

Material Safety Data Sheet  
Version No.: 3.0 (Rev. date: 2024-06-05)

# Buffer Cartridge ①

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## 1. Product and company identification


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- A. Product Name: Buffer Cartridge ①
- B. Recommended Use: Research Use Only
- C. Supply Information
  - Company: Bioneer
  - Address: BIONEER Global Center, 71, Techno 2-ro, Yuseong-gu, Daejeon, 34013, Republic of Korea
  - Emergency telephone number: +82-42-939-6333

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## 2. Hazards identification

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- A. Classification of the substance or mixture
  - Flammable liquids, Category 3      H226
  - Acute toxicity (oral), Category 4      H302
  - Specific target organ toxicity – Repeated exposure, Category 2      H373
- B. Label elements
  - Hazard pictograms  

  - Signal word  
Warning
  - Hazard statements  
H226 Flammable liquid and vapor.  
H302 Harmful if swallowed.  
H373 May cause damage to organs through prolonged or repeated exposure (Oral, Dermal, Inhalation).
  - Precautionary statements  
Precaution:  
P210 Keep away from heat/hot surfaces/sparks/open flames/other ignition sources. No smoking.  
P233 Keep container tightly closed.

- P240 Ground container and receiving equipment.
- P241 Use explosion-proof electrical, lighting, ventilating equipment.
- P242 Use only non-sparking tools.
- P243 Take precautionary measures against static discharge.
- P260 Do not breathe gas, mist, dust, spray, vapors, fume.
- P264 Wash hands thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P280 Wear eye protection, protective clothing, protective gloves.

Treatment:

- P301+P312 IF SWALLOWED: Call medical institutions, a doctor, a POISON CENTER if you feel unwell.
- P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
- P314 Get medical advice, medical attention if you feel unwell.
- P330 Rinse mouth.
- P370+P378 In case of fire: Use dry sand, carbon dioxide (CO<sub>2</sub>) to extinguish.

Storage:

- P403+P235 Store in a well-ventilated place. Keep cool.

Disposal:

- P501 Dispose of contents and container according to waste related regulations.

C. Hazards – Other hazards which do not result in classification – Hazard Risk

Not applicable

### 3. Composition/information on ingredients

Chemical name	Synonyms	CAS No.	Weight (%)
Ethanol	Ethyl alcohol	64-17-5	< 65%
Guanidine hydrochloride		50-01-1	< 20%
Polysorbate 80		9005-65-6	< 5%

### 4. First aid measures

- A. First-aid measures after eye contact  
Rinse eyes with water as a precaution.
- B. First-aid measures after skin contact  
Rinse skin with water/shower.  
Take off immediately all contaminated clothing.
- C. First-aid measures after inhalation  
Remove person to fresh air and keep comfortable for breathing.
- D. First-aid measures after ingestion  
Rinse mouth.

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Call a poison center or a doctor if you feel unwell.

E. Other medical advice or treatment

Treat symptomatically.

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## 5. Fire-fighting measures

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A. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Water spray, dry powder, foam, carbon dioxide.

Unsuitable extinguishing media: No data available

B. Special hazards arising from the substance or mixture

Fire hazard: Flammable liquid and vapor.

C. Special protective equipment and precautions for fire-fighters

Protection during firefighting:

Do not attempt to take action without suitable protective equipment.

Self-contained breathing apparatus.

Complete protective clothing.

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## 6. Accidental release measures

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A. Personal precautions, protective equipment and emergency procedures

Ventilate spillage area.

No open flames, no sparks, and no smoking.

Do not breathe gas, mist, dust, spray, vapors, fume.

Do not attempt to take action without suitable protective equipment.

Dispose of materials or solid residues at an authorized site.

B. Environmental precautions and protective procedures

Avoid release to the environment.

C. Methods and material for containment and cleaning up

Take up liquid spill into absorbent material.

Notify authorities if product enters sewers or public waters.

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## 7. Handling and storage

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A. Precautions for safe handling

○ Precautions for safe handling

Ensure good ventilation of the work station.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Ground/bond container and receiving equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Flammable vapors may accumulate in the container.

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- Use explosion-proof equipment.
  - Wear personal protective equipment.
  - Do not breathe gas, mist, dust, spray, vapors, fume.
  - Hygiene measures
    - Do not eat, drink or smoke when using this product.
    - Always wash hands after handling the product.

B. Conditions for safe storage

- Technical measures
  - Ground/bond container and receiving equipment.
- Storage conditions
  - Store in a well-ventilated place.
  - Keep cool.
  - Keep container tightly closed.

