SAFETY DATA SHEET

Issue Date 11-Jul-2016  Revision Date 11-Nov-2016  Version 6  Page 1 / 15

1. IDENTIFICATION

Product identifier
Product Name 10 mg/L NH4-N Standard Solution

Other means of identification
Product Code(s) 2894354
Safety data sheet number M02428

Recommended use of the chemical and restrictions on use
Recommended Use Analytical reagent.
Uses advised against None.
Restrictions on use None.

Details of the supplier of the safety data sheet

Manufacturer Address
Hach Company
P.O.Box 389  Loveland, CO 80539 USA
(970) 669-3050

Emergency telephone number
(303) 623-5716 - 24 Hour Service  (515)232-2533 - 8am - 4pm CST

2. HAZARDS IDENTIFICATION

Classification

Regulatory Status
This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Not Hazardous Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Hazard statements
The product contains no substances which at their given concentration, are considered to be hazardous to health
3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance
Not applicable

Mixture

Percent ranges are used where confidential product information is applicable.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No</th>
<th>Percent Range</th>
<th>HMRIC #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium chloride</td>
<td>12125-02-9</td>
<td>&lt;0.01%</td>
<td>-</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Description of first aid measures

General advice
In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Eye contact
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If symptoms persist, call a physician.

Skin contact
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. If symptoms persist, call a physician.

Inhalation
IF INHALED: Remove person to fresh air and keep comfortable for breathing. If symptoms persist, call a physician.

Ingestion
IF SWALLOWED: Rinse Mouth. If symptoms persist, call a physician.

Self-protection of the first aider
Use personal protective equipment as required. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Most important symptoms and effects, both acute and delayed

Symptoms
See Section 11: TOXICOLOGICAL INFORMATION.

Indication of any immediate medical attention and special treatment needed

Note to physicians
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
Caution: Use of water spray when fighting fire may be inefficient.

Flammable properties
Substance does not burn.

Specific hazards arising from the chemical
None reported.

Hazardous combustion products
No information available.
6. ACCIDENTAL RELEASE MEASURES

U.S. Notice
Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

EC Notice
Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

WHMIS Notice
Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

Personal precautions, protective equipment and emergency procedures

Personal precautions
Evacuate personnel to safe areas. Do not touch or walk through spilled material. Ventilate affected area. Use personal protective equipment as required.

For emergency responders
Use personal protection recommended in Section 8.

Environmental precautions
See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Neutralize spill if necessary. Soak up with inert absorbent material. Take up mechanically, placing in appropriate containers for disposal. Clean contaminated surface thoroughly. Dispose of in accordance with local, state and federal regulations or laws.

Emergency Response Guide Number
Not applicable

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling
Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Do not breathe dust/fume/gas/mist/vapors/spray.

Conditions for safe storage, including any incompatibilities

Storage Conditions
Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labeled containers.

Flammability class
Not applicable

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
Exposure Guidelines

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium chloride</td>
<td>STEL: 20 mg/m³</td>
<td>(vacated) TWA: 10 mg/m³</td>
<td>TWA: 10 mg/m³ fume</td>
</tr>
<tr>
<td></td>
<td>TWA: 10 mg/m³</td>
<td>(vacated) STEL: 20 mg/m³</td>
<td>STEL: 20 mg/m³ fume</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Alberta OEL</th>
<th>British Columbia OEL</th>
<th>Manitoba OEL</th>
<th>New Brunswick OEL</th>
<th>New Foundland &amp; Labrador OEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium chloride</td>
<td>TWA: 10 mg/m³</td>
<td>TWA: 10 mg/m³</td>
<td>TWA: 10 mg/m³</td>
<td>TWA: 10 mg/m³</td>
<td>TWA: 10 mg/m³</td>
</tr>
<tr>
<td></td>
<td>STEL: 20 mg/m³</td>
<td>STEL: 20 mg/m³</td>
<td>STEL: 20 mg/m³</td>
<td>STEL: 20 mg/m³</td>
<td>STEL: 20 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Northwest Territories OEL</th>
<th>Nova Scotia OEL</th>
<th>Nunavut OEL</th>
<th>Ontario TWA</th>
<th>Prince Edward Island OEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium chloride</td>
<td>TWA: 10 mg/m³</td>
<td>TWA: 10 mg/m³</td>
<td>TWA: 10 mg/m³</td>
<td>TWA: 10 mg/m³</td>
<td>TWA: 10 mg/m³</td>
</tr>
<tr>
<td></td>
<td>STEL: 20 mg/m³</td>
<td>STEL: 20 mg/m³</td>
<td>STEL: 20 mg/m³</td>
<td>STEL: 20 mg/m³</td>
<td>STEL: 20 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Quebec OEL</th>
<th>Saskatchewan OEL</th>
<th>Yukon OEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium chloride</td>
<td>TWA: 10 mg/m³</td>
<td>TWA: 10 mg/m³</td>
<td>STEL: 20 mg/m³</td>
</tr>
<tr>
<td></td>
<td>STEL: 20 mg/m³</td>
<td>STEL: 20 mg/m³</td>
<td>STEL: 20 mg/m³</td>
</tr>
</tbody>
</table>

