Version: 202309

Material Safety Data Sheet

FavorFilter™ Endotoxin-Free Plasmid Extraction Maxi Kit

Cat. No.: / Contents	FAFTE 000-EF (2 preps)	FAFTE 001-EF (4 preps)	FAFTE 001-1-EF (10 preps)
PEQ Buffer	30 ml	55 ml	135 ml
PM1 Buffer	42 ml	85 ml	215 ml
PM2 Buffer	42 ml	85 ml	215 ml
PM3 Buffer	42 ml	85 ml	215 ml
PTR Buffer	12 ml	25 ml	55 ml
PW Buffer	65 ml	130 ml	270 ml+60 ml
PEL Buffer	32 ml	65 ml	215 ml
RNase A Solution	100 µl	200 µl	480 µl

Favorgen Biotech Corp.
Address: Ping-Tung Agricultural Biotechnology Park
No. 8-1, Yuanxi 2nd Road, Ping Tung 908126, Taiwan
Phone Number: +886-8-762-1829
technical@favorgen.com
www.favorgen.com

Section 1. IDENTIFICATION

1.1 Product Identifier
Commercial Product Name: **PEQ Buffer**

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 2nd 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

Flammable liquids	Category 3
Serious eye damage/eye irritation	Category 2A

GHS hazard pictograms:

 **GHS02**  **GHS07**

Signal word: **WARNING**
Hazard statement(s)

H226	Flammable liquid and vapor.
H319	Causes serious eye irritation.

Precautionary statement(s)

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P403	Store in a well-ventilated place.
P501	Dispose of contents/container to an approved waste disposal plant.

2.2 Label elements
According to section 1.5.2 of Annex I to CLP

GHS symbol

 GHS02  GHS07

WARNING

2.3 Other hazards
Not applicable

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances or 3.2 Mixtures

Chemical:	**Isopropanol**	CAS No.: 67-63-0
Concentration:	10~20%	
Chemical:	**4-Morpholinepropane sulfonic acid**	CAS No.: 1132-61-2
Concentration:	1~10%	

Always wear recommended Personal Protective Equipment.

Section 4. FIRST AID MEASURES

4.1 Description of first-aid measures

If inhaled

If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.

In case of skin contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a physician.

In case of eye contact

Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

If accidentally swallowed obtain immediate medical attention. Rinse mouth with water. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

Causes serious eye irritation.
No information available.

4.3 Indication of any immediate medical attention and special treatment needed

Wear Personal Protective Equipment. If skin irritation occurs: Get medical advice.

Section 5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Do not allow run-off from fire fighting to enter drains or water courses. Exposure to decomposition products may be a hazard to health.

5.3 Advice for firefighters

No explosion hazard.

5.4 Additional Information

In the event of fire and/or explosion do not breathe fumes. Use a water spray to cool fully closed containers.

Section 6. ACCIDENTAL RELEASE MEASURE

6.1 Personal precautions, protective equipment, and emergency procedures

Use personal protective equipment. Remove all sources of ignition. Evacuate personnel to safe areas. Avoid breathing dust/fume/gas/mist/vapors/spray. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

6.2 Environmental precautions

Prevent product from entering drains. Prevent further leakage or spillage if safe to do so.

6.3 Methods and material for containment and cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local/national regulations (see section 13).

6.4 Reference to other sections

section 13

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: None

Chemical: **Isopropanol** CAS No.: 67-63-0
Concentration: 10~20%

Chemical: **4-Morpholinepropane sulfonic acid** CAS No.: 1132-61-2
Concentration: 1~10%

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. Wear face-shield and protective suit for abnormal processing problems. Ensure that eyewash stations and safety showers are close to the workstation location.
Skin protection: Choose body protection according to the amount and concentration of the dangerous substance at the workplace. Footwear protecting against chemicals. Workers should wear antistatic footwear.
Hygiene measures: Keep away from food and drink. Wash hands before breaks and at the end of workday. Ensure adequate ventilation, especially in confined areas. Avoid contact with the skin and the eyes. When using do not eat, drink or smoke.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance: liquid/Color: clear/Odor: odorless/pH: 7.0

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

Heat, flames and sparks.

