.

## Section 16. OTHER INFORMATION

### 16.1 List of R, H and P phrases

Full text of H-Statements referred to under sections 2 and 3.

### 16.2 Training Advice

Regular safety training.

### 16.3 Recommended Restriction on Use

Only for professional/research user.

# Material Safety Data Sheet

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## Section 1. IDENTIFICATION

### 1.1 Product Identifier

Commercial Product Name: Wash Buffer 2

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

Product form: Laboratory chemical mixture

Relevant identified uses: For research use only, not for diagnostic use.

Uses advised against:

-----

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

Company: Favorgen Biotech Corp.

Address: Ping-Tung Agricultural Biotechnology Park No. 8-1, Yuanxi 2<sup>nd</sup> Road, Ping Tung 908126, TAIWAN

Phone Number: +886-8-762-1829

### 1.4 Emergency telephone number

+886-8-762-1829

## Section 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

No hazardous substance as specified in Regulation (EC) No 1272/2008.

### 2.2 Label elements

Does not need labelling as hazardous.

### 2.3 Other hazards

Not applicable.

## Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances or 3.2 Mixtures

Chemical: chemicals/mixture < 1%, no declaration necessary CAS No.: -----

Concentration: 0.1 - <1%

## Section 4. FIRST AID MEASURES

### 4.1 Description of first-aid measures

#### If inhaled

Supply fresh air.

#### In case of skin contact

Remove contaminated clothing. Rinse skin with water/shower.

#### In case of eye contact

Rinse out with plenty of water.

#### If swallowed

Consult a doctor if feeling 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

No information available.

## Section 5. FIRE-FIGHTING MEASURES

### 5.1 Extinguishing media

All extinguishers can be used.



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## 5.2 Special hazards arising from the substance or mixture

None.

## 5.3 Advice for firefighters

No explosion hazard.

## 5.4 Additional Information

---

## Section 6. ACCIDENTAL RELEASE MEASURE

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

Ensure adequate ventilation.

### 6.2 Environmental precautions

Do not allow mixture to enter ground water system.

### 6.3 Methods and material for containment and cleaning up

Soak up with inert absorbent material.

### 6.4 Reference to other sections

---

## Section 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Always wear recommended Personal Protective Equipment.

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

Keep container tightly closed in a dry and well-ventilated place.

### 7.3 Specific end use(s)

For research use only.

## Section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters:

Contains no substances with occupational exposure limit.

### 8.2 Exposure controls

#### Personal protective equipment

**Personal Hygiene:** Wash hands before breaks and at the end of work. Handle in accordance with good industrial hygiene and safety practice.

**Eye/face protection:** Tight sealing safety glasses.

**Hand protection:** Protective gloves.

**Respiratory protection:** Not necessary, if the workplace is well-ventilated.

## Section 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Appearance: liquid/Color: clear/Odor: odorless/pH: 8.0~8.8

### 9.2 Other information

---

## Section 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

None.

### 10.2 Chemical stability

No data available.

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## 10.3 Possibility of hazardous reactions

None.

## 10.4 Conditions to avoid

Not necessary.

## 10.5 Incompatible materials

None.

## 10.6 Hazardous decomposition products

Decompositions are not observed during the expiration period under recommended conditions.

## Section 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

|   |                |
|---|----------------|
| Acute toxicity  | Not Classified |
| Skin corrosion/irritation                                 | Not Classified |
| Serious eye damage/irritation                             | Not Classified |
| Respiratory or skin sensitization                         | Not Classified |
| Germ cell mutagenicity                                    | Not Classified |
| Carcinogenicity   | Not Classified |
| Reproductive toxicity                                     | Not Classified |
| Specific target organ toxicity (STOT) – single exposure   | Not Classified |
| Specific target organ toxicity (STOT) – repeated exposure | Not Classified |
| Aspiration hazard   | Not Classified |

### 11.2 Information on other hazards

No data available.

## Section 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

Contains no substances known to be hazardous to the ecosystem.

### 12.2 Persistence and degradability

No data available.

### 12.3 Bioaccumulative potential

No data available.

### 12.4 Mobility in soil

No data available.

### 12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

### 12.6 Endocrine disrupting properties

No data available.

### 12.7 Other adverse effects

No data available.

## Section 13. DISPOSAL CONSIDERATIONS

Refer to local regulations.

### 13.1 Waste treatment methods

Dispose of contents/container in accordance with local regulation.

Empty containers should be taken to an approved waste handling site for recycling or disposal.

## Section 14. TRANSPORT INFORMATION

### 14.1 UN number

# Material Safety Data Sheet

According to Regulation (EC) No 1907/2006



ADR/RID: -

IMDG: -

IATA: -

#### 14.2 UN proper shipping name

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IMDG: Not dangerous goods

#### 14.3 Transport hazard class(es)

ADR/RID: -

IMDG: -

IATA: -

#### 14.4 Packaging group

ADR/RID: -

IMDG: -

IATA: -

#### 14.5 Environmental hazards

ADR/RID: No

IMDG Marine pollutant: No

IATA-DGR: No

#### 14.6 Special precautions for user

None.

#### 14.7 Maritime transport in bulk according to IMO instruments

Not Applicable.

#### Further information

Not classified as dangerous in transport regulations.

### Section 15. REGULATIONS INFORMATION

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

Look for your country-specific regulations.

#### 15.2 Chemical safety assessment

Not necessary.

### Section 16. REGULATIONS INFORMATION

#### 16.1 List of R, H and P phrases

Full text of H-Statements referred to under sections 2 and 3.

#### 16.2 Training Advice

Regular safety training.

#### 16.3 Recommended Restriction on Use

Only for professional/research user.

