

Vernier Software & Technology

Material Safety Data Sheet (MSDS)

Section 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Ammonium Chloride solution (NH₄Cl) Standard Solution (100 mg/L NH₄⁺ as N) for Vernier Ammonium Ion-Selective Electrodes

Vernier Software & Technology
13979 S.W. Millikan Way
Beaverton, OR 97005-2886
(503) 277-2299 • FAX (503) 277-2440
dholmquist@vernier.com
www.vernier.com

Section 2 — COMPOSITION, INFORMATION ON INGREDIENTS

Ammonium Chloride (12125-02-9) ~0.01 % (100 mg/L NH₄⁺ as N), Water (7732-18-5) ~99.99%
Synonym: Ammonium Muriate
CAS#: None established

Section 3 — HAZARDS IDENTIFICATION

Clear, colorless, odorless solution.
Mildly toxic by ingestion. Irritating to body tissues. Avoid all body tissue contact.

Section 4 — FIRST AID MEASURES

Call a physician, seek medical attention for further treatment, observation and support after first aid.
Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.
Eye: Immediately flush with fresh water for 15 minutes.
External: Wash continuously with fresh water for 15 minutes.
Internal: Rinse out mouth, give 1 to 2 cups of water or milk, induce vomiting. Call a physician or poison control at once.

Section 5 — FIRE FIGHTING MEASURES

Non-flammable, non-combustible liquid.
Fire Fighting Instructions: Use triclass, dry chemical fire extinguisher. Firefighters should wear PPE and SCBA with full facepiece operated in positive pressure mode.

NFPA Code: None established

Section 6 — ACCIDENTAL RELEASE MEASURES

Restrict unprotected personnel from area and ventilate area. Contain spill with sand or absorbent material; deposit in sealed bag or container. See Sections 8 and 13 for further information.

Section 7 — HANDLING AND STORAGE

Store with amides, nitrates and nitrites.

Section 8 — EXPOSURE CONTROLS, PERSONAL PROTECTION

Avoid contact with eyes, skin and clothing. Wear chemical splash goggles, chemical-resistant gloves and chemical-resistant apron.

Section 9 — PHYSICAL AND CHEMICAL PROPERTIES

Colorless liquid. Odorless.
Concentration: 100 mg/L NH_4^+ as N

Section 10 — STABILITY AND REACTIVITY

Avoid heat, decomposes when heated.
Shelf life: Indefinite.

Section 11 — TOXICOLOGICAL INFORMATION

Acute effects: Irritant	ORL-RAT LD50: 1650 mg/kg as Ammonium Chloride
Chronic effects: N.A.	IHL-RAT LC50: N.A.
Target organs: Blood, central nervous system	SKN-RBT LD50: N.A.

N.A. = Not available, not all health aspects of this substance have been fully investigated.

Section 12 — ECOLOGICAL INFORMATION

Data not yet available

Section 13 — DISPOSAL CONSIDERATIONS

Please consult with state and local regulations.

Section 14 — TRANSPORT INFORMATION

Shipping Name: Not regulated
Hazard Class: N/A
UN Number: N/A
N/A = Not applicable

Section 15 — REGULATORY INFORMATION

Not listed

Section 16 — OTHER INFORMATION

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Section 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Ammonium Chloride solution (NH₄Cl) Standard Solution (1 mg/L NH₄⁺ as N) for Vernier Ammonium Ion-Selective Electrodes

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Section 2 — COMPOSITION, INFORMATION ON INGREDIENTS

Ammonium Chloride (12125-02-9) ~0.0001 % (1 mg/L NH₄⁺ as N), Water (7732-18-5) ~99.999%
Synonym: Ammonium Muriate
CAS#: None established

Section 3 — HAZARDS IDENTIFICATION

Clear, colorless, odorless solution.
Mildly toxic by ingestion. Irritating to body tissues. Avoid all body tissue contact.

Section 4 — FIRST AID MEASURES

Call a physician, seek medical attention for further treatment, observation and support after first aid.
Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.
Eye: Immediately flush with fresh water for 15 minutes.
External: Wash continuously with fresh water for 15 minutes.
Internal: Rinse out mouth, give 1 to 2 cups of water or milk, induce vomiting. Call a physician or poison control at once.

Section 5 — FIRE FIGHTING MEASURES

Non-flammable, non-combustible liquid.
Fire Fighting Instructions: Use triclass, dry chemical fire extinguisher. Firefighters should wear PPE and SCBA with full facepiece operated in positive pressure mode.

