Material Safety Data Sheet
Buffer for Nitrogen (Nitrate)

Section 1 - Chemical Product and Company Identification

MSDS Name:
Buffer for Nitrogen (Nitrate)
Catalog Numbers:
LC12576
Synonyms:
None

Section 2 – Composition, Information on Ingredients

CAS#	Chemical Name:	Percent
7732-18-5	Water	balance
7784-31-8	Aluminum sulfate octadecahydrate	1.7
10294-26-5	Silver sulfate	0.34
5329-14-6	Sulfamic acid	0.25
10043-35-3	Boric acid	0.13
1310-73-2	Sodium hydroxide	<1

Section 3 - Hazards Identification

Emergency Overview

Appearance: *Clear, colorless solution*
Caution! *May cause irritation by all exposure routes. May be harmful if swallowed. May impair fertility. May cause harm to the unborn child.*
Target Organs: *kidneys, cardiovascular, respiratory, gastrointestinal and central nervous systems, eyes, skin*

Potential Health Effects

Eye:
May cause eye irritation.
Skin:
May cause skin irritation.

Ingestion:
May cause gastrointestinal irritation with nausea, vomiting, and diarrhea.
Inhalation:
May cause respiratory tract irritation.
Chronic:
May impair fertility. May cause harm to the unborn child.

Section 4 - First Aid Measures

Eyes:
Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids until no evidence of chemical remains. Get medical aid at once.
Skin:
Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.
Ingestion:
Give conscious victim 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid at once.
Inhalation:
Move victim to fresh air immediately. Get medical aid if irritation or other symptoms appear.
Notes to Physician:
Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information:
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
Extinguishing Media:
For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam.
Autoignition Temperature:
No information found.
Flash Point:
No information found.
NFPA Rating:
Health- 1, Flammability- 0, Instability- 0
Explosion Limits:
Lower: n/a Upper: n/a

Section 6 - Accidental Release Measures

General Information:
Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:

Absorb spill with inert material such as sand, vermiculite, or diatomaceous earth, and transfer to a suitable container labeled for later disposal.

Section 7 - Handling and Storage

Handling:

Wash thoroughly after handling. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation.

Storage:

Store tightly capped in a cool, dry, well-ventilated area away from incompatible materials.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls:

Facilities using or storing this material should be equipped with an eyewash and safety shower. Provide local exhaust or general dilution ventilation to keep airborne levels below the permissible exposure limits.

Exposure Limits:

Chemical Name:	ACGIH	NIOSH	OSHA
Water	None of the components are on this list.	None of the components are on this list.	None of the components are on this list.
Aluminum sulfate	None of the components are on this list.	2 mg/m3 TWA (as Al) (listed as Aluminum, soluble salts)	None of the components are on this list.
Silver sulfate	None of the components are on this list.	None of the components are on this list.	None of the components are on this list.
Sulfamic acid	None of the components are on this list.	None of the components are on this list.	None of the components are on this list.
Boric acid	2 mg/m3 TWA 6 mg/m3 STEL	None of the components are on this list.	None of the components are on the list
Sodium hydroxide	2 mg/m3 Ceiling	10 mg/m3 IDLH	2 mg/m3 TWA

OSHA Vacated PELs:

Aluminum sulfate octadecahydrate: 2 mg/m3 TWA (as Al, listed under Aluminum, soluble salts)

Personal Protective Equipment

Eyes:

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133. Do not wear contact lenses when working with chemicals.

Skin:

Wear appropriate protective gloves to prevent skin exposure.

Clothing:

Wear appropriate protective clothing to prevent skin exposure.

Respirators:

Follow the OSHA respirator regulations found in 29 CFR 1910.134. Always use a NIOSH-approved respirator when necessary.

Material Safety Data Sheet
Buffer for Nitrogen (Nitrate)

Section 9 - Physical and Chemical Properties

Physical State:	Clear liquid
Color:	Colorless
Odor:	Odorless
pH:	No information found.
Vapor Pressure:	No information found.
Vapor Density:	> Air
Evaporation Rate:	< Ether
Viscosity:	No information found.
Boiling Point:	> 212°F (> 100°C)
Freezing/Melting Point:	< 32°F (< 0°C)
Decomposition Temperature:	No information found.
Solubility in water:	Soluble.
Specific Gravity/Density:	1.0
Molecular Formula:	No information found.
Molecular Weight:	No information found.

Section 10 - Stability and Reactivity

Chemical Stability:

Stable under normal temperatures and pressures.

