

SAFETY DATA SHEET



Cation Solutions Kit for CE, Part Number 5064-8206

Section 1. Identification

1.1 Product identifier

Product name	: Cation Solutions Kit for CE, Part Number 5064-8206		
Part no. (chemical kit)	: 5064-8206		
Part no.	: Ultra Pure Water for CE	5062-8578	
	: Cation Buffer for CE - pH 3.2	5064-8203	
	: Cation Test Sample for CE	5064-8205	
Validation date	: 10/13/2023		

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

Identified uses	: Reagents and Standards for Analytical Chemistry Laboratory Use		
	: Ultra Pure Water for CE	500 ml	
	: Cation Buffer for CE - pH 3.2	250 ml	
	: Cation Test Sample for CE	25 ml	

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer	: Agilent Technologies, Inc. 5301 Stevens Creek Blvd Santa Clara, CA 95051, USA 800-227-9770
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1.4 Emergency telephone number

In case of emergency	: CHEMTREC®: 1-800-424-9300
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Section 2. Hazards identification

2.1 Classification of the substance or mixture


OSHA/HCS status	: Ultra Pure Water for CE	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
	: Cation Buffer for CE - pH 3.2	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
	: Cation Test Sample for CE	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Classification of the substance or mixture

Cation Buffer for CE - pH 3.2	AQUATIC HAZARD (ACUTE) - Category 1
H400	
H411	AQUATIC HAZARD (LONG-TERM) - Category 2

2.2 GHS label elements

Section 2. Hazards identification

Hazard pictograms	: Cation Buffer for CE - pH 3.2	
Signal word	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	No signal word. Warning No signal word.
Hazard statements	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	No known significant effects or critical hazards. H400 - Very toxic to aquatic life. H411 - Toxic to aquatic life with long lasting effects. No known significant effects or critical hazards.
<u>Precautionary statements</u>		
Prevention	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	Not applicable. P273 - Avoid release to the environment. Not applicable.
Response	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	Not applicable. P391 - Collect spillage. Not applicable.
Storage	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	Not applicable. Not applicable. Not applicable.
Disposal	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	Not applicable. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. Not applicable.
Supplemental label elements	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	None known. None known. None known.
<u>2.3 Other hazards</u>		
Hazards not otherwise classified	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	None known. None known. None known.

Section 3. Composition/information on ingredients

Substance/mixture	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	Substance Mixture Mixture
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Ingredient name	%	CAS number
Ultra Pure Water for CE water	100	7732-18-5
Cation Buffer for CE - pH 3.2 Copper sulphate	≤0.1	7758-98-7

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

4.1 Description of necessary first aid measures

Eye contact	: Ultra Pure Water for CE	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	Cation Buffer for CE - pH 3.2	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	Cation Test Sample for CE	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Inhalation	: Ultra Pure Water for CE	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	Cation Buffer for CE - pH 3.2	Remove victim to fresh air and keep at rest in a position comfortable for breathing.
	Cation Test Sample for CE	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact	: Ultra Pure Water for CE	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	Cation Buffer for CE - pH 3.2	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	Cation Test Sample for CE	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	: Ultra Pure Water for CE	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	Cation Buffer for CE - pH 3.2	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel.
	Cation Test Sample for CE	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	: Ultra Pure Water for CE	No known significant effects or critical hazards.
	Cation Buffer for CE - pH 3.2	No known significant effects or critical hazards.
	Cation Test Sample for CE	No known significant effects or critical hazards.
Inhalation	: Ultra Pure Water for CE	No known significant effects or critical hazards.
	Cation Buffer for CE - pH 3.2	No known significant effects or critical hazards.
	Cation Test Sample for CE	No known significant effects or critical hazards.

Section 4. First aid measures

Skin contact	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Ingestion	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<u>Over-exposure signs/symptoms</u>		
Eye contact	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	No specific data. No specific data. No specific data.
Inhalation	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	No specific data. No specific data. No specific data.
Skin contact	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	No specific data. No specific data. No specific data.
Ingestion	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	No specific data. No specific data. No specific data.