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## 8. Exposure controls / personal protection

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A. Occupational Exposure Limits

No data available

B. Appropriate engineering controls

Appropriate engineering controls: Ensure good ventilation of the work station.

Environmental exposure controls: Avoid release to the environment.

C. Personal protection

Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment

Eye protection: Safety glasses

Hand protection: Protective gloves

Skin and body protection: Wear suitable protective clothing

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## 9. Physical and chemical properties

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- A. Appearance: Liquid
  - B. Odor: No data available
  - C. Odor threshold: No data available
  - D. pH: No data available
  - E. Melting / freezing point: Not applicable / No data available
  - F. Initial boiling point and boiling range: No data available
  - G. Flash point: 22°C
  - H. Evaporation rate: No data available
  - I. Flammability (solid, gas): Not applicable
  - J. Upper / lower flammability or explosive limits: No data available
  - K. Vapor pressure: No data available
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- L. Solubility: No data available
  - M. Vapor density: No data available
  - N. Relative density: No data available
  - O. Partition coefficient n-octanol/water: No data available
  - P. Auto-ignition temperature: No data available
  - Q. Decomposition temperature: No data available
  - R. Viscosity: No data available
  - S. Molecular mass: No data available
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## 10. Stability and Reactivity

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- A. Chemical stability and Possibility of hazardous reactions  
Flammable liquid and vapor.  
Stable under normal conditions.  
No dangerous reactions known under normal conditions of use.
  - B. Conditions to avoid  
Avoid contact with hot surfaces.  
Heat.  
No flames, no sparks. Eliminate all sources of ignition.
  - C. Incompatible materials  
No data available
  - D. Hazardous decomposition products  
Under normal conditions of storage and use, hazardous decomposition products should not be produced.
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## 11. Toxicological information

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- A. Information on exposure routes  
Oral: Harmful if swallowed.  
Skin and eyes contact: Not classified  
Inhalation: Not classified
  - B. Health hazards  
Acute toxicity (oral): Harmful if swallowed.  
Acute toxicity (dermal): Not classified  
Acute toxicity (inhalation): Not classified  
Skin corrosion/irritation: Not classified  
Serious eye damage/irritation: Not classified
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Respiratory sensitization: Not classified

Skin sensitization: Not classified

Carcinogenicity: Not classified

Mutagenicity: Not classified

Reproductive toxicity: Not classified

STOT–single exposure: Not classified

STOT–repeated exposure: May cause damage to organs through prolonged or repeated exposure (Oral, Dermal, Inhalation).

Aspiration hazard: Not classified

## 12. Ecological information

### A. Exotoxicity

Ecology – general: The product is not considered harmful to aquatic organisms nor to cause long–term adverse effects in the environment.

Hazardous to the aquatic environment, short–term (acute): Not classified

Hazardous to the aquatic environment, long–term (chronic): Not classified

### B. Persistence and degradability

No data available

### C. Bioaccumulative potential

No data available

### D. Mobility in soil

No data available

### E. Other adverse effects

Ozone: Not classified

Other adverse effects: No additional information available

## 13. Disposal considerations

### A. Disposal method

Dispose of contents/container in accordance with licensed collector’s sorting instructions.

### B. Disposal precaution

Flammable vapors may accumulate in the container.

## 14. Transport information

UN RTDG	ADR	IMDG	IATA
A. UN number			

1170	Not applicable	1170	1170
B. UN proper shipping name			
ETHANOL SOLUTION	Not applicable	ETHANOL SOLUTION	ETHANOL SOLUTION
C. Transport hazard class(es)			
3	Not applicable	3	3
D. Packaging group			
II	Not applicable	II	II
E. Marine pollutant			
Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No
No supplementary information available			

F. Special precautions for user: No data available

## 15. Regulatory information

### A. Occupational Safety and Health Act

Hazardous Substances Prohibited for Manufacturing: Not applicable

Hazardous Substances Requiring Permission: Not applicable

Threshold Limit Values Chemicals: Applicable

Hazardous Substances Below Permissible Level: Not applicable

Hazardous Substances Subject to Working Environment Measurement: Not applicable

Hazardous Substances Subject to Workers Requiring Health Examination: Not applicable