Conditions to Avoid:

Incompatible materials, excess heat.

Incompatibilities with Other Materials:

Strong oxidizers, metals.

Hazardous Decomposition Products:

Oxides of nitrogen, oxides of sulfur, aluminum oxide, carbon monoxide, carbon dioxide, oxides of boron, sodium oxide.

Hazardous Polymerization:

Has not been reported.

Section 11 - Toxicological Information

RTECS:

CAS# 7732-18-5: ZC0110000
CAS# 7784-31-8: WS5697000
CAS# 10294-26-5: unlisted
CAS# 5329-14-6: WO5950000
CAS# 10043-35-3: ED4550000
CAS# 1310-73-2: WB4900000

LD50/LC50:

CAS# 7732-18-5:
Oral, rat: LD50 = >90 mL/kg
CAS# 7784-31-8:
Oral, mouse: LD50 = 980 mg/kg
Oral, rat: LD50 = 370 mg/kg

CAS# 10294-26-5:
Oral, rat: LD50 = 5000 mg/kg
CAS# 5329-14-6:
Oral, rat: LD50 = 1450 mg/kg
CAS# 10043-35-3:
Oral, rat: LD50 = 2660 mg/kg
Dermal, rabbit: LD50 = 2000 mg/kg
Inhalation, rat: LC50 = 0.16 mg/L/4H
CAS# 1310-73-2:
Not available

Carcinogenicity:

CAS# 7732-18-5: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.

CAS# 10043-01-3: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.

CAS# 10294-26-5: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.

CAS# 5329-14-6: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.

CAS# 10043-35-3: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.

CAS# 1310-73-2: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.

Epidemiology:

Concentrated components may be eye, skin, mucous membrane irritants. May be harmful if ingested.

Teratogenicity:

May cause harm to the unborn child.

Reproductive:

Adverse reproductive effects have occurred in humans.

Mutagenicity:

Boric acid has caused mutagenic effects in microorganisms.

Neurotoxicity:

No information found

Section 12 - Ecological Information

No information found

Section 13 - Disposal Considerations

Dispose of in accordance with Federal, State, and local regulations.

Section 14 - Transport Information

US DOT

Shipping Name: Not regulated.
Hazard Class:

Material Safety Data Sheet
Buffer for Nitrogen (Nitrate)

UN Number:
Packing Group:

Section 15 - Regulatory Information

US Federal

TSCA:

CAS# 7732-18-5 is listed on the TSCA Inventory.
CAS# 7784-31-8 is listed on the TSCA Inventory.
CAS# 10294-26-5 is listed on the TSCA Inventory.
CAS# 5329-14-6 is listed on the TSCA Inventory.
CAS# 10043-35-3 is listed on the TSCA Inventory.
CAS# 1310-73-2 is listed on the TSCA Inventory.

SARA Reportable Quantities (RQ):

CAS# 1310-73-2: final RQ = 1000 lb. (454 kg)

CERCLA/SARA Section 313:

None of the components are on this list.

OSHA - Highly Hazardous:

None of the components are on this list.

US State

State Right to Know:

Aluminum sulfate can be found on the following state Right-to-Know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
Sulfamic acid can be found on the following state Right-to-Know lists: New Jersey.
Sodium hydroxide can be found on the following state Right-to-Know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.

California Regulations:

None

European/International Regulations

Canadian DSL/NDSL:

CAS# 7732-18-5 is listed on Canada's DSL List.
CAS# 7784-31-8 is not listed on Canada's DSL or NDSL Lists.
CAS# 10294-26-5 is listed on Canada's DSL List.
CAS# 5329-14-6 is listed on Canada's DSL List.
CAS# 10043-35-3 is listed on Canada's DSL List.
CAS# 1310-73-2 is listed on Canada's DSL List.

Canada Ingredient Disclosure List:

CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List.
CAS# 7784-31-8 is listed on Canada's Ingredient Disclosure List as Aluminum, water soluble salts, nos.
CAS# 10294-26-5 is listed on Canada's Ingredient Disclosure List as Silver, water soluble compounds, nos.
CAS# 5329-14-6 is listed on Canada's Ingredient Disclosure List.
CAS# 10043-35-3 is listed on Canada's Ingredient Disclosure List.
CAS# 1310-73-2 is listed on Canada's Ingredient Disclosure List.

Material Safety Data Sheet
Buffer for Nitrogen (Nitrate)

Section 16 - Other Information

MSDS Creation Date: August 30, 1998
Revision Date: January 14, 2011
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