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

Chemical Name	Oral LD50 (Rat)	Dermal LD50 (Rabbit)
Isopropanol CAS No.: 67-63-0	5,045 mg/kg	12,800 mg/kg
4-Morpholinepropane sulfonic acid CAS No.: 1132-61-2	2,000 mg/kg	No data available

Skin corrosion/irritation Not Classified
Serious eye damage/irritation Causes serious eye irritation
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.

Isopropanol
CAS No.: 67-63-0
LC50 (Pimephales promelas (fathead minnow)): 9,640 mg/l
Exposure time: 96 h
EC50 (Desmodesmus subspicatus (green algae)): 2,000 mg/l
Exposure time: 72 h

4-Morpholinepropane sulfonic acid
CAS No.: 1132-61-2
EC50 (Daphnia magna (Water flea): 100 mg/l
Exposure time: 48 h

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 additional 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: 1219	IMDG: 1219	IATA-DGR: 1219
14.2 UN proper shipping name		
ADR/RID: ISOPROPANOL	IMDG: ISOPROPANOL	IATA-DGR: Isopropanol
14.3 Transport hazard class(es)		
ADR/RID: 3	IMDG: 3	IATA-DGR: 3
14.4 Packaging group		
ADR/RID: II	IMDG: II	IATA-DGR: II
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: **PM1 Buffer**

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 2nd 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.

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: None
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: 7.5~8.5

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
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
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

No dangerous goods according to transport regulations

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-DGR: -

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: **PM2 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:

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 2nd 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

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A

GHS hazard pictograms:  **GHS07**

Signal word: **WARNING**
Hazard statement(s)

H315	Causes skin irritation.
H319	Causes serious eye irritation.

Precautionary statement(s)

P264	Wash hands thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P337 + P313	If eye irritation persists: Get medical advice/attention.
P362 + P364	Take off contaminated clothing and wash.

2.2 Label elements
According to section 1.5.2 of Annex I to CLP

GHS symbol
 GHS07

WARNING

2.3 Other hazards
Not applicable

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances or 3.2 Mixtures

Chemical:	**Sodium dodecyl sulfate**	CAS No.: 151-21-3
Concentration:	1~5%	
Chemical:	**Sodium hydroxide**	CAS No.: 1310-73-2
Concentration:	1~1.5%	

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.

If in eyes:

Rinse cautiously with water for several minutes.

4.2 Most important symptoms and effects, both acute and delayed

H315 - Causes skin irritation.
H319 - Causes serious eye irritation.

4.3 Indication of any immediate medical attention and special treatment needed

Wear Personal Protective Equipment. If skin irritation occurs: Get medical advice.

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

Wear self-contained breathing equipment and protective suit.

5.4 Additional Information

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 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: None

Chemical:	**Sodium dodecyl sulfate**	CAS No.: 151-21-3
Concentration:	1~5%	
Chemical:	**Sodium hydroxide**	CAS No.: 1310-73-2
Concentration:	1~1.5%	

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: no data/Odor: odorless/pH: 13/Density: 1.008 g/cm³

9.2 Other information

Section 10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available.

10.2 Chemical stability
Stable under normal condition.

10.3 Possibility of hazardous reactions
None.

10.4 Conditions to avoid
No data available.

10.5 Incompatible materials
No dangerous reaction known under normal use.

10.6 Hazardous decomposition products
No decomposition if stored and applied as directed.

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)
Sodium dodecyl sulfate CAS No.: 151-21-3	1,228 mg/kg	200 mg/kg	3,900 mg/m³
Sodium hydroxide CAS No.: 1310-73-2	325 mg/kg	1,350 mg/kg	No data available

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
Following information is valid for pure substances.
Sodium dodecyl sulfate
CAS No.: 151-21-3
EC50 Daphnia magna/48h: 1.8 mg/L

Sodium hydroxide
CAS No.: 1310-73-2WGK (DE): 1
No data available

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 additional 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

No dangerous goods according to transport regulations
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-DGR: -

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: **PM3 Buffer**

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 2nd 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

Skin corrosion	Category 1A
Serious eye damage	Category 1

GHS hazard pictograms:

GHS08

Signal word: **DANGER**

Hazard statement(s)

H314	Causes severe skin burns and eye damage.