Hazardous Substances Subject to Control: Not applicable

Substance Subject to PSM Submission: Applicable

### B. Chemicals Control Act

Toxic Chemicals: Not applicable

Prohibited Chemicals: Not applicable

Restricted Chemicals: Not applicable

Substance requiring preparation for accidents: Not applicable

### C. ACT ON REGISTRATION, EVALUATION, ETC. OF CHEMICALS (K-REACH)

Korea Existing Chemicals Inventory (KECI): Applicable

Priority Existing Chemical ('PEC') – subject to registration: Not applicable

Priority Control Substances (Korea): Not applicable

CMR Substances (Korea): Not applicable

### D. Safety Control of Dangerous Substances Act

Safety Control of Dangerous Substances Act: Applicable

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E. Wastes Control Act

Hazardous Substances in Designated wastes: Not applicable

Types of wastes: No data available

F. Other Domestic and International Regulatory Information

Domestic

Persistent Organic Pollutants(POPs) Control Act: Not applicable

Ozone Depleting Substances(ODS): Not applicable

International (EU Regulatory Information)

EU Candidate list (SVHC): Contains no substance on the REACH candidate list

EU authorization list (REACH Annex XIV): Contains no REACH Annex XIV substances

EU restriction list (REACH Annex XVII): Not applicable

US Regulatory Information

CERCLA Section 103 (40CFR302.4): Not applicable

EPCRA Section 302 (40CFR355.30): Not applicable

EPCRA Section 304 (40CFR355.40): Not applicable

EPCRA Section 313 (40CFR372.65): Not applicable

International agreements

No data available

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## 16. Other information

Bioneer Corporation makes no warranty or representation to its completeness, accuracy or currency. This material is intended for use by persons with pertinent technical skills and at their discretion and risk. It is the responsibility of the user to determine the product's suitability for its intended use, the product's safe use, and the product's proper disposal. Disposal of hazardous material may be subject to federal, state or local laws or regulations.

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Material Safety Data Sheet  
Version No.: 3.0 (Rev. date: 2024-06-05)

# Buffer Cartridge ②

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## 1. Product and company identification


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- A. Product Name: Buffer Cartridge ②
- B. Recommended Use: Research Use Only
- C. Supply Information
  - Company: Bioneer
  - Address: Bioneer Global Center, 71, Techno 2-ro, Yuseong-gu, Daejeon 34013, Republic of Korea
  - Emergency telephone number: +82-42-930-8777

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## 2. Hazards identification

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- A. Classification of the substance or mixture
  - Flammable liquids, Category 3      H226
  - Acute toxicity (oral), Category 4      H302
  - Specific target organ toxicity – Repeated exposure, Category 2      H373
- B. Label elements
  - Hazard pictograms  

  - Signal word  
Warning
  - Hazard statements
    - H226 Flammable liquid and vapor.
    - H302 Harmful if swallowed.
    - H373 May cause damage to organs through prolonged or repeated exposure (Oral, Dermal, Inhalation).
  - Precautionary statements  
Precaution:
    - P210 Keep away from heat/hot surfaces/sparks/open flames/other ignition sources. No smoking.
    - P233 Keep container tightly closed.

- P240 Ground container and receiving equipment.
- P241 Use explosion-proof electrical, lighting, ventilating equipment.
- P242 Use only non-sparking tools.
- P243 Take precautionary measures against static discharge.
- P260 Do not breathe gas, mist, dust, spray, vapors, fume.
- P264 Wash hands thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P280 Wear eye protection, protective clothing, protective gloves.

Treatment:

- P301+P312 IF SWALLOWED: Call medical institutions, a doctor, a POISON CENTER if you feel unwell.
- P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
- P314 Get medical advice, medical attention if you feel unwell.
- P330 Rinse mouth.
- P370+P378 In case of fire: Use dry sand, carbon dioxide (CO<sub>2</sub>) to extinguish.

Storage:

- P403+P235 Store in a well-ventilated place. Keep cool.

Disposal:

- P501 Dispose of contents and container according to waste related regulations.

C. Hazards – Other hazards which do not result in classification – Hazard Risk

Not applicable

### 3. Composition/information on ingredients

Chemical name	Synonyms	CAS No.	Weight (%)
Ethanol	Ethyl alcohol	64-17-5	< 65%
Guanidine hydrochloride		50-01-1	< 5%

### 4. First aid measures

- A. First-aid measures after eye contact  
Rinse eyes with water as a precaution.
- B. First-aid measures after skin contact  
Rinse skin with water/shower.  
Take off immediately all contaminated clothing.
- C. First-aid measures after inhalation  
Remove person to fresh air and keep comfortable for breathing.
- D. First-aid measures after ingestion  
Rinse mouth.  
Call a poison center or a doctor if you feel unwell.

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E. Other medical advice or treatment

Treat symptomatically.