Other Information

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Legend

See section 16 for terms and abbreviations

Appropriate engineering controls

Engineering Controls

None under normal use conditions

Individual protection measures, such as personal protective equipment

Eye/face protection
Wear safety glasses with side shields (or goggles).

Skin and body protection
Wear protective gloves and protective clothing.

Respiratory protection
In case of insufficient ventilation, wear suitable respiratory equipment.

General Hygiene Considerations
Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls
Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state
Liquid

Gas Under Pressure
Not classified according to GHS criteria

Appearance aqueous solution
Color colorless

Odor None
Odor threshold No data available

Property Values Remarks Method
Molecular weight
No data available

No data available
pH  | No data available
---|------------------
Melting point/freezing point  | ~ 0 °C / 32 °F
Boiling point / boiling range  | ~ 100 °C / 212 °F
Evaporation rate  | 1 (water = 1)
Vapor pressure  | 23.777 mm Hg / 3.17 kPa at 25 °C / 77 °F
Vapor density (air = 1)  | 0.62 (air = 1)
Specific gravity (water = 1 / air = 1)  | No data available
Partition Coefficient (n-octanol/water)  | Not applicable
Soil Organic Carbon-Water Partition Coefficient  | Not applicable
Autoignition temperature  | No data available
Decomposition temperature  | No data available
Dynamic viscosity  | No data available
Kinematic viscosity  | No data available

Solubility(ies)

Water solubility

<table>
<thead>
<tr>
<th>Water solubility classification</th>
<th>Water solubility</th>
<th>Water Solubility Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soluble</td>
<td>&gt; 1000 mg/L</td>
<td>25 °C / 77 °F</td>
</tr>
</tbody>
</table>

Solubility in other solvents

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Solubility classification</th>
<th>Solubility</th>
<th>Solubility Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid</td>
<td>Soluble</td>
<td>&gt; 1000 mg/L</td>
<td>25 °C / 77 °F</td>
</tr>
</tbody>
</table>

Other Information

Metal Corrosivity  | Not classified as corrosive to metal according to GHS criteria
Steel Corrosion Rate  | No data available
Aluminum Corrosion Rate  | No data available
Bulk density  | Not applicable
Explosive properties  | Not classified according to GHS criteria.
Explosion data  | No data available
Upper explosion limit  | No data available
Lower explosion limit  | No data available
Flammable properties
Not classified as flammable according to GHS criteria.

Flammability Limit in Air
Upper flammability limit: No data available
Lower flammability limit: No data available

Flash point
Method No information available

Oxidizing properties Not classified according to GHS criteria.

Reactivity properties Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria.

10. STABILITY AND REACTIVITY

Reactivity properties
Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria

Chemical stability
Stable under recommended storage conditions.

Special dangers of the product
None reported

Possibility of Hazardous Reactions
None under normal processing.

Hazardous polymerization Hazardous polymerization does not occur.

Conditions to avoid
Extremes of temperature and direct sunlight. Incompatible materials.

Incompatible materials

Hazardous Decomposition Products
None known based on information supplied.

Explosive properties
Not classified according to GHS criteria.

Upper explosion limit No data available
Lower explosion limit No data available

Autoignition temperature
No data available

Sensitivity to Static Discharge
None reported
11. TOXICOLOGICAL INFORMATION

NIOSH (RTECS) Number
None reported

Information on Likely Routes of Exposure

<table>
<thead>
<tr>
<th>Product Information</th>
<th>Product does not present an acute toxicity hazard based on known or supplied information.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>No known effect based on information supplied.</td>
</tr>
<tr>
<td>Eye contact</td>
<td>No known effect based on information supplied.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>No known effect based on information supplied.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>No known effect based on information supplied.</td>
</tr>
<tr>
<td>Aggravated Medical Conditions</td>
<td>None known.</td>
</tr>
<tr>
<td>Toxicologically synergistic products</td>
<td>None known.</td>
</tr>
<tr>
<td>Toxicokinetics, metabolism and distribution</td>
<td>No information available.</td>
</tr>
</tbody>
</table>