NFPA Code: None established

Section 6 — ACCIDENTAL RELEASE MEASURES

Restrict unprotected personnel from area and ventilate area. Contain spill with sand or absorbent material; deposit in sealed bag or container. See Sections 8 and 13 for further information.

Section 7 — HANDLING AND STORAGE

Store with amides, nitrates and nitrites.

Section 8 — EXPOSURE CONTROLS, PERSONAL PROTECTION

Avoid contact with eyes, skin and clothing. Wear chemical splash goggles, chemical-resistant gloves and chemical-resistant apron.

Section 9 — PHYSICAL AND CHEMICAL PROPERTIES

Colorless liquid. Odorless.
Concentration: 1 mg/L NH₄⁺ as N

Section 10 — STABILITY AND REACTIVITY

Avoid heat, decomposes when heated.
Shelf life: Indefinite.

Section 11 — TOXICOLOGICAL INFORMATION

Acute effects: Irritant	ORL-RAT LD50: 1650 mg/kg as Ammonium Chloride
Chronic effects: N.A.	IHL-RAT LC50: N.A.
Target organs: Blood, central nervous system	SKN-RBT LD50: N.A.

N.A. = Not available, not all health aspects of this substance have been fully investigated.

Section 12 — ECOLOGICAL INFORMATION

Data not yet available

Section 13 — DISPOSAL CONSIDERATIONS

Please consult with state and local regulations.

Section 14 — TRANSPORT INFORMATION

Shipping Name: Not regulated
Hazard Class: N/A
UN Number: N/A
N/A = Not applicable

Section 15 — REGULATORY INFORMATION

Not listed

Section 16 — OTHER INFORMATION

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Vernier Software & Technology

Material Safety Data Sheet (MSDS)

Section 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Calcium Chloride solution (CaCl₂) Standard Solution (1000 mg/L as Ca²⁺) for Vernier Calcium Ion-Selective Electrodes

Vernier Software & Technology
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Section 2 — COMPOSITION, INFORMATION ON INGREDIENTS

Calcium Chloride (10035-04-8) ~0.1 % (1000 mg/L as Ca²⁺), Water (7732-18-5) ~ 99.9%
CAS#: None established

Section 3 — HAZARDS IDENTIFICATION

Colorless liquid. Odorless.
Substance not considered hazardous. However, not all health aspects of this substance have been thoroughly investigated.

Section 4 — FIRST AID MEASURES

Call a physician, seek medical attention for further treatment, observation and support after first aid.
Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.
Eye: Immediately flush with fresh water for 15 minutes.
External: Wash continuously with fresh water for 15 minutes.
Internal: Give large quantities of water. Call a physician or poison control at once.

Section 5 — FIRE FIGHTING MEASURES

Non-flammable non-combustible liquid **NFPA Code:** None established

Section 6 — ACCIDENTAL RELEASE MEASURES

Restrict unprotected personnel from area and ventilate area. Contain spill with sand or absorbent material; deposit in sealed bag or container. See Sections 8 and 13 for further information.

Section 7 — HANDLING AND STORAGE

Store with acetates, halides, sulfates, sulfites, thiosulfates and phosphates.

Section 8 — EXPOSURE CONTROLS, PERSONAL PROTECTION

Avoid contact with eyes, skin and clothing. Wear chemical splash goggles, chemical-resistant gloves and chemical-resistant apron.

Section 9 — PHYSICAL AND CHEMICAL PROPERTIES

Colorless liquid. Odorless.
Concentration: 1000 mg/L as Ca²⁺

Section 10 — STABILITY AND REACTIVITY

Shelf life: Good

Section 11 — TOXICOLOGICAL INFORMATION

Acute effects: N.A.	ORL-RAT LD50: N.A.
Chronic effects: N.A.	IHL-RAT LC50: N.A.
Target organs: N.A.	SKN-RBT LD50: N.A.

N.A. = Not available, not all health aspects of this substance have been fully investigated.

Section 12 — ECOLOGICAL INFORMATION

Data not yet available

Section 13 — DISPOSAL CONSIDERATIONS

Please consult with state and local regulations.