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5. Fire-fighting measures

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A. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Water spray, dry powder, foam, carbon dioxide.

Unsuitable extinguishing media: No data available

B. Special hazards arising from the substance or mixture

Fire hazard: Flammable liquid and vapor.

C. Special protective equipment and precautions for fire-fighters

Protection during firefighting:

Do not attempt to take action without suitable protective equipment.

Self-contained breathing apparatus.

Complete protective clothing.

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6. Accidental release measures

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A. Personal precautions, protective equipment and emergency procedures

Ventilate spillage area.

No open flames, no sparks, and no smoking.

Do not breathe gas, mist, dust, spray, vapors, fume.

Do not attempt to take action without suitable protective equipment.

Dispose of materials or solid residues at an authorized site.

B. Environmental precautions and protective procedures

Avoid release to the environment.

C. Methods and material for containment and cleaning up

Take up liquid spill into absorbent material.

Notify authorities if product enters sewers or public waters.

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7. Handling and storage

---

A. Precautions for safe handling

○ Precautions for safe handling

Ensure good ventilation of the work station.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Ground/bond container and receiving equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Flammable vapors may accumulate in the container.

Use explosion-proof equipment.

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Wear personal protective equipment.

Do not breathe gas, mist, dust, spray, vapors, fume.

- Hygiene measures

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

Always wash hands after handling the product.

- B. Conditions for safe storage

- Technical measures

Ground/bond container and receiving equipment.

- Storage conditions

Store in a well-ventilated place.

Keep cool.

Keep container tightly closed.

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## 8. Exposure controls / personal protection

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- A. Occupational Exposure Limits

No data available

- B. Appropriate engineering controls

Appropriate engineering controls: Ensure good ventilation of the work station.

Environmental exposure controls: Avoid release to the environment.

- C. Personal protection

Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment

Eye protection: Safety glasses

Hand protection: Protective gloves

Skin and body protection: Wear suitable protective clothing

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## 9. Physical and chemical properties

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- A. Appearance: Liquid

- B. Odor: No data available

- C. Odor threshold: No data available

- D. pH: No data available

- E. Melting / freezing point: Not applicable / No data available

- F. Initial boiling point and boiling range: No data available

- G. Flash point: 22°C

- H. Evaporation rate: No data available

- I. Flammability (solid, gas): Not applicable

- J. Upper / lower flammability or explosive limits: No data available

- K. Vapor pressure: No data available

- L. Solubility: No data available
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- M. Vapor density: No data available
  - N. Relative density: No data available
  - O. Partition coefficient n-octanol/water: No data available
  - P. Auto-ignition temperature: No data available
  - Q. Decomposition temperature: No data available
  - R. Viscosity: No data available
  - S. Molecular mass: No data available
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## 10. Stability and Reactivity

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- A. Chemical stability and Possibility of hazardous reactions  
Flammable liquid and vapor.  
Stable under normal conditions.  
No dangerous reactions known under normal conditions of use.
  - B. Conditions to avoid  
Avoid contact with hot surfaces.  
Heat.  
No flames, no sparks. Eliminate all sources of ignition.
  - C. Incompatible materials  
No data available
  - D. Hazardous decomposition products  
Under normal conditions of storage and use, hazardous decomposition products should not be produced.
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## 11. Toxicological information

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- A. Information on exposure routes  
Oral: Harmful if swallowed.  
Skin and eyes contact: Not classified  
Inhalation: Not classified
  - B. Health hazards  
Acute toxicity (oral): Harmful if swallowed.  
Acute toxicity (dermal): Not classified  
Acute toxicity (inhalation): Not classified  
Skin corrosion/irritation: Not classified  
Serious eye damage/irritation: Not classified  
Respiratory sensitization: Not classified
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Skin sensitization: Not classified

Carcinogenicity: Not classified

Mutagenicity: Not classified

Reproductive toxicity: Not classified

STOT–single exposure: Not classified

STOT–repeated exposure: May cause damage to organs through prolonged or repeated exposure (Oral, Dermal, Inhalation).

Aspiration hazard: Not classified

## 12. Ecological information

### A. Exotoxicity

Ecology – general: The product is not considered harmful to aquatic organisms nor to cause long–term adverse effects in the environment.

Hazardous to the aquatic environment, short–term (acute): Not classified

Hazardous to the aquatic environment, long–term (chronic): Not classified

### B. Persistence and degradability

No data available

### C. Bioaccumulative potential

No data available

### D. Mobility in soil

No data available

### E. Other adverse effects

Ozone: Not classified

Other adverse effects: No additional information available

## 13. Disposal considerations

### A. Disposal method

Dispose of contents/container in accordance with licensed collector’s sorting instructions.

