

Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS)

SECTION 1: Identification

1.1. Product Identifier

Trade Name or Designation: Buffer Solution, for Nitrate Determination using Ion Selective Electrode

Product Number: 1473

Other Identifying Product Numbers: 1473-1, 1473-16, 1473-32

1.2. Recommended Use and Restrictions on Use

General Laboratory Reagent

1.3. Details of the Supplier of the Safety Data Sheet

Company: Ricca Chemical Company

Address: 448 West Fork Drive

Arlington, TX 76012 USA

Telephone: 888-467-4222

1.4. Emergency Telephone Number (24 hours)

CHEMTREC (USA) 800-424-9300

CHEMTREC (International) 1+ 703-527-3887

SECTION 2: Hazard(s) Identification

2.1. Classification of the Substance or Mixture

For the full text of the Hazard and Precautionary Statements listed below, see Section 16.

Hazard Class	Category	Hazard Statements	Precautionary Statements:
Reproductive Toxicity	Category 1	H360	P201, P202, P280, P308+P313, P405, P501

2.2. GHS Label Elements

Pictograms:



Safety Data Sheet

Signal Word: **Danger**

Hazard Statements:

Hazard Number	Hazard Statement
H360	May damage fertility or the unborn child.

Precautionary Statements:

Precautionary Number	Precautionary Statement
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P280	Wear protective gloves and eye protection.
P308+P313	IF exposed or concerned: Get medical attention.
P405	Store locked up.
P501	Dispose of contents in accordance with local, state, federal and international regulations.

2.4. Hazards not Otherwise Classified or Covered by GHS

Data not available.

SECTION 3: Composition / Information on Ingredients

3.1. Components of Substance or Mixture

Chemical Name	Formula	Molecular Weight	CAS Number	Weight%
Water	H ₂ O	18.01 g/mol	7732-18-5	97.55
Aluminum Sulfate Hydrate	Al ₂ (SO ₄) ₃ ·18H ₂ O	594 g/mol	7784-31-8	1.73
Silver Sulfate	Ag ₂ SO ₄	311.79 g/mol	10294-26-5	0.34
Sulfamic Acid	NH ₂ SO ₃ H	97.09 g/mol	5329-14-6	0.25
Boric Acid	H ₃ BO ₃	61.83 g/mol	10043-35-3	0.13

SECTION 4: First-Aid Measures

4.1. General First Aid Information

Eye Contact: May cause irritation, redness, pain, and tearing.

Inhalation: Not expected to require first aid. If necessary, remove to fresh air.

Skin Contact: May cause slight irritation.

Ingestion: Dilute with water or milk. Call a physician if necessary.

Safety Data Sheet

4.2. Most Important Symptoms and Effects, Acute and Delayed

May damage fertility or the unborn child. Non-flammable, non-toxic, non-corrosive. Does not present any significant health hazards. Wash areas of contact with water. EYE CONTACT: May cause irritation, redness, pain, and tearing. SKIN CONTACT: May cause slight irritation.

4.3. Medical Attention or Special Treatment Needed

Irrigate immediately with large quantity of water for at least 15 minutes. Call a physician if irritation develops. Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult, give oxygen. Wash areas of contact with soap and water for at least 15 minutes. Call a physician if irritation develops. Dilute with water or milk. Call a physician if necessary.

SECTION 5: Fire-Fighting Measures

5.1. Extinguishing Media

Use any means suitable for extinguishing surrounding fire.

5.2. Specific Hazards Arising from the Substance or Mixture

Not considered to be a fire or explosion hazard.

5.3. Special Protective Equipment for Firefighters

Use protective clothing and breathing equipment appropriate for the surrounding fire.

SECTION 6: Accidental Release Measures

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

Wear protective gloves and eye protection.

6.2. Cleanup and Containment Methods and Materials

Absorb with suitable material and dispose of in accordance with local regulations.

SECTION 7: Handling and Storage

7.1. Precautions for Safe Handling and Storage Conditions

Store locked up. As with all chemicals, wash hands thoroughly after handling. Avoid contact with eyes and skin. Protect from freezing and physical damage.