Section 14 — TRANSPORT INFORMATION

Shipping Name: Not regulated
Hazard Class: N/A
UN Number: N/A
N/A = Not applicable

Section 15 — REGULATORY INFORMATION

Not listed

Section 16 — OTHER INFORMATION

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Section 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Calcium Chloride solution (CaCl₂) Standard Solution (10 mg/L as Ca²⁺) for Vernier Calcium Ion-Selective Electrodes

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Section 2 — COMPOSITION, INFORMATION ON INGREDIENTS

Calcium Chloride (10035-04-8) ~0.001 % (10 mg/L as Ca²⁺), Water (7732-18-5) ~99.99%
CAS#: None established

Section 3 — HAZARDS IDENTIFICATION

Colorless liquid. Odorless.
Substance not considered hazardous. However, not all health aspects of this substance have been thoroughly investigated.

Section 4 — FIRST AID MEASURES

Call a physician, seek medical attention for further treatment, observation and support after first aid.
Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.
Eye: Immediately flush with fresh water for 15 minutes.
External: Wash continuously with fresh water for 15 minutes.
Internal: Give large quantities of water. Call a physician or poison control at once.

Section 5 — FIRE FIGHTING MEASURES

Non-flammable non-combustible liquid **NFPA Code:** None established

Section 6 — ACCIDENTAL RELEASE MEASURES

Restrict unprotected personnel from area and ventilate area. Contain spill with sand or absorbent material; deposit in sealed bag or container. See Sections 8 and 13 for further information.

Section 7 — HANDLING AND STORAGE

Store with acetates, halides, sulfates, sulfites, thiosulfates and phosphates.

Section 8 — EXPOSURE CONTROLS, PERSONAL PROTECTION

Avoid contact with eyes, skin and clothing. Wear chemical splash goggles, chemical-resistant gloves and chemical-resistant apron.

Section 9 — PHYSICAL AND CHEMICAL PROPERTIES

Colorless liquid. Odorless.
Concentration: 10 mg/L as Ca²⁺

Section 10 — STABILITY AND REACTIVITY

Shelf life: Good

Section 11 — TOXICOLOGICAL INFORMATION

Acute effects: N.A.	ORL-RAT LD50: N.A.
Chronic effects: N.A.	IHL-RAT LC50: N.A.
Target organs: N.A.	SKN-RBT LD50: N.A.

N.A. = Not available, not all health aspects of this substance have been fully investigated.

Section 12 — ECOLOGICAL INFORMATION

Data not yet available

Section 13 — DISPOSAL CONSIDERATIONS

Please consult with state and local regulations.

Section 14 — TRANSPORT INFORMATION

Shipping Name: Not regulated
Hazard Class: N/A
UN Number: N/A
N/A = Not applicable

Section 15 — REGULATORY INFORMATION

Not listed

Section 16 — OTHER INFORMATION

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Material Safety Data Sheet (MSDS)

Section 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Sodium Chloride solution (NaCl) Standard Solution (1000 mg/L as Cl⁻) for Vernier Chloride Ion-Selective Electrodes

Vernier Software & Technology
13979 S.W. Millikan Way
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Section 2 — COMPOSITION, INFORMATION ON INGREDIENTS

Sodium Chloride (7647-14-5) ~0.1 % (1000 mg/L as Cl⁻), Water (7732-18-5) ~99.9%
CAS#: None established

Section 3 — HAZARDS IDENTIFICATION

Colorless, odorless solution.
Substance not considered hazardous. However, not all health aspects of this substance have been thoroughly investigated.

Section 4 — FIRST AID MEASURES

Call a physician, seek medical attention for further treatment, observation and support after first aid.
Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.
Eye: Immediately flush with fresh water for 15 minutes.
External: Wash with soap and water.
Internal: Give large quantities of water. Call a physician or poison control at once.

Section 5 — FIRE FIGHTING MEASURES

Non-combustible liquid **NFPA Code:** None established

Section 6 — ACCIDENTAL RELEASE MEASURES

Restrict unprotected personnel from area and ventilate area. Contain spill with sand or absorbent material; deposit in sealed bag or container. See Sections 8 and 13 for further information.

Section 7 — HANDLING AND STORAGE

Store with acetates, halides, sulfates, sulfites, thiosulfates and phosphates.

Section 8 — EXPOSURE CONTROLS, PERSONAL PROTECTION

Avoid contact with eyes, skin and clothing. Wear chemical splash goggles, chemical-resistant gloves and chemical-resistant apron.