Precautionary statement(s)

P264	Wash hands thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P363	Wash contaminated clothing before reuse.

2.2 Label elements

According to section 1.5.2 of Annex I to CLP

GHS symbol

GHS08

DANGER

2.3 Other hazards

Not applicable

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances or 3.2 Mixtures

Chemical: **Acetate acid** CAS No.:64-19-7
Concentration: 10 - <20%
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 General advice

Move out of dangerous area. Show this material safety data sheet to the doctor in attendance.

If inhaled

If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a 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

If accidentally swallowed obtain immediate medical attention.
Rinse mouth with water. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

H315 - Causes skin irritation.
H319 - Causes serious eye irritation.

4.3 Indication of any immediate medical attention and special treatment needed

No data available.

Section 5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Do not allow run-off from fire fighting to enter drains or water courses. Exposure to decomposition products may be a hazard to health.

5.3 Advice for firefighters
Hazardous combustion products: Carbon oxides/Nitrogen oxides (NOx)/Carbon monoxide/Carbon dioxide/ Unburned hydrocarbons (smoke)/Potassium oxide

5.4 Additional Information
Wear self-contained breathing apparatus for firefighting if necessary.

Section 6. ACCIDENTAL RELEASE MEASURE

6.1 Personal precautions, protective equipment, and emergency procedures
Use personal protective equipment. Avoid breathing dust/fume/gas/mist/vapors/spray.

6.2 Environmental precautions
Prevent product from entering drains. Prevent further leakage or spillage if safe to do so.

6.3 Methods and material for containment and cleaning up
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

Section 7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Always wear recommended personal protective equipment./Do not breathe vapors/dust/Avoid contact with skin and eyes./Smoking, eating and drinking should be prohibited in the application area./Dispose of rinse water in accordance with local and national regulations.

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

Ingredients:	CAS No.:	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
acetic acid	64-19-7	TWA	10 ppm	ACGIH
		STEL	15 ppm	ACGIH
		ST	15 ppm, 37 mg/m^3	NIOSH REL
		TWA	10 ppm	NIOSH REL

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: no data available/Odor: characteristic/pH: 3.0~4.0/Specific gravity: 1.15 g/cm³/Flash point: >70°C

9.2 Other information

Section 10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available.

10.2 Chemical stability
No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions
Stable under recommended storage conditions.

10.4 Conditions to avoid
No data available.

10.5 Incompatible materials
No data available.

10.6 Hazardous decomposition products
No decomposition if stored and applied as directed.

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)
Acetic acid CAS No.: 64-19-7	3,310 mg/kg	1,112 mg/kg	11.4 mg/l (4h)

Skin corrosion/irritation Skin irritation/May cause irreversible eye damage.
Serious eye damage/irritation May cause irretrievable eye damage
Respiratory or skin sensitization May irritate skin
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.
Chemical: Acetate acid, CAS No.: 64-19-7
Toxicity to fish: LC50 (Oncorhynchus mykiss (rainbow trout)): 1,000 mg/l, Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 300.82 mg/l, Exposure time: 48 h

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 additional 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

No dangerous goods according to transport regulations

14.1 UN number

ADR/RID: 2789	IMDG: 2789	IATA: 2789

14.2 UN proper shipping name

ADR/RID: Acetic acid solution	IMDG: Acetic acid solution	IMDG: Acetic acid solution

14.3 Transport hazard class(es)

ADR/RID: 8	IMDG: 8	IATA: 8

14.4 Packaging group

ADR/RID: III	IMDG: III	IATA: III

14.5 Environmental hazards

ADR/RID: no	IMDG Marine pollutant: no	IATA-DGR: no

14.6 Special precautions for user
The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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: **PEL Buffer**

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 2nd 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.