Product Acute Toxicity Data

Oral Exposure Route
No data available

Dermal Exposure Route
No data available

Inhalation (Dust/Mist) Exposure Route
No data available

Inhalation (Vapor) Exposure Route
No data available

Inhalation (Gas) Exposure Route
No data available

Ingredient Acute Toxicity Data

Oral Exposure Route

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Toxicological effects</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium chloride (&lt;0.01%)</td>
<td>Rat LD₅₀</td>
<td>1650 mg/kg</td>
<td>None reported</td>
<td>None reported</td>
<td>IUCLID (The International Uniform Chemical Information Database)</td>
</tr>
<tr>
<td>CAS#: 12125-02-9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ammonium chloride (&lt;0.01%)</td>
<td>Mouse LD₅₀</td>
<td>1300 mg/kg</td>
<td>None reported</td>
<td>None reported</td>
<td>IUCLID (The International Uniform Chemical Information Database)</td>
</tr>
<tr>
<td>CAS#: 12125-02-9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ammonium chloride (&lt;0.01%)</td>
<td>Domestic mammal - Not specified LD₅₀</td>
<td>1500 mg/kg</td>
<td>None reported</td>
<td>Lungs, Thorax, or Respiration stimulation</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>CAS#: 12125-02-9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dermal Exposure Route
No data available

Inhalation (Dust/Mist) Exposure Route
No data available

Inhalation (Vapor) Exposure Route
No data available

Inhalation (Gas) Exposure Route
No data available
Product Code(s) 2894354
Issue Date 11-Jul-2016
Version 6

Product Name 10 mg/L NH4-N Standard Solution
Revision Date 11-Nov-2016
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Product Skin Corrosion/Irritation Data
No data available.

Ingredient Skin Corrosion/Irritation Data

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Test method</th>
<th>Species</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Results</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium chloride</td>
<td>Existing human experience</td>
<td>Human</td>
<td>None reported</td>
<td>None reported</td>
<td>Mild skin irritant</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>(&lt;0.01%) CAS#: 12125-02-9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Product Serious Eye Damage/Eye Irritation Data
No data available.

Ingredient Eye Damage/Eye Irritation Data

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Test method</th>
<th>Species</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Results</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium chloride</td>
<td>Standard Draize Test</td>
<td>Rabbit</td>
<td>100 mg</td>
<td>None reported</td>
<td>Corrosive to eyes</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>(&lt;0.01%) CAS#: 12125-02-9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sensitization Information

Product Sensitization Data

Skin Sensitization Exposure Route No data available.
Respiratory Sensitization Exposure Route No data available.

Ingredient Sensitization Data

Skin Sensitization Exposure Route Toxicological data for ingredients is not indicative of likely harm.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Test method</th>
<th>Species</th>
<th>Results</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium chloride</td>
<td>OECD Test No. 406: Skin Sensitization</td>
<td>Guinea pig</td>
<td>Not confirmed to be a skin sensitizer</td>
<td>OECD (Organization for Economic Co-operation and Development)</td>
</tr>
<tr>
<td>(&lt;0.01%) CAS#: 12125-02-9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Respiratory Sensitization Exposure Route No data available.

Chronic Toxicity Information

Product Repeat Dose Toxicity Data

Oral Exposure Route No data available.
Dermal Exposure Route No data available.
Inhalation (Dust/Mist) Exposure Route No data available.
Inhalation (Vapor) Exposure Route No data available.
Inhalation (Gas) Exposure Route No data available.
**Ingredient Repeat Dose Toxicity Data**

**Oral Exposure Route**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Toxicological effects</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium chloride</td>
<td>Rat TD&lt;sub&gt;10&lt;/sub&gt;</td>
<td>3500 mg/kg</td>
<td>7 days</td>
<td>Nutritional and Gross Metabolic Metabolic acidosis</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>Ammonium chloride (&lt;0.01%)</td>
<td>Rat TD&lt;sub&gt;10&lt;/sub&gt;</td>
<td>556000 mg/kg</td>
<td>78 weeks</td>
<td>Kidney, Ureter, or Bladder Changes in tubules (including acute renal failure, acute tubular necrosis)</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
</tbody>
</table>

**Dermal Exposure Route**

No data available

**Inhalation (Dust/Mist) Exposure Route**

No data available

**Inhalation (Vapor) Exposure Route**

No data available

**Inhalation (Gas) Exposure Route**

No data available

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium chloride</td>
<td>12125-02-9</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Legend**

