



Safety Data Sheet

According to Regulation (EC) No. 1907/2006
OSHA Regulation 29 CFR 1910.1200
Canadian Regulation SOR/88-66

Revision Date: 2012-05-25
Reason for Revision: Section 14 Updated

SECTION 1: IDENTIFICATION OF THE PRODUCT AND COMPANY

Product Name: HI 7090 SODIUM ISA 4M NH4Cl / 4M NH4OH **Additional Product Codes:** HI 7090L
HI 7090M

Application: Sodium ISA Solution

Company Information (USA): Hanna Instruments, Inc.
584 Park East Dr, Woonsocket, Rhode Island, USA 02895

Technical Service Contact Information: 1-800-426-6287 (8:30AM - 5:00PM ET)
+1-401-766-4260 (8:30AM - 5:00PM ET)

USA Emergency Contact Information: 1-800-424-9300 (Chemtrec 24Hr. Emergency)

International Emergency Contact Information: +1-703-527-3887 (Chemtrec 24Hr. Emergency)

E-mail Address: tech@hannainst.com

SECTION 2: HAZARD IDENTIFICATION

Causes burns.

SECTION 3: COMPOSITION AND COMPONENT INFORMATION

Component:	Ammonium Hydroxide	Ammonium Chloride
EC-No.:	215-647-6	235-186-4
CAS-No.:	1336-21-6	12125-02-9
Hazard:	C, N	Xn
Phrases:	R: 34-50	R: 22-36
Content:	> 10% - < 25%	> 10% - < 25%

SECTION 4: FIRST AID MEASURES

After Inhalation: Remove to fresh air.

After Skin Contact: Wash affected area with plenty of water. Remove contaminated clothing.

After Eye Contact: Rinse out with plenty of water. If pain persists, summon medical advice.

After Swallowing: If victim is still conscious, make him drink plenty of water (if necessary several liters). Do not induce vomiting (risk of perforation). Do not attempt to neutralize. Immediately call in physician.

General Information: Not available

SECTION 5: FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:
Water spray, Carbon Dioxide, Dry Chemical Powder, Appropriate Foam.

Special Risks:
Development of hazardous combustion gases or vapors possible in the event of fire. The following may develop in the event of fire: Nitrogen Oxides, Hydrochloric Acid

Special Protective Equipment:
Do not stay in dangerous zone without suitable chemical protection clothing and self-contained breathing apparatus.

Additional Information:
Contain escaping vapors with water. Prevent fire-fighting water from entering surface water or groundwater.

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SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions:

Do not inhale vapors/aerosols. Avoid substance contact. Ensure supply of fresh air in enclosed rooms. Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

Environmental Precautions:

Do not allow to enter sewerage system.

Additional Notes:

Sweep up, place in a bag and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

SECTION 7: HANDLING AND STORAGE

Handling:

Avoid generation of vapors/aerosols. Do not inhale substance.

Storage:

Store at room temperature (+15 to +25 °C). Tightly closed in a dry and well-ventilated place.

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SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION

Type	Value	Source	Type	Value	Source
Ammonium Chloride					
TWA (8hr)	10 mg/m ³ (fume)	Belgium	TWA (8hr)	10 mg/m ³ (fume)	Canada (Ontario)
TWA (8hr)	10 mg/m ³ (fume)	Canada (Quebec)	TWA (8hr)	10 mg/m ³ (fume)	France
TWA (8hr)	10 mg/m ³	Greece	TWA (8hr)	10 mg/m ³ (steam and fumes)	Poland
TWA (8hr)	10 mg/m ³ (fume)	Portugal	TWA (8hr)	5 mg/m ³	Romania
TWA (8hr)	10 mg/m ³	Spain	TWA (8hr)	10 mg/m ³ (fume)	UK

Ammonium Hydroxide Solution

TWA (8hr)	14 mg/m ³ (as ammonia)	Belgium	TWA (8hr)	17 mg/m ³	Canada (Ontario)
TWA (8hr)	17 mg/m ³	Canada (Quebec)	TWA (8hr)	7 mg/m ³ (as ammonia)	France
TWA (8hr)	14 mg/m ³ (as ammonia)	Germany	TWA (8hr)	35 mg/m ³ (as ammonia)	Greece
TWA (8hr)	14 mg/m ³ (as ammonia)	Hungary	TWA (8hr)	14 mg/m ³ (as ammonia)	Netherlands
TWA (8hr)	14 mg/m ³ (as ammonia)	Poland	TWA (8hr)	25 ppm (as ammonia)	Portugal
TWA (8hr)	14 mg/m ³ (as ammonia)	Romania	TWA (8hr)	14 mg/m ³ (as ammonia)	Spain
TWA (8hr)	18 mg/m ³ (as ammonia)	UK	TWA (8hr)	25 ppm (as ammonia)	USA (ACGIH)
TWA (8hr)	50 ppm (as ammonia)	USA (OSHA)			

Engineering:

Maintain general industrial hygiene practice.

Personal Protective Equipment:

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Respiratory Protection:

Required when vapors/aerosols are generated. Work under hood.

Protective Gloves:

Rubber or plastic

Eye Protection:

Goggles or face mask

Industrial Hygiene:

Immediately change contaminated clothing. Apply skin-protective barrier cream. Wash hands and face after working with substance. Under no circumstances eat or drink at workplace.

SECTION 9: PHYSICAL/CHEMICAL PROPERTIES

Appearance:	Colorless liquid	Odor:	Pungent (ammonia-like)	Density at 20°C:	1.01 g/cm ³
Melting Point:	NA	Boiling Point:	ND	Solubility:	Soluble
pH at 20°C:	3.8	Explosion Limit:	ND	Flash Point:	ND
Thermal Decomp.:	NA				

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SECTION 10: STABILITY AND REACTIVITY

Conditions to be Avoided:

Heating

Hazardous Polymerization:

Will not occur.