Safety Data Sheet

SECTION 8: Exposure Controls / Personal Protection

8.1 Control Parameters

Chemical Name	Limit Type	Country	Exposure Limit	Information Source
Boric Acid (10043-35-3)	TLV-TWA	USA	2 mg/m ³ TWA (inhalable particulate matter, listed under Borate compounds, inorganic)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Boric Acid (10043-35-3)	TLV-STEL	USA	6 mg/m ³ STEL (inhalable particulate matter, listed under Borate compounds, inorganic)	ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL)
Boric Acid (10043-35-3)	TLV-TWA	USA	"2 mg/m ³ TWA (inhalable particulate matter)" As Borate compounds, inorganic [RR-33876-1]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Boric Acid (10043-35-3)	TLV-STEL	USA	"6 mg/m ³ STEL (inhalable particulate matter)" As Borate compounds, inorganic [RR-33876-1]	ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL)
Boric Acid (10043-35-3)	TLV-TWA	USA	2 mg/m ³ TWA (inhalable particulate matter)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Boric Acid (10043-35-3)	TLV-STEL	USA	6 mg/m ³ STEL (inhalable particulate matter)	ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL)
Silver Sulfate (10294-26-5)	TWA	USA	"0.01 mg/m ³ TWA (as Ag)" As Silver soluble compounds [RR-00041-9]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Silver Sulfate (10294-26-5)	TLV-TWA	USA	"0.01 mg/m ³ TWA (as Ag)" As Silver soluble compounds [RR-00041-9]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Silver Sulfate (10294-26-5)	TLV-TWA	USA	0.01 mg/m ³ TWA (as Ag)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Silver Sulfate (10294-26-5)	TWA	USA	0.01 mg/m ³ TWA (as Ag)	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)

8.2. Exposure Controls

Engineering Controls: No specific controls are needed. Normal room ventilation is adequate.

Respiratory Protection: Normal room ventilation is adequate.



Safety Data Sheet

Skin Protection: Wear protective gloves and eye protection. Chemical resistant gloves.

Eye Protection: Wear protective gloves and eye protection. Safety glasses or goggles.

8.3. Personal Protective Equipment

Wear protective gloves and eye protection. Normal room ventilation is adequate. Chemical resistant gloves. Safety glasses or goggles.

SECTION 9: Physical and Chemical Properties

9.1. Basic Physical and Chemical Properties

Appearance: Colorless liquid

Physical State: Liquid

Odor: Data not available.

Odor Threshold: Data not available.

pH: 2.98 - 3.98

Melting/Freezing Point: Approximately 0°C

Initial Boiling Point/Range: Approximately 100°C - Approximately 100°C

Flash Point: Data not available.

Evaporation Rate: Data not available.

Flammability: Data not available.

Flammability/Explosive Limits: Data not available.

Vapor Pressure: Data not available.

Vapor Density: Data not available.

Relative Density: 1.0

Solubility: Miscible

Partition Coefficient: Data not available.

Auto-Ignition Temperature: Data not available.

Decomposition Temperature: Data not available.

Viscosity: Data not available.

Explosive Properties: Data not available.

Oxidizing Properties: Data not available.

SECTION 10: Stability and Reactivity

10.1. Reactivity and Chemical Stability

Stable under normal conditions of use and storage.

10.2. Possibility of Hazardous Reactions

Data not available.



Safety Data Sheet

10.3. Conditions to Avoid and Incompatible Materials

Alkalis, Hydroxides.

10.4. Hazardous Decomposition Products

Will not occur.

SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects

Acute Toxicity - Oral Exposure:

Not applicable.

Acute Toxicity - Dermal Exposure:

Not applicable.

Acute Toxicity - Inhalation Exposure:

Not applicable.

Acute Toxicity - Other Information:

LD50, Oral, Rat: (Boric Acid) 2660 mg/kg, (Aluminum Sulfate) > 9 gm/kg, (Sulfamic Acid) 3160 mg/kg, details of toxic effects not reported other than lethal dose value; LDLo, Oral, Woman: 200 mg/kg (Boric Acid), behavioral and gastrointestinal effects noted.