### B. Disposal precaution

Flammable vapors may accumulate in the container.

## 14. Transport information

UN RTDG	ADR	IMDG	IATA
A. UN number			
1170	Not applicable	1170	1170
B. UN proper shipping name			

ETHANOL SOLUTION	Not applicable	ETHANOL SOLUTION	ETHANOL SOLUTION
C. Transport hazard class(es)			
3	Not applicable	3	3
D. Packaging group			
II	Not applicable	II	II
E. Marine pollutant			
Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No
No supplementary information available			
F. Special precautions for user: No data available			

15. Regulatory information

- A. Occupational Safety and Health Act
  - Hazardous Substances Prohibited for Manufacturing: Not applicable
  - Hazardous Substances Requiring Permission: Not applicable
  - Threshold Limit Values Chemicals: Applicable
  - Hazardous Substances Below Permissible Level: Not applicable
  - Hazardous Substances Subject to Working Environment Measurement: Not applicable
  - Hazardous Substances Subject to Workers Requiring Health Examination: Not applicable
  - Hazardous Substances Subject to Control: Not applicable
  - Substance Subject to PSM Submission: Applicable
- B. Chemicals Control Act
  - Toxic Chemicals: Not applicable
  - Prohibited Chemicals: Not applicable
  - Restricted Chemicals: Not applicable
  - Substance requiring preparation for accidents: Not applicable
- C. ACT ON REGISTRATION, EVALUATION, ETC. OF CHEMICALS (K-REACH)
  - Korea Existing Chemicals Inventory (KECI): Applicable
  - Priority Existing Chemical ('PEC') – subject to registration: Not applicable
  - Priority Control Substances (Korea): Not applicable
  - CMR Substances (Korea): Not applicable
- D. Safety Control of Dangerous Substances Act
  - Safety Control of Dangerous Substances Act: Applicable
- E. Wastes Control Act
  - Hazardous Substances in Designated wastes: Not applicable
  - Types of wastes: No data available

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**F. Other Domestic and International Regulatory Information** Domestic

Persistent Organic Pollutants(POPs) Control Act: Not applicable

Ozone Depleting Substances(ODS): Not applicable

 International (EU Regulatory Information)

EU Candidate list (SVHC): Contains no substance on the REACH candidate list

EU authorization list (REACH Annex XIV): Contains no REACH Annex XIV substances

EU restriction list (REACH Annex XVII): Not applicable

 US Regulatory Information

CERCLA Section 103 (40CFR302.4): Not applicable

EPCRA Section 302 (40CFR355.30): Not applicable

EPCRA Section 304 (40CFR355.40): Not applicable

EPCRA Section 313 (40CFR372.65): Not applicable

 International agreements

No data available

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**16. Other information**

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Bioneer Corporation makes no warranty or representation to its completeness, accuracy or currency. This material is intended for use by persons with pertinent technical skills and at their discretion and risk. It is the responsibility of the user to determine the product's suitability for its intended use, the product's safe use, and the product's proper disposal. Disposal of hazardous material may be subject to federal, state or local laws or regulations.

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Material Safety Data Sheet  
Version No.: 3.0 (Rev. date: 2024-06-05)

# Tissue Lysis Buffer

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## 1. Product and company identification

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- A. Product Name: Tissue Lysis Buffer
  - B. Recommended Use: Research Use Only
  - C. Supply Information
    - Company: Bioneer
    - Address: Bioneer Global Center, 71, Techno 2-ro, Yuseong-gu, Daejeon 34013, Republic of Korea
    - Emergency telephone number: +82-42-930-8777
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## 2. Hazards identification

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- A. Classification of the substance or mixture  
No data available
  - B. Label elements
    - Hazard pictograms  
Not applicable
    - Signal word  
Not applicable
    - Hazard statements  
Not applicable
    - Precautionary statements  
Not applicable
  - C. Hazards – Other hazards which do not result in classification – Hazard Risk  
Not applicable
- 

## 3. Composition/information on ingredients

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This mixture does not contain any substances to be mentioned according to the applicable regulations

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## 4. First aid measures

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- A. First-aid measures after eye contact  
Rinse eyes with water as a precaution.
  - B. First-aid measures after skin contact
-

---

Wash skin with plenty of water.

C. First-aid measures after inhalation

Remove person to fresh air and keep comfortable for breathing.

D. First-aid measures after ingestion

Call a poison center or a doctor if you feel unwell.