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: 8.3~9.0

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
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
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

No dangerous goods according to transport regulations

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-DGR: -

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: **PTR Buffer**

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 2nd 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

Flammable liquids	Category 3
Serious eye damage	Category 1

GHS hazard pictograms:  **GHS02**  **GHS05**

Signal word: **WARNING**

Hazard statement(s)

H226	Flammable liquid and vapor.
H318	Causes serious eye damage.

Precautionary statement(s)

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P403	Store in a well-ventilated place.
P501	Dispose of contents/container to an approved waste disposal plant.

2.2 Label elements

According to section 1.5.2 of Annex I to CLP

GHS symbol

 GHS02  GHS05

WARNING

2.3 Other hazards

Not applicable.

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances or 3.2 Mixtures

Chemical:	**Isopropanol**	CAS No.: 67-63-0
Concentration:	10~20%	
Chemical:	**4-Morpholinepropane sulfonic acid**	CAS No.: 1132-61-2
Concentration:	1~10%	
Chemical:	**alpha-[(1,1,3,3-Tetramethylbutyl)phenyl]-omega-hydroxypoly(oxy-1,2-ethanediyl)**	CAS No.: 9036-19-5
Concentration:	10~20%	

Always wear recommended Personal Protective Equipment.

Section 4. FIRST AID MEASURES

4.1 Description of first-aid measures

If inhaled

If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.

In case of skin contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a physician.

In case of eye contact

Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

If accidentally swallowed obtain immediate medical attention. Rinse mouth with water. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed
Causes serious eye irritation.
No information available.

4.3 Indication of any immediate medical attention and special treatment needed
Wear Personal Protective Equipment. If skin irritation occurs: Get medical advice.

Section 5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Do not allow run-off from fire fighting to enter drains or water courses. Exposure to decomposition products may be a hazard to health.

5.3 Advice for firefighters
No explosion hazard.

5.4 Additional Information
In the event of fire and/or explosion do not breathe fumes. Use a water spray to cool fully closed containers.

Section 6. ACCIDENTAL RELEASE MEASURE

6.1 Personal precautions, protective equipment, and emergency procedures
Use personal protective equipment. Remove all sources of ignition. Evacuate personnel to safe areas. Avoid breathing dust/ fume/gas/mist/vapors/spray. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

6.2 Environmental precautions
Prevent product from entering drains. Prevent further leakage or spillage if safe to do so.

6.3 Methods and material for containment and cleaning up
Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local/national regulations (see section 13).

6.4 Reference to other sections
section 13.

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:

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters/ Permissible concentration	Basis
Isopropanol	67-63-0	TWA	200 ppm	ACGIH
		STEL	400 ppm	ACGIH
		ST	500 ppm 1,225 mg/m3	NIOSH REL
		TWA	400 ppm 980 mg/m3	NIOSH
		TWA	400 ppm 980 mg/m3	OSHA Z-1
		STEL	500 ppm 1,225 mg/m3	OSHA P0
		TWA	400 ppm 980 mg/m3	OSHA P0

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Isopropanol	67-63-0	Acetone	Urine	End of shift at end of workweek	40 mg/l	ACGIH BEI

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. Wear face-shield and protective suit for abnormal processing problems. Ensure that eyewash stations and safety showers are close to the workstation location.

Skin protection: Choose body protection according to the amount and concentration of the dangerous substance at the workplace. Footwear protecting against chemicals Workers should wear antistatic footwear.

Hygiene measures: Keep away from food and drink. Wash hands before breaks and at the end of workday. Ensure adequate ventilation, especially in confined areas. Avoid contact with the skin and the eyes. When using do not eat, drink or smoke.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance: liquid/Color: clear/Odor: odorless/pH: 7.0~7.5

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

Heat, flames and sparks.