Skin Corrosion and Irritation:

Not applicable.

Serious Eye Damage and Irritation:

Not applicable.

Respiratory Sensitization:

Not applicable.

Skin Sensitization:

Not applicable.

Germ Cell Mutagenicity:

Not applicable.

Carcinogenicity:

Not applicable.

Reproductive Toxicity:

May damage fertility or the unborn child. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves and eye protection. IF exposed or concerned: Get medical attention. Store locked up. Dispose of contents in accordance with local, state, federal and international regulations.

Specific Target Organ Toxicity from Single Exposure:

Not applicable.

Specific Target Organ Toxicity from Repeated Exposure:

Not applicable.



Safety Data Sheet

Aspiration Hazard:

Not applicable.

Additional Toxicology Information:

Data not available.

SECTION 12: Ecological Information

12.1. Ecotoxicity

Not applicable.

12.2. Persistence and Degradability

Data not available.

12.3. Bioaccumulative Potential

Data not available.

12.4. Mobility in Soil

Data not available.

12.5. Other Adverse Ecological Effects

Data not available.

SECTION 13: Disposal Considerations

13.1. Waste Treatment Methods

Data not available.

SECTION 14: Transportation Information

14.1. Transportation by Land-Department of Transportation (DOT, United States of America)

Not regulated according to DOT Regulations.



Safety Data Sheet

14.2. Transportation by Air - International Air Transport Association (IATA)

Not regulated according to IATA Dangerous Goods Regulations.

14.3 Transportation of Dangerous Goods (TDG, Canada)

Not regulated according to TDG Regulations.

SECTION 15: Regulatory Information

15.1. Occupational Safety and Health Administration (OSHA) Hazards

Not listed.

15.2. Superfund Amendments and Reauthorization Act (SARA) 302 Extremely Hazardous Substances

Not listed.

15.3. Superfund Amendments and Reauthorization Act (SARA) 311/312 Hazardous Chemicals

Aluminum Sulfate Hydrate (CAS # 7784-31-8): 5000 lb final RQ; 2270 kg final RQ

15.4. Superfund Amendments and Reauthorization Act (SARA) 313 Toxic Release Inventory (TRI)

Silver Sulfate (CAS # 10294-26-5): "1.0 % de minimis concentration (includes any unique chemical substance that includes Silver as part of that chemical's infrastructure, listed under Chemical Category N740)" As Silver compounds [RR-00574-3]

Silver Sulfate (CAS # 10294-26-5): 1.0 % de minimis concentration (includes any unique chemical substance that includes Silver as part of that chemical's infrastructure, listed under Chemical Category N740)

Safety Data Sheet

15.5. Massachusetts Right-to-Know Substance List

Aluminum Sulfate Hydrate (CAS # 7784-31-8): Present

15.6. Pennsylvania Right-to-Know Hazardous Substances

Silver Sulfate (CAS # 10294-26-5): "Environmental hazard" As Silver compounds [RR-00574-3]

Silver Sulfate (CAS # 10294-26-5): "Present" As Silver compounds [RR-00574-3]

Silver Sulfate (CAS # 10294-26-5): Environmental hazard

Silver Sulfate (CAS # 10294-26-5): Present

Water (CAS # 7732-18-5): "Present" As Ethyl alcohol and water [RR-00802-6]

Water (CAS # 7732-18-5): Present

Aluminum Sulfate Hydrate (CAS # 7784-31-8): "Present" As Aluminum soluble salts [RR-00021-5]

Aluminum Sulfate Hydrate (CAS # 7784-31-8): Environmental hazard

Aluminum Sulfate Hydrate (CAS # 7784-31-8): Present

15.7. New Jersey Worker and Community Right-to-Know Components

Boric Acid (CAS # 10043-35-3): "sn 0241" As Borate compounds, inorganic [RR-33876-1]

Boric Acid (CAS # 10043-35-3): sn 0241

Silver Sulfate (CAS # 10294-26-5): "SN 3008 500 lb TPQ (Category Code N740. Includes any unique chemical substance that contains the named metal as part of that chemical structure)" As Silver compounds [RR-00574-3]

