Thermo
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900010
Sodium Reference Electrode Filling Solution 2M NH_4Cl
Material Safety Data Sheet

I. PRODUCT IDENTIFICATION:

Sodium Reference Electrode Filling Solution 2M NH_4Cl
900010

PRODUCT USE: Reagent

NFPA RATINGS: HEALTH: 1 FLAMMABILITY: 0 REACTIVITY: 0

II. COMPOSITION/INFORMATION ON INGREDIENTS

		%	LD_{50} mg/kg
COMPONENT	Ammonium Chloride (NH_4Cl)		
CAS NO.	12125-02-09	11	1,650 (ORL-RAT)
COMPONENT	Water		
CAS NO.	7732-18-5	89	190,000 (IPR-MUS)

III. HAZARDS IDENTIFICATION

Harmful if swallowed. May irritate eyes and skin.

IV. FIRST AID MEASURES

EYE AND SKIN CONTACT: Wash off with large amounts of water. Contact physician for eyes.
INGESTION: Dilute with large amounts of water. Consult physician.
INHALATION: Move to fresh air. Consult physician.

V. FIRE FIGHTING MEASURES

FLASH POINT: NOT APPLICABLE AUTOIGNITION POINT:NOT APPLICABLE
FLAMMABILITY LIMITS: UPPER: NOT APPLICABLE LOWER: NOT APPLICABLE
EXTINGUISHING MEDIA: Water, CO_2, dry chemical or foam

VI. ACCIDENTAL RELEASE MEASURES

Take up with absorbent materials. Place in small containers for disposal. Wash spill site after material pick up is complete.

VII. HANDLING AND STORAGE

Always wear eye protection and gloves when working with this product.

VIII. EXPOSURE CONTROLS/ PERSONAL PROTECTION

OSHA PEL: 20 mg/m^3 for ammonium chloride
PROTECTIVE EQUIPMENT: Safety glasses, lab coat and gloves

IX. PHYSICAL AND CHEMICAL PROPERTIES

STATE: Clear liquid ODOR THRESHOLD: None
SENSITIVITY TO MECHANICAL IMPACT: None
SENSITIVITY TO STATIC DISCHARGE: None
COEFFICIENT OF OIL/WATER DISTRIBUTION: None
SOLUBILITY IN WATER: Soluble pH: not determined
SPECIFIC GRAVITY: 1.03
BOILING POINT: at 1 atm Not applicable MELTING POINT: Not determined
VAPOR DENSITY: Not determined

X. STABILITY AND REACTIVITY

Product is stable. Hazardous polymerization will not occur.
Incompatibles: Oxides, Ba, bleach
Hazardous decomposition product: Emits toxic fumes when heated

XI. TOXICOLOGICAL INFORMATION

Teratogen Status: None
Mutagen Status: None
Reproductive Toxicity: None
Carcinogen Status: None

XII. ECOLOGICAL INFORMATION

None available.

XIII. DISPOSAL CONSIDERATIONS

Dispose of in a manner consistent with Federal, State and Local Regulations.

XIV. TRANSPORT INFORMATION

Product is not regulated for transport.

XV. REGULATORY INFORMATION

EUROPEAN INFORMATION:

None

US/ CANADA INFORMATION

SARA/Title III: Ammonium chloride is listed
Cal. Proposition 65: Ingredients not listed
US TSCA Inventory: Ingredients are listed
CPR Class: D, 2
TDG Class: None
This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by those regulations.

XVI. OTHER INFORMATION

THE ABOVE INFORMATION IS BELIEVED TO BE ACCURATE AND REPRESENTS THE BEST INFORMATION CURRENTLY AVAILABLE TO US. ALL PRODUCTS ARE OFFERED IN ACCORDANCE WITH THE MANUFACTURER'S CURRENT PRODUCTION SPECIFICATIONS AND ARE INTENDED SOLELY FOR USE IN ANALYTICAL TESTING. THE MANUFACTURER SHALL IN NO EVENT BE LIABLE FOR ANY INJURY, LOSS OR DAMAGE RESULTING FROM THE HANDLING, USE OR MISUSE OF THESE PRODUCTS.

MSDS prepared by John Meserve, Quality Assurance group.