E. Other medical advice or treatment

Treat symptomatically.

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## 5. Fire-fighting measures

---

A. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Water spray, dry powder, foam, carbon dioxide.

Unsuitable extinguishing media: No data available

B. Special hazards arising from the substance or mixture

No data available

C. Special protective equipment and precautions for fire-fighters

Protection during firefighting:

Do not attempt to take action without suitable protective equipment.

Self-contained breathing apparatus.

Complete protective clothing.

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## 6. Accidental release measures

---

A. Personal precautions, protective equipment and emergency procedures

Ventilate spillage area.

Do not attempt to take action without suitable protective equipment.

Dispose of materials or solid residues at an authorized site.

B. Environmental precautions and protective procedures

Avoid release to the environment.

C. Methods and material for containment and cleaning up

Take up liquid spill into absorbent material.

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## 7. Handling and storage

---

A. Precautions for safe handling

Precautions for safe handling

Ensure good ventilation of the work station.

Wear personal protective equipment.

Hygiene measures

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

Always wash hands after handling the product.

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B. Conditions for safe storage

- Storage conditions

Store in a well-ventilated place.

Keep cool.

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8. Exposure controls / personal protection

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A. Occupational Exposure Limits

No data available

B. Appropriate engineering controls

Appropriate engineering controls: Ensure good ventilation of the work station.

Environmental exposure controls: Avoid release to the environment.

C. Personal protection

Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment

Eye protection: Safety glasses

Hand protection: Protective gloves

Skin and body protection: Wear suitable protective clothing

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9. Physical and chemical properties

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A. Appearance: Liquid

B. Odor: No data available

C. Odor threshold: No data available

D. pH: No data available

E. Melting / freezing point: Not applicable / No data available

F. Initial boiling point and boiling range: No data available

G. Flash point: No data available

H. Evaporation rate: No data available

I. Flammability (solid, gas): Not applicable

J. Upper / lower flammability or explosive limits: No data available

K. Vapor pressure: No data available

L. Solubility: No data available

M. Vapor density: No data available

N. Relative density: No data available

O. Partition coefficient n-octanol/water: No data available

P. Auto-ignition temperature: No data available

Q. Decomposition temperature: No data available

R. Viscosity: No data available

S. Molecular mass: No data available

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## 10. Stability and Reactivity

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### A. Chemical stability and Possibility of hazardous reactions

The product is non-reactive under normal conditions of use, storage and transport.

Stable under normal conditions.

No dangerous reactions known under normal conditions of use.

### B. Conditions to avoid

None under recommended storage and handling conditions.

### C. Incompatible materials

No data available

### D. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

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## 11. Toxicological information

---

### A. Information on exposure routes

Oral: Not classified

Skin and eyes contact: Not classified

Inhalation: Not classified

### B. Health hazards

Acute toxicity (oral): Not classified

Acute toxicity (dermal): Not classified

Acute toxicity (inhalation): Not classified

Skin corrosion/irritation: Not classified

Serious eye damage/irritation: Not classified

Respiratory sensitization: Not classified

Skin sensitization: Not classified

Carcinogenicity: Not classified

Mutagenicity: Not classified

Reproductive toxicity: Not classified

STOT-single exposure: Not classified

STOT-repeated exposure: Not classified

Aspiration hazard: Not classified

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12. Ecological information

A. Exotoxicity

Ecology – general: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

Hazardous to the aquatic environment, short-term (acute): Not classified

Hazardous to the aquatic environment, long-term (chronic): Not classified

B. Persistence and degradability

No data available

C. Bioaccumulative potential

No data available

D. Mobility in soil

No data available

E. Other adverse effects

Ozone: Not classified

Other adverse effects: No additional information available

13. Disposal considerations

A. Disposal method

Dispose of contents/container in accordance with licensed collector's sorting instructions.

B. Disposal precaution

No data available

14. Transport information

UN RTDG	ADR	IMDG	IATA
A. UN number			
Not regulated for transport			
B. UN proper shipping name			
Not applicable	Not applicable	Not applicable	Not applicable
C. Transport hazard class(es)			
Not applicable	Not applicable	Not applicable	Not applicable
D. Packaging group			
Not applicable	Not applicable	Not applicable	Not applicable
E. Marine pollutant			
Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No

No supplementary information available

F. Special precautions for user: No data available

## 15. Regulatory information

### A. Occupational Safety and Health Act

Hazardous Substances Prohibited for Manufacturing: Not applicable

Hazardous Substances Requiring Permission: Not applicable

Threshold Limit Values Chemicals: Not applicable

Hazardous Substances Below Permissible Level: Not applicable

Hazardous Substances Subject to Working Environment Measurement: Not applicable

Hazardous Substances Subject to Workers Requiring Health Examination: Not applicable