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	No specific treatment. No specific treatment. No specific treatment.
Protection of first-aiders	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	None known. None known. None known.

Section 5. Fire-fighting measures

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	: Ultra Pure Water for CE	In a fire or if heated, a pressure increase will occur and the container may burst.
	Cation Buffer for CE - pH 3.2	In a fire or if heated, a pressure increase will occur and the container may burst. This material is very toxic to aquatic life. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
	Cation Test Sample for CE	In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products	: Ultra Pure Water for CE	No specific data.
	Cation Buffer for CE - pH 3.2	No specific data.
	Cation Test Sample for CE	No specific data.

5.3 Advice for firefighters

Special protective actions for fire-fighters	: Ultra Pure Water for CE	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
	Cation Buffer for CE - pH 3.2	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
	Cation Test Sample for CE	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	: Ultra Pure Water for CE	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	Cation Buffer for CE - pH 3.2	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	Cation Test Sample for CE	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: Ultra Pure Water for CE	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
	Cation Buffer for CE - pH 3.2	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
	Cation Test Sample for CE	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

Section 6. Accidental release measures

		surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
<p>For emergency responders :</p>	<p>Ultra Pure Water for CE</p> <p>Cation Buffer for CE - pH 3.2</p> <p>Cation Test Sample for CE</p>	<p>If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".</p> <p>If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".</p> <p>If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".</p>
<p>6.2 Environmental precautions</p>	<p>: Ultra Pure Water for CE</p> <p>Cation Buffer for CE - pH 3.2</p> <p>Cation Test Sample for CE</p>	<p>Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).</p> <p>Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.</p> <p>Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).</p>
<p>6.3 Methods and materials for containment and cleaning up</p>		
<p>Methods for cleaning up :</p>	<p>Ultra Pure Water for CE</p> <p>Cation Buffer for CE - pH 3.2</p> <p>Cation Test Sample for CE</p>	<p>Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.</p> <p>Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.</p> <p>Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.</p>

Section 7. Handling and storage

7.1 Precautions for safe handling

Protective measures	<ul style="list-style-type: none"> : Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE 	<p>Put on appropriate personal protective equipment (see Section 8).</p> <p>Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.</p> <p>Put on appropriate personal protective equipment (see Section 8).</p>
Advice on general occupational hygiene	<ul style="list-style-type: none"> : Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE 	<p>Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.</p> <p>Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.</p> <p>Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.</p>
7.2 Conditions for safe storage, including any incompatibilities	<ul style="list-style-type: none"> : Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE 	<p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.</p> <p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.</p> <p>Store in accordance with local regulations. Store in</p>

Section 7. Handling and storage

original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

Recommendations	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications.
Industrial sector specific solutions	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	Not available. Not available. Not available.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Ultra Pure Water for CE water	None.
Cation Buffer for CE - pH 3.2 Copper sulphate	CAL OSHA PEL (United States, 5/2018). [copper salts dusts and mists, as Cu] TWA: 1 mg/m ³ , (as Cu) 8 hours. Form: dust and mist

Biological exposure indices

No exposure indices known.

8.2 Exposure controls

Appropriate engineering controls	: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
Environmental exposure controls	: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures	: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
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Section 8. Exposure controls/personal protection

- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	Liquid. Liquid. Liquid. [Clear.]
Color	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	Clear. / Colorless. Blue. [Light] Colorless.
Odor	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	Odorless. Not available. Not available.
Odor threshold	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	Not available. Not available. Not available.
pH	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	7 3.2 2.8
Melting point/freezing point	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	0°C (32°F) 0°C (32°F) 0°C (32°F)
Boiling point, initial boiling point, and boiling range	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	100°C (212°F) 100°C (212°F) 100°C (212°F)
Flash point	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	Closed cup: Not applicable. Not available. Not available.
Evaporation rate	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	Not available. Not available. <1 (butyl acetate = 1)