Section 9 — PHYSICAL AND CHEMICAL PROPERTIES

Colorless liquid. Odorless.
Concentration: 1000 mg/L as Cl⁻

Section 10 — STABILITY AND REACTIVITY

Shelf life: Good

Section 11 — TOXICOLOGICAL INFORMATION

Acute effects: N.A.	ORL-RAT LD50: N.A.
Chronic effects: N.A.	IHL-RAT LC50: N.A.
Target organs: N.A.	SKN-RBT LD50: N.A.

N.A. = Not available, not all health aspects of this substance have been fully investigated.

Section 12 — ECOLOGICAL INFORMATION

Data not yet available

Section 13 — DISPOSAL CONSIDERATIONS

Please consult with state and local regulations.

Section 14 — TRANSPORT INFORMATION

Shipping Name: Not regulated
Hazard Class: N/A
UN Number: N/A
N/A = Not applicable

Section 15 — REGULATORY INFORMATION

Not listed

Section 16 — OTHER INFORMATION

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Section 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Sodium Chloride solution (NaCl) Standard Solution (10 mg/L as Cl⁻) for Vernier Chloride Ion-Selective Electrodes

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13979 S.W. Millikan Way
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Section 2 — COMPOSITION, INFORMATION ON INGREDIENTS

Sodium Chloride (7647-14-5) ~0.001 % (10 mg/L as Cl⁻), Water (7732-18-5) ~99.99%
CAS#: None established

Section 3 — HAZARDS IDENTIFICATION

Colorless, odorless solution.
Substance not considered hazardous. However, not all health aspects of this substance have been thoroughly investigated.

Section 4 — FIRST AID MEASURES

Call a physician, seek medical attention for further treatment, observation and support after first aid.
Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.
Eye: Immediately flush with fresh water for 15 minutes.
External: Wash with soap and water.
Internal: Give large quantities of water. Call a physician or poison control at once.

Section 5 — FIRE FIGHTING MEASURES

Non-combustible liquid **NFPA Code:** None established

Section 6 — ACCIDENTAL RELEASE MEASURES

Restrict unprotected personnel from area and ventilate area. Contain spill with sand or absorbent material; deposit in sealed bag or container. See Sections 8 and 13 for further information.

Section 7 — HANDLING AND STORAGE

Store with acetates, halides, sulfates, sulfites, thiosulfates and phosphates.

Section 8 — EXPOSURE CONTROLS, PERSONAL PROTECTION

Avoid contact with eyes, skin and clothing. Wear chemical splash goggles, chemical-resistant gloves and chemical-resistant apron.

Section 9 — PHYSICAL AND CHEMICAL PROPERTIES

Colorless liquid. Odorless.
Concentration: 10 mg/L as Cl⁻

Section 10 — STABILITY AND REACTIVITY

Shelf life: Good

Section 11 — TOXICOLOGICAL INFORMATION

Acute effects: N.A.	ORL-RAT LD50: N.A.
Chronic effects: N.A.	IHL-RAT LC50: N.A.
Target organs: N.A.	SKN-RBT LD50: N.A.

N.A. = Not available, not all health aspects of this substance have been fully investigated.

Section 12 — ECOLOGICAL INFORMATION

Data not yet available

Section 13 — DISPOSAL CONSIDERATIONS

Please consult with state and local regulations.

Section 14 — TRANSPORT INFORMATION

Shipping Name: Not regulated
Hazard Class: N/A
UN Number: N/A
N/A = Not applicable

Section 15 — REGULATORY INFORMATION

Not listed

Section 16 — OTHER INFORMATION

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Material Safety Data Sheet (MSDS)

Section 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Sodium Nitrate solution (NaNO₃) Standard Solution (100 mg/L NO₃⁻ as N) for Vernier Nitrate Ion-Selective Electrodes

Vernier Software & Technology
13979 S.W. Millikan Way
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Section 2 — COMPOSITION, INFORMATION ON INGREDIENTS

Sodium Nitrate (7631-99-4) ~0.01 % (100 mg/L NO₃⁻ as N), Water (7732-18-5) ~99.99%
CAS#: None established

Section 3 — HAZARDS IDENTIFICATION

Colorless liquid. Odorless.
Substance not considered hazardous. However, not all health aspects of this substance have been thoroughly investigated.

Section 4 — FIRST AID MEASURES

Call a physician, seek medical attention for further treatment, observation and support after first aid.
Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.
Eye: Immediately flush with fresh water for 15 minutes.
External: Wash continuously with fresh water for 15 minutes.
Internal: Rinse out mouth, give 1 to 2 cups of water or milk, induce vomiting. Call a physician or poison control at once.