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Orion 841111
Sodium Ionic Strength Adjustor
Material Safety Data Sheet

I. PRODUCT IDENTIFICATION: Sodium Ionic Strength Adjustor

Orion 841111

PRODUCT USE: Reagent

NFPA RATINGS: HEALTH: 2 FLAMMABILITY: 1 REACTIVITY: 0

II. COMPOSITION/INFORMATION ON INGREDIENTS

		%	LD_{50} mg/kg
COMPONENT	Ammonium Chloride (NH_4Cl)		
CAS NO.	12125-02-9	21	1,650 (ORL-RAT)
COMPONENT	Ammonium Hydroxide (NH_4OH)		
CAS NO.	1336-21-6	14	350 (ORL-RAT)
COMPONENT	Deionized Water (H_2O)		
CAS NO.	7732-18-5	65	190,000 (IPR-MUS)

III. HAZARDS IDENTIFICATION

TARGET ORGANS: Skin, eyes.
ACUTE TOXICITY: Can severely irritate eyes, respiratory tract and may burn skin. Inhalation: May cause coughing, chest pain, cessation of respiration. Swallowing may burn stomach lining and esophagus.
CHRONIC TOXICITY: Irritation of eyes and upper respiratory tract. May cause severe breathing difficulties. May burn skin.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Respiratory, heart, skin diseases.

IV. FIRST AID MEASURES

EYE AND SKIN CONTACT: Skin: Wash off contacted area with water. Eyes: Irrigate with plenty of water, lifting eyelids occasionally.
INHALATION: Get fresh air and give artificial respiration. Contact physician immediately.
INGESTION: Give large amounts of water, do not induce vomiting; consult physician immediately.

V. FIRE FIGHTING MEASURES

FLASH POINT: NA AUTOIGNITION POINT: NA
FLAMMABILITY LIMITS: UPPER: NA LOWER: NA
EXTINGUISHING MEDIA: Water, dry chemical, foam, or CO_2.

VI. ACCIDENTAL RELEASE MEASURES

Ventilate area, wear gloves, face shield, and lab coat. Clean up and contain spill and set aside for waste disposal.

VII. HANDLING AND STORAGE

Always wear eye protection and gloves when working with this product.
Keep solution sealed and at room temperature to insure quality.

VIII. EXPOSURE CONTROLS/ PERSONAL PROTECTION

OSHA THRESHOLD LIMIT: NH_4Cl: 20 mg/m^3; NH_4OH: 50 ppm.
ACGIH THRESHOLD LIMIT: NH_4Cl: 10 mg/m^3; NH_4OH: 18 mg/m^3.
PROTECTIVE EQUIPMENT: Safety glasses, lab coat and gloves.

IX. PHYSICAL AND CHEMICAL PROPERTIES

STATE: Clear liquid ODOR THRESHOLD: ammonia odor
SENSITIVITY TO MECHANICAL IMPACT: None
SENSITIVITY TO STATIC DISCHARGE: None
COEFFICIENT OF OIL/WATER DISTRIBUTION: None
SOLUBILITY IN WATER: Soluble pH: 9.1 – 11.5
SPECIFIC GRAVITY: 1.08
BOILING POINT: 100°C MELTING POINT: Not determined
VAPOR DENSITY: Not determined

X. STABILITY AND REACTIVITY

Product is stable. Hazardous polymerization will not occur.
Incompatibles: Strong oxidizers, acids, calcium, hypochlorite bleaches, heavy metals (gold, mercury, silver), halogens, $AgNO_3$, NH_4, NO_3, HCl, HNO_3.
Hazardous decomposition product: Gives off toxic fumes when heated.

XI. TOXICOLOGICAL INFORMATION

Route of Exposure: Redness or irritation of skin, conjunctivitis, coughing, dyspnoea.
Teratogen Status: None
Mutagen Status: None
Reproductive Toxicity: None
Carcinogen Status: None

XII. ECOLOGICAL INFORMATION

None available.

XIII. DISPOSAL CONSIDERATIONS

Dispose of in a manner consistent with Federal, State and Local Regulations.

XIV. TRANSPORT INFORMATION

Product is not hazardous for transport.

XV. REGULATORY INFORMATION

EUROPEAN INFORMATION:

None.

US/ CANADA INFORMATION

SARA/Title III: Ammonium chloride and hydroxide are CERCLA hazards and are subject to reporting under Section 304 of SARA Title III.
Cal. Proposition 65: Ingredients not listed.
US TSCA Inventory: Ingredients are listed.
CPR Class: D2.
TDG Class: None.
MSDS discloses elements required by the CPR.

XVI. OTHER INFORMATION

THE ABOVE INFORMATION IS BELIEVED TO BE ACCURATE AND REPRESENTS THE BEST INFORMATION CURRENTLY AVAILABLE TO US. ALL PRODUCTS ARE OFFERED IN ACCORDANCE WITH THE MANUFACTURER'S CURRENT PRODUCTION SPECIFICATIONS AND ARE INTENDED SOLELY FOR USE IN ANALYTICAL TESTING. THE MANUFACTURER SHALL IN NO EVENT BE LIABLE FOR ANY INJURY, LOSS OR DAMAGE RESULTING FROM THE HANDLING, USE OR MISUSE OF THESE PRODUCTS.