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

Chemical Name	Oral LD50 (Rat)	Dermal LD50 (Rabbit)
Isopropanol CAS No.: 67-63-0	5,045 mg/kg	12,800 mg/kg
4-Morpholinepropane sulfonic acid CAS No.: 1132-61-2	2,000 mg/kg	No data available
alpha-[(1,1,3,3-Tetramethylbutyl)phenyl]-omega-hydroxypoly(oxy-1,2-ethanediyl): CAS No.: 9036-19-5	4,190 mg/kg	No data available

Skin corrosion/irritation

Isopropanol	
Species	Rabbit
Result	Mild skin irritation

Serious eye damage/irritation Causes serious eye irritation

Isopropanol	
Species	Rabbit
Result	Eye irritation
Exposure time	24 h

alpha-[(1,1,3,3-Tetramethylbutyl)phenyl]-omega-hydroxypoly(oxy-1,2-ethanediyl):	
Species	Rabbit
Result	Risk of serious damage to eyes.

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.

Isopropanol
CAS No.: 67-63-0
LC50 (Pimephales promelas (fathead minnow)): 9,640 mg/l
Exposure time: 96 h
EC50 (Desmodesmus subspicatus (green algae)): 2,000 mg/l
Exposure time: 72 h

4-Morpholinepropane sulfonic acid
CAS No.: 1132-61-2
EC50 (Daphnia magna (Water flea)): 100 mg/l
Exposure time: 48 h

alpha-[(1,1,3,3-Tetramethylbutyl)phenyl]-omega-hydroxypoly(oxy-1,2-ethanediyl)
CAS No.: 9036-19-5
LC50 (Pimephales promelas (fathead minnow)): 4~9 mg/l
Exposure time: 96h
EC50 (Daphnia magna (Water flea)): 18~6 mg/l
Exposure time: 48 h
IC50 (Bacteria): 5,000 mg/l
Exposure time: 16 h

12.2 Persistence and degradability
alpha-[(1,1,3,3-Tetramethylbutyl)phenyl]-omega-hydroxypoly(oxy-1,2-ethanediyl)
CAS No.: 9036-19-5
Biodegradability：

Biodegradation: 22%
Exposure time: 28 d
Method: OECD Test Guideline 301B
Remarks: Not readily biodegradable.

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

14.1 UN number

ADR/RID: 1219	IMDG: 1219	IATA-DGR: 1219

14.2 UN proper shipping name

ADR/RID: ISOPROPANOL	IMDG: ISOPROPANOL	IATA-DGR: Isopropanol

14.3 Transport hazard class(es)

ADR/RID: 3	IMDG: 3	IATA-DGR: 3

14.4 Packaging group

ADR/RID: II	IMDG: II	IATA-DGR: II

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: **PW Buffer**

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 2nd 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

Flammable liquids	Category 3
Serious eye damage/eye irritation	Category 2A

GHS hazard pictograms:  **GHS02**  **GHS07**

Signal word: **WARNING**
Hazard statement(s)

H226	Flammable liquid and vapor.
H319	Causes serious eye irritation.

Precautionary statement(s)

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P403	Store in a well-ventilated place.
P501	Dispose of contents/container to an approved waste disposal plant.

2.2 Label elements
According to section 1.5.2 of Annex I to CLP

GHS symbol
 GHS02  GHS07

WARNING

2.3 Other hazards
Not applicable

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances or 3.2 Mixtures

Chemical:	**Isopropanol**	CAS No.: 67-63-0
Concentration:	10~20%	
Chemical:	**4-Morpholinepropane sulfonic acid**	CAS No.: 1132-61-2
Concentration:	1~10%	

Always wear recommended Personal Protective Equipment.

Section 4. FIRST AID MEASURES

4.1 Description of first-aid measures

If inhaled

If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.