Section 5 — FIRE FIGHTING MEASURES

Non-flammable non-combustible liquid **NFPA Code:** None established

Section 6 — ACCIDENTAL RELEASE MEASURES

Restrict unprotected personnel from area and ventilate area. Contain spill with sand or absorbent material; deposit in sealed bag or container. See Sections 8 and 13 for further information.

Section 7 — HANDLING AND STORAGE

Store with amides, nitrates and nitrites.

Section 8 — EXPOSURE CONTROLS, PERSONAL PROTECTION

Avoid contact with eyes, skin and clothing. Wear chemical splash goggles, chemical-resistant gloves and chemical-resistant apron.

Section 9 — PHYSICAL AND CHEMICAL PROPERTIES

Colorless liquid. Odorless.
Concentration: 100 mg/L NO₃⁻ as N

Section 10 — STABILITY AND REACTIVITY

Shelf life: Indefinite

Section 11 — TOXICOLOGICAL INFORMATION

Acute effects: Irritant	ORL-RAT LD50: 3236 mg/kg as sodium nitrate
Chronic effects: N.A.	IHL-RAT LC50: N.A.
Target organs: Blood, central nervous system	SKN-RBT LD50: N.A.

N.A. = Not available, not all health aspects of this substance have been fully investigated.

Section 12 — ECOLOGICAL INFORMATION

Data not yet available

Section 13 — DISPOSAL CONSIDERATIONS

Please consult with state and local regulations.

Section 14 — TRANSPORT INFORMATION

Shipping Name: Not regulated

Hazard Class: N/A

UN Number: N/A

N/A = Not applicable

Section 15 — REGULATORY INFORMATION

Not listed

Section 16 — OTHER INFORMATION

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Material Safety Data Sheet (MSDS)

Section 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Sodium Nitrate solution (NaNO_3) Standard Solution (1 mg/L NO_3^- as N) for Vernier Nitrate Ion-Selective Electrodes

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Section 2 — COMPOSITION, INFORMATION ON INGREDIENTS

Sodium Nitrate (7631-99-4) ~0.0001 % (1 mg/L NO_3^- as N), Water (7732-18-5) ~99.999%
CAS#: None established

Section 3 — HAZARDS IDENTIFICATION

Colorless liquid. Odorless.
Substance not considered hazardous. However, not all health aspects of this substance have been thoroughly investigated.

Section 4 — FIRST AID MEASURES

Call a physician, seek medical attention for further treatment, observation and support after first aid.
Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.
Eye: Immediately flush with fresh water for 15 minutes.
External: Wash continuously with fresh water for 15 minutes.
Internal: Rinse out mouth, give 1 to 2 cups of water or milk, induce vomiting. Call a physician or poison control at once.

Section 5 — FIRE FIGHTING MEASURES

Non-flammable non-combustible liquid **NFPA Code:** None established

Section 6 — ACCIDENTAL RELEASE MEASURES

Restrict unprotected personnel from area and ventilate area. Contain spill with sand or absorbent material; deposit in sealed bag or container. See Sections 8 and 13 for further information.

Section 7 — HANDLING AND STORAGE

Store with amides, nitrates and nitrites.

Section 8 — EXPOSURE CONTROLS, PERSONAL PROTECTION

Avoid contact with eyes, skin and clothing. Wear chemical splash goggles, chemical-resistant gloves and chemical-resistant apron.

Section 9 — PHYSICAL AND CHEMICAL PROPERTIES

Colorless liquid. Odorless.
Concentration: 1 mg/L NO₃⁻ as N

Section 10 — STABILITY AND REACTIVITY

Shelf life: Indefinite

Section 11 — TOXICOLOGICAL INFORMATION

Acute effects: Irritant	ORL-RAT LD50: 3236 mg/kg as sodium nitrate
Chronic effects: N.A.	IHL-RAT LC50: N.A.
Target organs: Blood, central nervous system	SKN-RBT LD50: N.A.

N.A. = Not available, not all health aspects of this substance have been fully investigated.

Section 12 — ECOLOGICAL INFORMATION

Data not yet available

Section 13 — DISPOSAL CONSIDERATIONS

Please consult with state and local regulations.

Section 14 — TRANSPORT INFORMATION

Shipping Name: Not regulated
Hazard Class: N/A
UN Number: N/A
N/A = Not applicable

Section 15 — REGULATORY INFORMATION

Not listed

Section 16 — OTHER INFORMATION

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