MSDS prepared by Quality Assurance Group.

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Orion 841113
Sodium Reconditioning Solution
Material Safety Data Sheet

I. PRODUCT IDENTIFICATION: Sodium Reconditioning Solution

Orion 841113

PRODUCT USE: Reagent

NFPA RATINGS: HEALTH: 3 FLAMMABILITY: 0 REACTIVITY: 0

II. COMPOSITION/INFORMATION ON INGREDIENTS

		%	LD_{50} mg/kg
COMPONENT	Ammonium Hydrogen Fluoride (NH_4FHF)		
CAS NO.	1341-49-7	<1	Not found
COMPONENT	Deionized Water (H_2O)		
CAS NO.	7732-18-5	>99	190,000 (IPR-MUS)

III. HAZARDS IDENTIFICATION

TARGET ORGANS: Skin, eyes.
ACUTE TOXICITY: May irritate eyes, skin, mucous membranes.
CHRONIC TOXICITY: May irritate or burn skin and underlying tissue. If ingested in large doses can cause fluoride poisoning, vomiting, diarrhea, nausea. Can cause severe bone damage.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Asthma, Anorexia, dental defects in chronic exposure.

IV. FIRST AID MEASURES

EYE AND SKIN CONTACT: Wash off contacted area with copious amounts of water. Consult physician.
INHALATION: Move to fresh air, artificial respiration. Get medical aid.
INGESTION: Give 2-4 cups of water. Get medical aid immediately for all types of exposure

V. FIRE FIGHTING MEASURES

FLASH POINT: NA AUTOIGNITION POINT: NA
FLAMMABILITY LIMITS: UPPER: NA LOWER: NA
EXTINGUISHING MEDIA: Water, alcohol foam, or CO_2.

VI. ACCIDENTAL RELEASE MEASURES

Wear protective clothing. Neutralize spill with sodium bicarbonate. Set aside in plastic container for waste disposal.

VII. HANDLING AND STORAGE

Always wear eye protection and gloves when working with this product.
Keep solution sealed and store away from acids and alkalies.

VIII. EXPOSURE CONTROLS/ PERSONAL PROTECTION

OSHA & ACGIH THRESHOLD LIMIT: NH_4FHF: 2.5 mg/m^3;
PROTECTIVE EQUIPMENT: Safety glasses, lab coat and gloves.
Emergency eyewash must be available.

IX. PHYSICAL AND CHEMICAL PROPERTIES

STATE: Clear liquid ODOR THRESHOLD: None
SENSITIVITY TO MECHANICAL IMPACT: None
SENSITIVITY TO STATIC DISCHARGE: None
COEFFICIENT OF OIL/WATER DISTRIBUTION: None
SOLUBILITY IN WATER: Soluble pH: 2.7
SPECIFIC GRAVITY: 1.0
BOILING POINT: 100°C MELTING POINT: Not determined
VAPOR DENSITY: Not determined

X. STABILITY AND REACTIVITY

Product is stable. Hazardous polymerization will not occur.
Incompatibles: Acetic acid, sodium or potassium hydroxide
Hazardous decomposition product: Hydrofluoric fumes released by decomposition.

XI. TOXICOLOGICAL INFORMATION

Route of Exposure: Skin irritations, weight loss, rashes.
Teratogen Status: None
Mutagen Status: None
Reproductive Toxicity: None
Carcinogen Status: None

XII. ECOLOGICAL INFORMATION

None available.

XIII. DISPOSAL CONSIDERATIONS

Dispose of in a manner consistent with Federal, State and Local Regulations.

XIV. TRANSPORT INFORMATION

Product is not hazardous for transport.

XV. REGULATORY INFORMATION

EUROPEAN INFORMATION:

None.

US/ CANADA INFORMATION

SARA/Title III: Ammonium hydrogen fluoride is listed on Table 302.4 of 40CFR, Part 302.
Cal. Proposition 65: Ingredients not listed.
US TSCA Inventory: Ingredients are listed.
CPR Class: D2.
TDG Class: None.
MSDS discloses elements required by the CPR.