Further Information:

Explosive with air in a vapors/gaseous state when heated.

Hazardous Decomposition Products:

In the event of fire: See section 5.

Substances to be Avoided:

Strong oxidizing agents, strong alkalis (Formed could be: ammonia),
hydrochloric acid

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SECTION 11: TOXICOLOGICAL INFORMATION

Product Toxicity

Quantitative data on the toxicity of this product is not available.

Potential Health Effects:

Inhalation: Irritations of the mucous membranes, coughing, bronchitis, pulmonary edema. When vapors/aerosols are generated: strong irritant effect.

Skin Contact: Burns (dermatitis, necrosis).

Eye Contact: Burns. Risk of blindness!

Ingestion: Mucosal irritations, gastric pain, bloody vomiting, nausea, collapse, shock, dyspnoea, unconsciousness. Risk of perforation in the esophagus and stomach.

Further Data: The following applies to ammonium salts in general: after swallowing: local irritation symptoms, nausea, vomiting, diarrhea. Systemic effect: after the uptake of very large quantities: drop in blood pressure, collapse, CNS disorders, spasms, narcotic conditions, respiratory paralysis, haemolysis. The product should be handled with usual care when dealing with chemicals.

Component Toxicity

Acute Toxicity:

Ammonium Chloride

LD50: Oral - Rat - 1650 mg/kg

Ammonium Hydroxide Solution

LD50: Oral - Rat - 350 mg/kg

Chronic Toxicity:

Not Available

Additional Data:

APPLICABLE TO PARTIAL COMPONENT:

The following applies to Ammonia, as the pure substance:

Subacute to chronic toxicity

Sensitization:

Sensitization test (guinea pig): negative.

No carcinogenic properties suspected.

No mutagenic properties suspected.

Bacterial mutagenicity: Salmonella typhimurium: negative.

Bacterial mutagenicity: Escherichia coli: negative.

APPLICABLE TO PARTIAL COMPONENT:

The following applies to Ammonium Chloride – as the pure substance

Specific symptoms in animal studies:

Eye irritation test (rabbit): Severe irritations.

Skin irritation test (rabbit): No irritation.

Subacute to chronic toxicity

Sensitization:

Sensitization test (guinea pig): No sensitizing effect.

Non carcinogenic in animal experiments.

Mutagenicity (mammal cell test): micronucleus negative.

Bacterial mutagenicity: Ames test: negative.

No teratogenic effect in animal experiments.

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SECTION 12: ECOLOGICAL INFORMATION

Quantitative data on the ecotoxicity of this product is not available.

APPLICABLE TO PARTIAL COMPONENT:

The following applies to Ammonia, as the pure substance:

Abiotic degradation:

Slow degradation.

Biologic degradation:

Not readily degradable.

Behavior in environmental compartments:

Distribution: log p(o/w): -1.38 (experimental).

No bioaccumulation is to be expected (log P(o/w) <1). Ecotoxic effects:

Fish toxicity: Onchorhynchus mykiss LC50: 0.53 mg/L /96 h (anhydrous substance)

Daphnia toxicity: Daphnia pulicaria EC50: 1.16 mg/L /48 h (anhydrous substance)

Daphnia magna EC50 : 24 mg/L /48 h (anhydrous substance)

Bacterial toxicity: Photobacterium phosphoreum EC50 : 2 mg/L /5 min (anhydrous substance)

Biological effects: Highly toxic for aquatic organisms. Harmful effect due to pH shift. Forms toxic mixtures in water, dilution measures notwithstanding.

APPLICABLE TO PARTIAL COMPONENT:

The following applies to Ammonium chloride – as the pure substance

Biologic degradation:

Methods for the determination of biodegradability are not applicable to inorganic substances.

Behavior in environmental compartments:

Distribution: log p(o/w): -4.37 (calculated).

No bioaccumulation is to be expected (log P(o/w) <1).

Ecotoxic effects:

Biological effects:

Fish toxicity: C.carpio LC50 : 209 mg/L /96 h; L.macrochirus LC50 : 725 mg/L /96 h.

Further Data: The following applies to ammonium ions in general: biological effects: fish: toxic as from 0.3 mg/L ; nourishment for fish: toxic as from 0.3 mg/L . Do not allow to enter waters, waste water, or soil!

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal: Chemical residues are generally classified as special waste and thus covered by local regulations. Contact local authorities or disposal companies for advice. Handle contaminated packaging in the same way as the substance itself.

SECTION 14: TRANSPORTATION INFORMATION

	Land (ADR/RID):	Sea (IMDG):	Air (ICAO/IATA):
UN No.:	2672	2672	2672
Proper Shipping Name:	Ammonia solution	Ammonia solution	Ammonia solution
Class (Sub Risk):	8	8	8
Packing Group:	III	III	III

SECTION 15: REGULATORY INFORMATION

Labeling according to EC Directives:

Symbol: C: Corrosive

R-phrases: 34-36: Causes burns. Irritating to eyes.

S-phrases: 26-36/37/39-45: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Contains: Ammonium hydroxide

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22: Harmful if swallowed.
34: Causes burns.
36: Irritating to eyes
50: Very toxic to aquatic organisms.

Revision Information

Revision Date: 2012-05-25
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Legend

NA: Not Applicable
ND: Not Determined

THE INFORMATION CONTAINED HEREIN IS BASED ON THE PRESENT STATE OF OUR KNOWLEDGE. IT CHARACTERIZES THE PRODUCT WITH REGARD TO THE APPROPRIATE SAFETY PRECAUTIONS. IT DOES NOT REPRESENT A GUARANTEE OF THE PROPERTIES OF THE PRODUCT.