Silver Sulfate (CAS # 10294-26-5): "sn 3008" As Silver compounds [RR-00574-3]

Silver Sulfate (CAS # 10294-26-5): sn 3008

Silver Sulfate (CAS # 10294-26-5): SN 3008 500 lb TPQ (Category Code N740. Includes any unique chemical substance that contains the named metal as part of that chemical structure)

Sulfamic Acid (CAS # 5329-14-6): corrosive

Sulfamic Acid (CAS # 5329-14-6): sn 1770

Aluminum Sulfate Hydrate (CAS # 7784-31-8): corrosive

Aluminum Sulfate Hydrate (CAS # 7784-31-8): sn 0068

15.8. California Proposition 65

Not listed.

15.9. Canada Domestic Substances List / Non-Domestic Substances List (DSL/NDSL)

Boric Acid (CAS # 10043-35-3): Present (DSL)

Silver Sulfate (CAS # 10294-26-5): Present (DSL)

Sulfamic Acid (CAS # 5329-14-6): Present (DSL)

Water (CAS # 7732-18-5): Present (DSL)

Aluminum Sulfate Hydrate (CAS # 7784-31-8): Present (DSL)

15.10. United States of America Toxic Substances Control Act (TSCA) List

All components of this solution are listed as active on the TSCA Inventory or are mixtures (hydrates) of active items listed on the TSCA Inventory.

Safety Data Sheet

Boric Acid (CAS # 10043-35-3): Present (ACTIVE)
Silver Sulfate (CAS # 10294-26-5): Present (ACTIVE)
Sulfamic Acid (CAS # 5329-14-6): Present (ACTIVE)
Water (CAS # 7732-18-5): Present (ACTIVE)
Aluminum Sulfate Hydrate (CAS # 7784-31-8): Present (ACTIVE)

15.11. European Inventory of Existing Commercial Chemical Substances (EINECS), European List of Notified Chemical Substances (ELINCS), and No Longer Polymers (NLP)

Boric Acid (CAS # 10043-35-3): 233-139-2
Boric Acid (CAS # 10043-35-3): 234-343-4
Silver Sulfate (CAS # 10294-26-5): 233-653-7
Sulfamic Acid (CAS # 5329-14-6): 226-218-8
Water (CAS # 7732-18-5): 231-791-2
Aluminum Sulfate Hydrate (CAS # 7784-31-8): 233-135-0

SECTION 16: Other Information

16.1. Full Text of Hazard Statements and Precautionary Statements

May damage fertility or the unborn child.

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves and eye protection.

IF exposed or concerned: Get medical attention.

Store locked up.

Dispose of contents in accordance with local, state, federal and international regulations.

16.2. Miscellaneous Hazard Classes

Canadian Carcinogenicity Hazard Class: Not Applicable.

Physical Hazards Not Otherwise Classified (PHNOC): Not Applicable.

Health Hazards Not Otherwise Classified (HHNOC): Not Applicable.

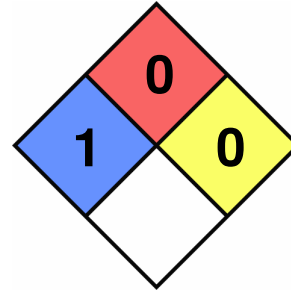
Biohazardous Infectious Materials Hazard Class: Not Applicable.



Safety Data Sheet

16.3. National Fire Protection Association (NFPA) Rating

Health: 1
Flammability: 0
Reactivity: 0
Special Hazard:



16.4. Document Revision

Last Revision Date: 2023-09-11

DISCLAIMER

When handled properly by qualified personnel, the product described herein does not present a significant health or safety hazard. Alteration of its characteristics by concentration, evaporation, addition of other substances, or other means may present hazards not specifically addressed herein and which must be evaluated by the user. The information furnished herein is believed to be accurate and represents the best data currently available to us. No warranty, expressed or implied, is made and RICCA CHEMICAL COMPANY assumes no legal responsibility or liability whatsoever resulting from its use.