### Section 1. IDENTIFICATION

#### 1.1 Product Identifier

Commercial Product Name: RNase-Free Water

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

Product form: Laboratory chemical mixture

Relevant identified uses: For research use only, not for diagnostic use.

Uses advised against:

-----

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

Company: Favorgen Biotech Corp.

Address: Ping-Tung Agricultural Biotechnology Park No. 8-1, Yuanxi 2<sup>nd</sup> Road, Ping Tung 908126, TAIWAN

Phone Number: +886-8-762-1829

#### 1.4 Emergency telephone number

+886-8-762-1829

# Material Safety Data Sheet

According to Regulation (EC) No 1907/2006



## Section 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

No hazardous substance as specified in Regulation (EC) No 1272/2008.

### 2.2 Label elements

Does not need labelling as hazardous.

### 2.3 Other hazards

Not applicable.

## Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances or 3.2 Mixtures

|                |                         |                          |                |
|----------------|-------------------------|--------------------------|----------------|
| Chemical:      | chemicals/mixture < 1%, | no declaration necessary | CAS No.: ----- |
| Concentration: | 0.1 - <1%               |                          |                |

## Section 4. FIRST AID MEASURES

### 4.1 Description of first-aid measures

#### If inhaled

Supply fresh air.

#### In case of skin contact

Remove contaminated clothing. Rinse skin with water/shower.

#### In case of eye contact

Rinse out with plenty of water.

#### If swallowed

Consult a doctor if feeling 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

No information available.

## Section 5. FIRE-FIGHTING MEASURES

### 5.1 Extinguishing media

All extinguishers can be used.

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

None.

### 5.3 Advice for firefighters

No explosion hazard.

### 5.4 Additional Information

---

## Section 6. ACCIDENTAL RELEASE MEASURE

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

Ensure adequate ventilation.

### 6.2 Environmental precautions

Do not allow mixture to enter ground water system.

### 6.3 Methods and material for containment and cleaning up

Soak up with inert absorbent material.

### 6.4 Reference to other sections

---

# Material Safety Data Sheet

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## Section 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Always wear recommended Personal Protective Equipment.

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

Keep container tightly closed in a dry and well-ventilated place.

### 7.3 Specific end use(s)

For research use only.

## Section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters:

Contains no substances with occupational exposure limit.

### 8.2 Exposure controls

#### Personal protective equipment

**Personal Hygiene:** Wash hands before breaks and at the end of work. Handle in accordance with good industrial hygiene and safety practice.

**Eye/face protection:** Tight sealing safety glasses.

**Hand protection:** Protective gloves.

**Respiratory protection:** Not necessary, if the workplace is well-ventilated.

## Section 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Appearance: liquid/ Color: Clear/ Odor: odorless/pH:4~5.5/Specific gravity: 1.0 g/cm<sup>3</sup>

### 9.2 Other information

---

## Section 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

None.

### 10.2 Chemical stability

No data available.

### 10.3 Possibility of hazardous reactions

None.

### 10.4 Conditions to avoid

Not necessary.

### 10.5 Incompatible materials

None.

### 10.6 Hazardous decomposition products

Decompositions are not observed during the expiration period under recommended conditions.

## Section 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

|                                   |                |
|-----------------------------------|----------------|
| Acute toxicity                    | Not Classified |
| Skin corrosion/irritation         | Not Classified |
| Serious eye damage/irritation     | Not Classified |
| Respiratory or skin sensitization | Not Classified |
| Germ cell mutagenicity            | Not Classified |
| Carcinogenicity                   | Not Classified |
| Reproductive toxicity             | Not Classified |

# Material Safety Data Sheet

According to Regulation (EC) No 1907/2006



|  |                |
|--|----------------|
| <b>Specific target organ toxicity (STOT) – single exposure</b>   | Not Classified |
| <b>Specific target organ toxicity (STOT) – repeated exposure</b> | Not Classified |
| <b>Aspiration hazard</b>   | Not Classified |

## 11.2 Information on other hazards

No data available.

## Section 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

Contains no substances known to be hazardous to the ecosystem.

### 12.2 Persistence and degradability

No data available.

### 12.3 Bioaccumulative potential

No data available.

### 12.4 Mobility in soil

No data available.

### 12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

### 12.6 Endocrine disrupting properties

No data available.

### 12.7 Other adverse effects

No data available.

## Section 13. DISPOSAL CONSIDERATIONS

Refer to local regulations.

### 13.1 Waste treatment methods

Dispose of contents/container in accordance with local regulation.

Empty containers should be taken to an approved waste handling site for recycling or disposal.

## Section 14. TRANSPORT INFORMATION

### 14.1 UN number

ADR/RID: -

IMDG: -

IATA: -

### 14.2 UN proper shipping name

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IMDG: Not dangerous goods

### 14.3 Transport hazard class(es)

ADR/RID: -

IMDG: -

IATA: -

### 14.4 Packaging group

ADR/RID: -

IMDG: -

IATA: -

### 14.5 Environmental hazards

ADR/RID: No

IMDG Marine pollutant: No

IATA-DGR: No

### 14.6 Special precautions for user

None

### 14.7 Maritime transport in bulk according to IMO instruments

Not Applicable.

### Further information

Not classified as dangerous in transport regulations.

# Material Safety Data Sheet

According to Regulation (EC) No 1907/2006



## Section 15. REGULATIONS INFORMATION

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

**15.2 Chemical safety assessment**  
Not necessary.

## Section 16. REGULATIONS INFORMATION

**16.1 List of R, H and P phrases**  
Full text of H-Statements referred to under sections 2 and 3.

**16.2 Training Advice**  
Regular safety training.

**16.3 Recommended Restriction on Use**  
Only for professional/research user.