Section 9. Physical and chemical properties and safety characteristics

- Flammability** : Ultra Pure Water for CE Not applicable.
 Cation Buffer for CE - pH 3.2 Not applicable.
 Cation Test Sample for CE Not applicable.
- Lower and upper explosion limit/flammability limit** : Ultra Pure Water for CE Not available.
 Cation Buffer for CE - pH 3.2 Not available.
 Cation Test Sample for CE Not available.
- Vapor pressure** : Ultra Pure Water for CE 2.3 kPa (17.5 mm Hg) [room temperature]
 12.3 kPa (92.258 mm Hg) [50°C (122°F)]

Ingredient name	Vapor Pressure at 20°C			Vapor pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
<input checked="" type="checkbox"/> Cation Buffer for CE - pH 3.2						
water	17.5	2.3	-	92.258	12.3	-
Cation Test Sample for CE						
water	17.5	2.3	-	92.258	12.3	-

- Relative vapor density** : Ultra Pure Water for CE 0.62 [Air = 1]
 Cation Buffer for CE - pH 3.2 <1 [Air = 1]
 Cation Test Sample for CE Not available.
- Relative density** : Ultra Pure Water for CE 1
 Cation Buffer for CE - pH 3.2 Not available.
 Cation Test Sample for CE 1.008

Media	Result
Ultra Pure Water for CE	
water	Soluble
Cation Buffer for CE - pH 3.2	
water	Soluble
Cation Test Sample for CE	
water	Soluble

- Partition coefficient: n-octanol/water** : Ultra Pure Water for CE -1.38
 Cation Buffer for CE - pH 3.2 Not applicable.
 Cation Test Sample for CE Not applicable.
- Auto-ignition temperature** : Ultra Pure Water for CE Not applicable.
- Decomposition temperature** : Ultra Pure Water for CE Not available.
 Cation Buffer for CE - pH 3.2 Not available.
 Cation Test Sample for CE Not available.
- Viscosity** : Ultra Pure Water for CE Not available.
 Cation Buffer for CE - pH 3.2 Not available.
 Cation Test Sample for CE Not available.

Particle characteristics

- Median particle size** : Ultra Pure Water for CE Not applicable.
 Cation Buffer for CE - pH 3.2 Not applicable.
 Cation Test Sample for CE Not applicable.

Section 10. Stability and reactivity

10.1 Reactivity	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	The product is stable. The product is stable. The product is stable.
10.3 Possibility of hazardous reactions	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	No specific data. No specific data. No specific data.
10.5 Incompatible materials	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials.
10.6 Hazardous decomposition products	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Cation Buffer for CE - pH 3.2 Copper sulphate	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
	LD50 Oral	Rat	300 mg/kg	-

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Section 11. Toxicological information

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Cation Buffer for CE - pH 3.2 Copper sulphate	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Ultra Pure Water for CE Not available.
Cation Buffer for CE - pH 3.2 Not available.
Cation Test Sample for CE Not available.

Potential acute health effects

Eye contact : Ultra Pure Water for CE No known significant effects or critical hazards.
Cation Buffer for CE - pH 3.2 No known significant effects or critical hazards.
Cation Test Sample for CE No known significant effects or critical hazards.

Inhalation : Ultra Pure Water for CE No known significant effects or critical hazards.
Cation Buffer for CE - pH 3.2 No known significant effects or critical hazards.
Cation Test Sample for CE No known significant effects or critical hazards.

Skin contact : Ultra Pure Water for CE No known significant effects or critical hazards.
Cation Buffer for CE - pH 3.2 No known significant effects or critical hazards.
Cation Test Sample for CE No known significant effects or critical hazards.

Ingestion : Ultra Pure Water for CE No known significant effects or critical hazards.
Cation Buffer for CE - pH 3.2 No known significant effects or critical hazards.
Cation Test Sample for CE No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Ultra Pure Water for CE No specific data.
Cation Buffer for CE - pH 3.2 No specific data.
Cation Test Sample for CE No specific data.

Inhalation : Ultra Pure Water for CE No specific data.
Cation Buffer for CE - pH 3.2 No specific data.
Cation Test Sample for CE No specific data.

Skin contact : Ultra Pure Water for CE No specific data.
Cation Buffer for CE - pH 3.2 No specific data.
Cation Test Sample for CE No specific data.