Hazardous Substances Subject to Control: Not applicable

Substance Subject to PSM Submission: Not applicable

### B. Chemicals Control Act

Toxic Chemicals: Not applicable

Prohibited Chemicals: Not applicable

Restricted Chemicals: Not applicable

Substance requiring preparation for accidents: Not applicable

### C. ACT ON REGISTRATION, EVALUATION, ETC. OF CHEMICALS (K-REACH)

Korea Existing Chemicals Inventory (KECI): Applicable

Priority Existing Chemical ('PEC') – subject to registration: Not applicable

Priority Control Substances (Korea): Not applicable

CMR Substances (Korea): Not applicable

### D. Safety Control of Dangerous Substances Act

Safety Control of Dangerous Substances Act: Not applicable

### E. Wastes Control Act

Hazardous Substances in Designated wastes: Not applicable

Types of wastes: No data available

### F. Other Domestic and International Regulatory Information

#### Domestic

Persistent Organic Pollutants(POPs) Control Act: Not applicable

Ozone Depleting Substances(ODS): Not applicable

#### International (EU Regulatory Information)

EU Candidate list (SVHC): Contains no substance on the REACH candidate list

EU authorization list (REACH Annex XIV): Contains no REACH Annex XIV substances

EU restriction list (REACH Annex XVII): Not applicable

#### US Regulatory Information

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CERCLA Section 103 (40CFR302.4): Not applicable

EPCRA Section 302 (40CFR355.30): Not applicable

EPCRA Section 304 (40CFR355.40): Not applicable

EPCRA Section 313 (40CFR372.65): Not applicable

International agreements

No data available

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## 16. Other information

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Bioneer Corporation makes no warranty or representation to its completeness, accuracy or currency. This material is intended for use by persons with pertinent technical skills and at their discretion and risk. It is the responsibility of the user to determine the product's suitability for its intended use, the product's safe use, and the product's proper disposal. Disposal of hazardous material may be subject to federal, state or local laws or regulations.

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**Material Safety Data Sheet**  
**Version No.: 8.0 (Rev. date: 2024-06-05)****Proteinase K**

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**1. Product and company identification**

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- A. Product Name: Proteinase K
- B. Recommended Use: Research Use Only
- C. Supply Information
  - Company: Bioneer
  - Address: Bioneer Global Center, 71, Techno 2-ro, Yuseong-gu, Daejeon 34013, Republic of Korea
  - Emergency telephone number: +82-42-930-8777

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**2. Hazards identification**

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- A. Classification of the substance or mixture
  - Skin corrosion/irritation (Category 2)
  - Serious eye damage/eye irritation (Category 2)
  - Respiratory sensitization (Category 1)

- B. Label elements

- Hazard pictograms



- Signal word

Danger

- Hazard statements

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

- Precautionary statements

Prevention :

P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.

P264 Wash the contact area thoroughly after handling.

P280 Wear protective gloves/ eye protection/ face protection.



P284 Wear respiratory protection.

Response :

P302+P352 If on skin, wash with plenty of soap and water.

P304+P340 If inhaled, remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305+P351+P338 If in eyes, rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P321 Specific treatment.

P332+P313 If skin irritation occurs, get medical advice/attention.

P337+P313 If eye irritation persists, get medical advice/attention.

P342+P311 If experiencing respiratory symptoms, call a poison center/doctor.

P362+P364 Take off contaminated clothing and wash it before reuse.

Disposal :

P501 Dispose of contents and container according to wastes control act.

C. Hazards – Other hazards which do not result in classification – Hazard Risk

Not applicable

### 3. Composition/information on ingredients

Chemical name	Synonyms	CAS No.	Weight (%)
Proteinase K		39450-01-6	> 95%

### 4. First aid measures

A. First-aid measures after eye contact

Rinse eyes with water as a precaution.

Remove contact lenses.

B. First-aid measures after skin contact

Wash skin with plenty of water.

Take off immediately all contaminated clothing.

C. First-aid measures after inhalation

Remove person to fresh air and keep comfortable for breathing.

D. First-aid measures after ingestion

Call a poison center or a doctor if you feel unwell.

E. Other medical advice or treatment

Treat symptomatically.

### 5. Fire-fighting measures

A. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Water spray, dry powder, foam, carbon dioxide.