XVI. OTHER INFORMATION

THE ABOVE INFORMATION IS BELIEVED TO BE ACCURATE AND REPRESENTS THE BEST INFORMATION CURRENTLY AVAILABLE TO US. ALL PRODUCTS ARE OFFERED IN ACCORDANCE WITH THE MANUFACTURER'S CURRENT PRODUCTION SPECIFICATIONS AND ARE INTENDED SOLELY FOR USE IN ANALYTICAL TESTING. THE MANUFACTURER SHALL IN NO EVENT BE LIABLE FOR ANY INJURY, LOSS OR DAMAGE RESULTING FROM THE HANDLING, USE OR MISUSE OF THESE PRODUCTS.

MSDS prepared by Quality Assurance Group.

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Orion 941105 & 941107 & 841108 Sodium Standard Solution Material Safety Data Sheet

I. PRODUCT IDENTIFICATION: 10 ppm, 100 ppm and 1,000 ppm Sodium Standard Solutions

Orion 941105 & 941107 & 841108

PRODUCT USE: Standard

NFPA RATINGS: HEALTH: 0 FLAMMABILITY: 0 REACTIVITY: 0

II. COMPOSITION/INFORMATION ON INGREDIENTS

		%	LD_{50} mg/kg
COMPONENT	Sodium Chloride (NaCl)		
CAS NO.	7647-14-5	< 1.0	3,000 (ORL-RAT)
COMPONENT	Deionized Water (H_2O)		
CAS NO.	7732-18-5	>99.0	190,000 (IPR-MUS)

III. HAZARDS IDENTIFICATION

TARGET ORGANS: None.
ACUTE TOXICITY: Because of the low concentration of salt (less than 1%), this product is not considered to be hazardous.
CHRONIC TOXICITY: Because of the low concentration of salt (less than 1%), this product is not considered to be hazardous.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None reported.

IV. FIRST AID MEASURES

EYE AND SKIN CONTACT: Wash off skin and eyes with water.
INHALATION: Low hazard.
INGESTION: Give large amounts of water.

V. FIRE FIGHTING MEASURES

FLASH POINT: NA AUTOIGNITION POINT: NA
FLAMMABILITY LIMITS: UPPER: NA LOWER: NA
EXTINGUISHING MEDIA: Water, dry chemical, foam, or CO_2.

VI. ACCIDENTAL RELEASE MEASURES

Clean up and wash down drain.

VII. HANDLING AND STORAGE

Always wear eye protection and gloves when working with this product.
Keep solution sealed and at room temperature to insure quality.

VIII. EXPOSURE CONTROLS/ PERSONAL PROTECTION

OSHA & ACGIH THRESHOLD LIMIT: None listed.
PROTECTIVE EQUIPMENT: Safety glasses, lab coat and gloves.

IX. PHYSICAL AND CHEMICAL PROPERTIES

STATE: Clear liquid ODOR THRESHOLD: None
SENSITIVITY TO MECHANICAL IMPACT: None
SENSITIVITY TO STATIC DISCHARGE: None
COEFFICIENT OF OIL/WATER DISTRIBUTION: None
SOLUBILITY IN WATER: Soluble pH: 5.5 – 7.5
SPECIFIC GRAVITY: 1.0
BOILING POINT: 100°C MELTING POINT: Not determined
VAPOR DENSITY: Not determined

X. STABILITY AND REACTIVITY

Product is stable. Hazardous polymerization will not occur.
Incompatibles: None.
Hazardous decomposition product: None.

XI. TOXICOLOGICAL INFORMATION

Route of Exposure: None reported.
Teratogen Status: None
Mutagen Status: None
Reproductive Toxicity: None
Carcinogen Status: None

XII. ECOLOGICAL INFORMATION

None available.

XIII. DISPOSAL CONSIDERATIONS

Dispose of in a manner consistent with Federal, State and Local Regulations.

XIV. TRANSPORT INFORMATION

Product is not hazardous for transport.

XV. REGULATORY INFORMATION

EUROPEAN INFORMATION:

None.

US/ CANADA INFORMATION

SARA/Title III: Ingredients not listed.
Cal. Proposition 65: Ingredients not listed.
US TSCA Inventory: Ingredients are listed.
CPR Class: None.
TDG Class: None.
MSDS discloses elements required by the CPR.

XVI. OTHER INFORMATION

THE ABOVE INFORMATION IS BELIEVED TO BE ACCURATE AND REPRESENTS THE BEST INFORMATION CURRENTLY AVAILABLE TO US. ALL PRODUCTS ARE OFFERED IN ACCORDANCE WITH THE MANUFACTURER'S CURRENT PRODUCTION SPECIFICATIONS AND ARE INTENDED SOLELY FOR USE IN ANALYTICAL TESTING. THE MANUFACTURER SHALL IN NO EVENT BE LIABLE FOR ANY INJURY, LOSS OR DAMAGE RESULTING FROM THE HANDLING, USE OR MISUSE OF THESE PRODUCTS.