- ACGIH (American Conference of Governmental Industrial Hygienists) Does not apply
- IARC (International Agency for Research on Cancer) Does not apply
- NTP (National Toxicology Program) Does not apply
- OSHA (Occupational Safety and Health Administration of the US Department of Labor) Does not apply

**Product Carcinogenicity Data**

No data available

**Oral Exposure Route**

No data available

**Dermal Exposure Route**

No data available

**Inhalation (Dust/Mist) Exposure Route**

No data available

**Inhalation (Vapor) Exposure Route**

No data available

**Inhalation (Gas) Exposure Route**

No data available

**Ingredient Carcinogenicity Data**

No data available

**Oral Exposure Route**

No data available

**Dermal Exposure Route**

No data available

**Inhalation (Dust/Mist) Exposure Route**

No data available

**Inhalation (Vapor) Exposure Route**

No data available

**Inhalation (Gas) Exposure Route**

No data available

**Product Germ Cell Mutagenicity invitro Data**

No data available.
**Ingredient Germ Cell Mutagenicity**invitroData

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Test</th>
<th>Cell Strain</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Results</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium chloride (&lt;0.01%) CAS#: 12125-02-9</td>
<td>Cytogenetic analysis</td>
<td>Hamster fibroblast</td>
<td>400 mg/L</td>
<td>None reported</td>
<td>Positive test result for mutagenicity</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
</tbody>
</table>

**Oral Exposure Route**
No data available

**Dermal Exposure Route**
No data available

**Inhalation (Dust/Mist) Exposure Route**
No data available

**Inhalation (Vapor) Exposure Route**
No data available

**Inhalation (Gas) Exposure Route**
No data available

**Ingredient Germ Cell MutagenicityinvivoData**

**Oral Exposure Route**
No data available

**Dermal Exposure Route**
No data available

**Inhalation (Dust/Mist) Exposure Route**
No data available

**Inhalation (Vapor) Exposure Route**
No data available

**Inhalation (Gas) Exposure Route**
No data available

**Ingredient Reproductive Toxicity Data**

**Oral Exposure Route**
No data available

**Dermal Exposure Route**
No data available

**Inhalation (Dust/Mist) Exposure Route**
No data available

**Inhalation (Vapor) Exposure Route**
No data available

**Inhalation (Gas) Exposure Route**
No data available

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**
Based on the classification principles, not classified as hazardous to the environment.

**Product Ecological Data**
Aquatic toxicity

Fish
No data available

Crustacea
No data available

Algae
No data available

Terrestrial toxicity

Soil
No data available

Vertebrates
No data available

Invertebrates
No data available

**Ingredient Ecological Data**

**Aquatic toxicity**

**Fish**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Exposure time</th>
<th>Species</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium chloride (&lt;0.01%) CAS#: 12125-02-9</td>
<td>96 hours</td>
<td>Oncorhynchus mykiss</td>
<td>LC&lt;sub&gt;50&lt;/sub&gt;</td>
<td>3.98 mg/L</td>
<td>IUCLID (The International Uniform Chemical Information Database)</td>
</tr>
</tbody>
</table>

**Crustacea**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Exposure time</th>
<th>Species</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium chloride (&lt;0.01%) CAS#: 12125-02-9</td>
<td>48 Hours</td>
<td>Daphnia magna</td>
<td>LC&lt;sub&gt;50&lt;/sub&gt;</td>
<td>161 mg/L</td>
<td>IUCLID (The International Uniform Chemical Information Database)</td>
</tr>
</tbody>
</table>

Algae
No data available

**Terrestrial toxicity**

Soil
No data available

Vertebrates
No data available

Invertebrates
No data available

**Other Information**

**Canadian Environmental Protection Act (CEPA) - Domestic Substances List (DSL): Environmentally Hazardous Substances Categorizations**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Category</th>
<th>Persistent</th>
<th>Bioaccumulation</th>
<th>Inherently Toxic to Aquatic Organisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium chloride (&lt;0.01%) CAS#: 12125-02-9</td>
<td>Inorganics</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Persistence and degradability
None known.

Product Biodegradability Data
If available, see ingredient data below.

Ingredient Biodegradability Data
Test data reported below

Bioaccumulation
None known.

Product Bioaccumulation Data
Test data reported below.

Ingredient Bioaccumulation Data
No data available

Additional information

Product Information

Partition Coefficient (n-octanol/water)
Not applicable

Ingredient Information

Mobility
Mobility in soil: High mobility. If available, see ingredient data below.