In case of skin contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a physician.

In case of eye contact

Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

If accidentally swallowed obtain immediate medical attention. Rinse mouth with water. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

Causes serious eye irritation.
No information available.

4.3 Indication of any immediate medical attention and special treatment needed

Wear personal protective equipment. If skin irritation occurs: Get medical advice.

Section 5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Do not allow run-off from fire fighting to enter drains or water courses. Exposure to decomposition products may be a hazard to health.

5.3 Advice for firefighters

No explosion hazard.

5.4 Additional Information

In the event of fire and/or explosion do not breathe fumes. Use a water spray to cool fully closed containers.

Section 6. ACCIDENTAL RELEASE MEASURE

6.1 Personal precautions, protective equipment, and emergency procedures

Use personal protective equipment. Remove all sources of ignition. Evacuate personnel to safe areas. Avoid breathing dust/fume/gas/mist/vapors/spray. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

6.2 Environmental precautions

Prevent product from entering drains. Prevent further leakage or spillage if safe to do so.

6.3 Methods and material for containment and cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

6.4 Reference to other sections

section 13.

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: None

Chemical:	**Isopropanol**	CAS No.: 67-63-0
Concentration:	10~20%	
Chemical:	**4-Morpholinepropane sulfonic acid**	CAS No.: 1132-61-2
Concentration:	1~10%	

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. Wear face-shield and protective suit for abnormal processing problems. Ensure that eyewash stations and safety showers are close to the workstation location.
Skin protection: Choose body protection according to the amount and concentration of the dangerous substance at the workplace. Footwear protecting against chemicals Workers should wear antistatic footwear.
Hygiene measures: Keep away from food and drink. Wash hands before breaks and at the end of workday. Ensure adequate ventilation, especially in confined areas. Avoid contact with the skin and the eyes. When using do not eat, drink or smoke.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties
Appearance: liquid/Color: clear/Odor: odorless/pH: 7.0

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
Heat, flames and sparks.

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

Chemical Name	Oral LD50 (Rat)	Dermal LD50 (Rabbit)
Isopropanol CAS No.: 67-63-0	5,045 mg/kg	12,800 mg/kg
4-Morpholinepropane sulfonic acid CAS No.: 1132-61-2	2,000 mg/kg	No data available

Skin corrosion/irritation	Not Classified
Serious eye damage/irritation	Causes serious eye irritation
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.
Isopropanol
CAS No.: 67-63-0
LC50 (Pimephales promelas (fathead minnow)): 9,640 mg/l
Exposure time: 96 h
EC50 (Desmodesmus subspicatus (green algae)): 2,000 mg/l
Exposure time: 72 h

4-Morpholinepropane sulfonic acid
CAS No.: 1132-61-2
EC50 (Daphnia magna (Water flea)): 100 mg/l
Exposure time: 48 h

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 additional 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: 1219 IMDG: 1219 IATA-DGR: 1219

14.2 UN proper shipping name
ADR/RID: ISOPROPANOL IMDG: ISOPROPANOL IATA-DGR: Isopropanol

14.3 Transport hazard class(es)

ADR/RID: 3	IMDG: 3	IATA-DGR: 3

14.4 Packaging group

ADR/RID: II	IMDG: II	IATA-DGR: II

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: **PEL Buffer**

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 2nd 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.

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: 8.5

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
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
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

No dangerous goods according to transport regulations

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-DGR: -

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 A Solution**

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 2nd 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:	Ribonuclease A from bovine pancreas	CAS No.: 9001-99-4
Concentration:	--------	

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

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:

Components with limit values that require monitoring at the workplace: Not required.

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/Odor: odorless

9.2 Other information

Section 10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature). Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
No information available

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
No data available.

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 substance 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.

12.6 Endocrine disrupting properties
Nol 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

No dangerous goods according to transport regulations

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-DGR: -

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
This material safety data sheet complies with the requirements of Regulation (EC) No.1907/2006.

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.