Ingestion : Ultra Pure Water for CE No specific data.
Cation Buffer for CE - pH 3.2 No specific data.
Cation Test Sample for CE No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Section 11. Toxicological information

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Carcinogenicity	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Mutagenicity	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Reproductive toxicity	: Ultra Pure Water for CE Cation Buffer for CE - pH 3.2 Cation Test Sample for CE	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
Cation Buffer for CE - pH 3.2 Copper sulphate	300	2500	N/A	N/A	N/A

Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Cation Buffer for CE - pH 3.2 Copper sulphate	Acute EC50 0.4 µg/l Marine water	Algae - <i>Isochrysis galbana</i>	72 hours
	Acute EC50 16.2 µg/l Fresh water	Aquatic plants - <i>Lemna aequinoctialis</i>	96 hours
	Acute EC50 1.4 µg/l Fresh water	Crustaceans - <i>Bosmina longirostris</i> - Neonate	48 hours
	Acute LC50 0.01 ng/ml Fresh water	Daphnia - <i>Daphnia magna</i> - Neonate	48 hours
	Acute LC50 0.057 µg/l Fresh water	Fish - <i>Cirrhinus mrigala</i>	96 hours
	Chronic NOEC 0.0003 mg/l Marine water	Algae - <i>Entomoneis punctulata</i> - Exponential growth phase	72 hours
	Chronic NOEC 0.0018 mg/l Fresh water	Aquatic plants - <i>Lemna minor</i>	96 hours
	Chronic NOEC 5.06 µg/l Marine water	Crustaceans - <i>Moina mongolica</i> - Neonate	21 days
	Chronic NOEC 10 µg/l Fresh water	Daphnia - <i>Daphnia magna</i> - Instar	21 days
	Chronic NOEC 0.46 µg/l Fresh water	Fish - <i>Acipenser transmontanus</i> - Larvae	53 days

Section 12. Ecological information

12.2 Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Ultra Pure Water for CE water	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Ultra Pure Water for CE water	-1.38	-	Low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

12.5 Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

13.1 Waste treatment methods

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

Section 14. Transport information

DOT / TDG / Mexico / IMDG / IATA : Not regulated.

Additional information

DOT Classification : **Reportable quantity** 30000 lbs / 13620 kg. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.

Section 14. Transport information

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

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

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined
Clean Water Act (CWA) 307: Copper sulphate
Clean Water Act (CWA) 311: Sodium; Copper sulphate; Formic acid; nitric acid

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
Cation Test Sample for CE nitric acid	≤0.1	Yes.	1000	85.7	1000	85.7

SARA 304 RQ : 30150753.8 lbs / 13688442.2 kg

SARA 311/312

Classification : Ultra Pure Water for CE Not applicable.
Cation Buffer for CE - pH 3.2 Not applicable.
Cation Test Sample for CE Not applicable.

Composition/information on ingredients

No products were found.

State regulations

Massachusetts : None of the components are listed.

New York : None of the components are listed.

New Jersey : None of the components are listed.

Pennsylvania : None of the components are listed.

California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Section 15. Regulatory information

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia	: Not determined.
Canada	: Not determined.
China	: Not determined.
Japan	: Japan inventory (CSCL): Not determined. Japan inventory (ISHL): Not determined.
New Zealand	: Not determined.
Philippines	: Not determined.
Republic of Korea	: Not determined.
Taiwan	: All components are listed or exempted.
Thailand	: Not determined.
Turkey	: Not determined.
United States	: Not determined.
Viet Nam	: All components are listed or exempted.

Section 16. Other information

Procedure used to derive the classification

Classification	Justification
Cation Buffer for CE - pH 3.2 AQUATIC HAZARD (ACUTE) - Category 1 AQUATIC HAZARD (LONG-TERM) - Category 2	Calculation method Calculation method

History

Date of issue/Date of revision : 10/13/2023

Date of previous issue : 09/01/2022

Version : 6

Key to abbreviations

: ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 N/A = Not available
 UN = United Nations

✔ Indicates information that has changed from previously issued version.

Notice to reader

Section 16. Other information

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