Product Information

Soil Organic Carbon-Water Partition Coefficient
Not applicable

Ingredient Information
No data available

Additional information

Water solubility

Product Information

<table>
<thead>
<tr>
<th>Water solubility classification</th>
<th>Water solubility</th>
<th>Water Solubility Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soluble</td>
<td>&gt; 1000 mg/L</td>
<td>25 °C / 77 °F</td>
</tr>
</tbody>
</table>

Ingredient Information

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Water solubility classification</th>
<th>Water solubility</th>
<th>Water solubility temperature °C</th>
<th>Water solubility temperature °F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium chloride CAS#: 12125-02-9</td>
<td>Completely soluble</td>
<td>297000 mg/L</td>
<td>0 °C</td>
<td>32 °F</td>
</tr>
</tbody>
</table>

Other adverse effects
No information available.

13. DISPOSAL CONSIDERATIONS
Waste treatment methods

Disposal of wastes
Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Contaminated packaging
Working in a well-ventilated area. Rinse three times with an appropriate solvent. Collect rinsate and dispose of according to local, state, or federal regulations. Dispose of empty container as normal trash. In the US, rinsate from empty containers is classified as hazardous waste and should be disposed of at an E.P.A. approved facility. Rinse from empty containers may contain sufficient product to require disposal as hazardous waste in countries other than the US. Improper disposal or reuse of this container may be dangerous and illegal. Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Special instructions for disposal
Open cold water tap completely, slowly pour the material to the drain. Flush system with plenty of water.

---

14. TRANSPORT INFORMATION

DOT
Not regulated

TDG
Not regulated

IATA
Not regulated

IMDG
Not regulated

Note:
No special precautions necessary.

Additional information
There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is not in a reagent set or kit, the classification given above applies. If the item is part of a reagent set or kit the classification would change to the following: UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III. If the item is not regulated, the Chemical Kit classification does not apply.

---

15. REGULATORY INFORMATION

National Inventories

TSCA
Complies

DSL/NDSL
Complies

TSCA- United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

International Inventories

EINECS/ELINCS
Complies

ENCS
Complies

IECSC
Complies

KECL
Complies

PICCS
Complies

TCSI
Complies

AICS
Complies

NZIoC
Complies

EINECS/ELINCS- European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS- Japan Existing and New Chemical Substances

IECSC- China Inventory of Existing Chemical Substances
Product Code(s) 2894354  Product Name 10 mg/L NH4-N Standard Solution
Issue Date 11-Jul-2016  Revision Date 11-Nov-2016
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KECL- Korean Existing and Evaluated Chemical Substances
PICCS- Philippines Inventory of Chemicals and Chemical Substances
TCSI- Taiwan Chemical Substances Inventory
AICS- Australian Inventory of Chemical Substances
NZIoC- New Zealand Inventory of Chemicals

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium chloride (CAS #: 12125-02-9)</td>
<td>1.0</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazard Categories

- Acute health hazard: No
- Chronic Health Hazard: No
- Fire hazard: No
- Sudden release of pressure hazard: No
- Reactive Hazard: No

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium chloride 12125-02-9</td>
<td>5000 lb</td>
<td>-</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA/SARA RQ</th>
<th>Reportable Quantity (RQ)</th>
</tr>
</thead>
</table>
| Ammonium chloride 12125-02-9 | 5000 lb | - | RQ 5000 lb final RQ
| | | | RQ 2270 kg final RQ |

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium chloride 12125-02-9</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. EPA Label Information
EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION
NFPA and HMIS Classifications

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health hazards</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical and Chemical Properties</th>
<th>Personal protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health hazards</th>
<th>Flammability</th>
<th>Physical hazards</th>
<th>-</th>
<th>See section 8 for more information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Key or legend to abbreviations and acronyms used in the safety data sheet

NIOSH IDLH  Immediately Dangerous to Life or Health
ACGIH      ACGIH (American Conference of Governmental Industrial Hygienists)
NDF        no data

Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA        TWA (time-weighted average) STEL
MAC        Maximum Allowable Concentration Ceiling
X          Listed Vacated

STEL (Short Term Exposure Limit)
Ceiling Limit Value

These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state regulations.

SKN*       Skin designation SKN+
RSP+       Respiratory sensitization **
C          Carcinogen R
M          mutagen

Skin sensitization
Hazard Designation
Reproductive toxicant

Prepared By Hach Product Compliance Department

Issue Date 11-Jul-2016
Revision Date 11-Nov-2016
Revision Note None

Disclaimer

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

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End of Safety Data Sheet