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Orion 841109
Sodium Known Addition Standard with ISA
Material Safety Data Sheet

I. PRODUCT IDENTIFICATION: Sodium Known Addition Standard with ISA

Orion 841109

PRODUCT USE: Standard

NFPA RATINGS: HEALTH: 1 FLAMMABILITY: 0 REACTIVITY: 0

II. COMPOSITION/INFORMATION ON INGREDIENTS

		%	LD_{50} mg/kg
COMPONENT	Ammonium Chloride (NH_4Cl)		
CAS NO.	12125-02-9	2	1,650 (ORL-RAT)
COMPONENT	Ammonium Hydroxide (NH_4OH)		
CAS NO.	1336-21-6	1	350 (ORL-RAT)
COMPONENT	Sodium Chloride (NaCl)		
CAS NO.	7647-14-5	<1	3,000 (ORL-RAT)
COMPONENT	Deionized Water (H_2O)		
CAS NO.	7732-18-5	>96	190,000 (IPR-MUS)

III. HAZARDS IDENTIFICATION

TARGET ORGANS: skin, eyes, nasal passages.
ACUTE TOXICITY: May irritate eyes, skin, or respiratory tract. If ingested, may irritate stomach lining and esophagus.
CHRONIC TOXICITY: Irritation of eyes and upper respiratory tract. May cause severe breathing difficulties.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Respiratory, heart, skin diseases.

IV. FIRST AID MEASURES

EYE AND SKIN CONTACT: Skin: Wash off contacted area with water. Eyes: Irrigate with plenty of water, lifting eyelids occasionally.
INHALATION: Get fresh air and give artificial respiration. Contact physician immediately.
INGESTION: Give large amounts of water, do not induce vomiting; consult physician immediately.

V. FIRE FIGHTING MEASURES

FLASH POINT: NA AUTOIGNITION POINT: NA
FLAMMABILITY LIMITS: UPPER: NA LOWER: NA
EXTINGUISHING MEDIA: Water, dry chemical, foam, or CO_2.

VI. ACCIDENTAL RELEASE MEASURES

Wear rubber gloves, face shield, and lab coat. Dilute with water and set aside for waste disposal.

VII. HANDLING AND STORAGE

Always wear eye protection and gloves when working with this product.
Keep solution sealed and at room temperature to insure quality.

VIII. EXPOSURE CONTROLS/ PERSONAL PROTECTION

OSHA & ACGIH THRESHOLD LIMIT: NH_4Cl: 10 mg/m^3; NH_4OH: 10 mg/m^3.
PROTECTIVE EQUIPMENT: Safety glasses, lab coat and gloves.

IX. PHYSICAL AND CHEMICAL PROPERTIES

STATE: Clear liquid ODOR THRESHOLD: None
SENSITIVITY TO MECHANICAL IMPACT: None
SENSITIVITY TO STATIC DISCHARGE: None
COEFFICIENT OF OIL/WATER DISTRIBUTION: None
SOLUBILITY IN WATER: Soluble pH: 9.0 – 10.5
SPECIFIC GRAVITY: 1.01
BOILING POINT: 100°C MELTING POINT: Not determined
VAPOR DENSITY: Not determined

X. STABILITY AND REACTIVITY

Product is stable. Hazardous polymerization will not occur.
Incompatibles: Strong oxidizers, acids (HCl, HNO_3), calcium and sodium hypochlorite bleaches, heavy metals (gold, mercury, silver).
Hazardous decomposition product: May give off toxic ammonia or nitrous oxide fumes when heated.

XI. TOXICOLOGICAL INFORMATION

Route of Exposure: Redness or irritation of skin, conjunctivitis, coughing.
Teratogen Status: None
Mutagen Status: None
Reproductive Toxicity: None
Carcinogen Status: None

XII. ECOLOGICAL INFORMATION

None available.

XIII. DISPOSAL CONSIDERATIONS

Dispose of in a manner consistent with Federal, State and Local Regulations.

XIV. TRANSPORT INFORMATION

Product is not hazardous for transport.

XV. REGULATORY INFORMATION

EUROPEAN INFORMATION:

None.

US/ CANADA INFORMATION

SARA/Title III: Ammonia and ammonium chloride both appear on EPA List 302.4 of 40CFR.
Cal. Proposition 65: Ingredients not listed.
US TSCA Inventory: Ingredients are listed.
CPR Class: D2.
TDG Class: None.
MSDS discloses elements required by the CPR.

XVI. OTHER INFORMATION

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MSDS prepared by Quality Assurance Group.

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