Unsuitable extinguishing media: No data available

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B. Special hazards arising from the substance or mixture

No data available

C. Special protective equipment and precautions for fire-fighters

Protection during firefighting:

Do not attempt to take action without suitable protective equipment.

Self-contained breathing apparatus.

Complete protective clothing.

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6. Accidental release measures

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A. Personal precautions, protective equipment and emergency procedures

Ventilate spillage area.

Do not attempt to take action without suitable protective equipment.

Dispose of materials or solid residues at an authorized site.

B. Environmental precautions and protective procedures

Avoid release to the environment.

C. Methods and material for containment and cleaning up

Mechanically recover the product.

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7. Handling and storage

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A. Precautions for safe handling

Precautions for safe handling

Ensure good ventilation of the work station.

Wear personal protective equipment.

Hygiene measures

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

Always wash hands after handling the product.

B. Conditions for safe storage

Storage conditions

Store in a well-ventilated place.

Keep cool.

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8. Exposure controls / personal protection

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A. Occupational Exposure Limits

No data available

B. Appropriate engineering controls

Appropriate engineering controls: Ensure good ventilation of the work station.

Environmental exposure controls: Avoid release to the environment.

C. Personal protection

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Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment

Eye protection: Safety glasses

Hand protection: Protective gloves

Skin and body protection: Wear suitable protective clothing

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## 9. Physical and chemical properties

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- A. Appearance: Solid
  - B. Odor: No data available
  - C. Odor threshold: No data available
  - D. pH: No data available
  - E. Melting / freezing point: No data available / Not applicable
  - F. Initial boiling point and boiling range: No data available
  - G. Flash point: Not applicable
  - H. Evaporation rate: No data available
  - I. Flammability (solid, gas): Non flammable
  - J. Upper / lower flammability or explosive limits: Not applicable
  - K. Vapor pressure: No data available
  - L. Solubility: Solubility in water: No data available
  - M. Vapor density: No data available
  - N. Relative density: No data available
  - O. Partition coefficient n-octanol/water: No data available
  - P. Auto-ignition temperature: Not applicable
  - Q. Decomposition temperature: No data available
  - R. Viscosity: No data available
  - S. Molecular mass: No data available
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## 10. Stability and Reactivity

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- A. Chemical stability and Possibility of hazardous reactions  
The product is non-reactive under normal conditions of use, storage and transport.  
Stable under normal conditions.  
No dangerous reactions known under normal conditions of use.
  - B. Conditions to avoid  
None under recommended storage and handling conditions.
  - C. Incompatible materials  
No data available
  - D. Hazardous decomposition products  
Under normal conditions of storage and use, hazardous decomposition products should not be produced.
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## 11. Toxicological information

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### A. Information on exposure routes

Oral: Not classified

Skin and eyes contact: Not classified

Inhalation: Not classified

### B. Health hazards

Acute toxicity (oral): Not classified

Acute toxicity (dermal): Not classified

Acute toxicity (inhalation): Not classified

Skin corrosion/irritation: Causes skin irritation

Serious eye damage/irritation: Causes serious eye irritation

Respiratory sensitization: May cause allergy or asthma symptoms or breathing difficulties if inhaled

Skin sensitization: Not classified

Carcinogenicity: Not classified

Mutagenicity: Not classified

Reproductive toxicity: Not classified

STOT–single exposure: Not classified

STOT–repeated exposure: Prolonged or repeated exposure can cause Asthma

Aspiration hazard: Not classified

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## 12. Ecological information

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### A. Exotoxicity

Ecology – general: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

Hazardous to the aquatic environment, short-term (acute): Not classified

Hazardous to the aquatic environment, long-term (chronic): Not classified

### B. Persistence and degradability

No data available

### C. Bioaccumulative potential

No data available

### D. Mobility in soil

No data available

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E. Other adverse effects

Ozone: Not classified

Other adverse effects: No additional information available

13. Disposal considerations

A. Disposal method

Dispose of contents/container in accordance with licensed collector's sorting instructions.

B. Disposal precaution

No data available

14. Transport information

UN RTDG	ADR	IMDG	IATA
A. UN number			
Not regulated for transport			
B. UN proper shipping name			
Not applicable	Not applicable	Not applicable	Not applicable
C. Transport hazard class(es)			
Not applicable	Not applicable	Not applicable	Not applicable
D. Packaging group			
Not applicable	Not applicable	Not applicable	Not applicable
E. Marine pollutant			
Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No
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    - EPCRA Section 313 (40CFR372.65): Not applicable
  - International agreements
    - No data available
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