SAFETY DATA SHEET

Revision date 2015-04-25

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product name WS-147

Other means of identification

Product code 3225N
Synonyms Inorganic metal salt coagulant/flocculant in aqueous solution

Recommended use of the chemical and restrictions on use

Recommended use [RU] No information available
Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier Anderson Chemical Company
325 South Davis Ave.
Litchfield, MN 55355
+1-320-693-2477
Hours: Monday-Friday 8:00-5:00 CST (Central Standard Time)

Emergency telephone number

24 Hour Emergency Phone Number CHEMTREC: (800) 424-9300

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Corrosive to metals</td>
<td>Category 1</td>
</tr>
</tbody>
</table>

GHS Label elements, including precautionary statements

EMERGENCY OVERVIEW

____________________________________________________________________________________
**WARNING**

**Hazard statements**
- Causes skin irritation
- Causes serious eye irritation
- May be corrosive to metals

**Precautionary Statements - Prevention**
- Wash face, hands and any exposed skin thoroughly after handling
- Wear protective gloves/protective clothing/eye protection/face protection
- Keep only in original container

**Precautionary Statements - Response**
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- If eye irritation persists: Get medical advice/attention
- IF ON SKIN: Wash with plenty of soap and water
- If skin irritation occurs: Get medical advice/attention
- Take off contaminated clothing and wash before reuse
- Absorb spillage to prevent material damage

**Precautionary Statements - Storage**
- Store in corrosive resistant container with a resistant inner liner

**Other information**
- * May be harmful if swallowed

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>weight-%</th>
<th>TRADE SECRET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade Secret Ingredient</td>
<td>PROPRIETARY</td>
<td>40 - 50%</td>
<td>*</td>
</tr>
<tr>
<td>Trade Secret Ingredient</td>
<td>PROPRIETARY</td>
<td>&lt;10%</td>
<td>*</td>
</tr>
</tbody>
</table>

*The exact percentage (concentration) of composition has been withheld as a trade secret*

### 4. FIRST AID MEASURES

**First Aid Measures**

**Eye contact**
Remove contact lenses, if worn. Immediately flush with plenty of water for at least 15 minutes, holding eyelids apart to ensure flushing of the entire surface. Washing within one minute is essential to achieve maximum effectiveness. Get medical attention if irritation develops and persists.

**Skin contact**
Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention.
Ingestion
Seek medical attention immediately. Give large amounts of water to drink. If vomiting should occur spontaneously, keep airway clear. Never give anything by mouth to an unconscious person.

Inhalation
Remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Most important symptoms and effects, both acute and delayed

Acute effects
Possible eye, skin and respiratory tract irritation.

Chronic effects
May aggravate existing skin, eye, and lung conditions. Persons with kidney disorders have an increased risk from exposure based on general information found on aluminum salts.

Aggravated Medical Conditions
Existing skin, eye and lung conditions.

Indication of any immediate medical attention and special treatment needed

Note to physicians
Aluminum soluble salts may cause gastroenteritis if ingested. Treatment includes the use of demulcents. Note: Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media
Water Spray, Carbon Dioxide, Foam, Dry Chemical.

Extinguishing media which must not be used for safety reasons
No information available

Special hazards arising from the substance or mixture

Special Hazard
May produce hazardous fumes or hazardous decomposition products.

Advice for firefighters

Firefighting measures
Product is a water solution and nonflammable. In a fire, this product may build up pressure and rupture a sealed container; cool exposed containers with water spray. Use self-contained breathing apparatus in confined areas; avoid breathing mist or spray.

Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for firefighting personnel.

Explosion data

Sensitivity to Mechanical Impact
None.

Sensitivity to Static Discharge
None.
6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
Wear adequate personal protective clothing and equipment. Approved breathing apparatus may be necessary.

Environmental precautions

Environmental precautions
Do not allow liquid to enter streams or waterways.

Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Build dikes as necessary to contain flow of large spills.

Methods for cleaning up
Clear spills immediately. For small spills, use soda ash to neutralize, an inert material to absorb, or wash product to a chemical sewer. Place contaminated materials into containers and store in a safe place to await proper disposal. Caution: Use of soda ash may generate carbon dioxide gas. Provide adequate ventilation to spill area.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling
Keep away from heat and open flame.
Keep container closed when not in use.
Avoid contact with eyes, skin and clothing.
Wear chemical splash goggles, gloves, and protective clothing when handling.
Wash thoroughly after handling.
Avoid breathing vapor or mist.
Use with adequate ventilation and employ respiratory protection where mist or spray may be generated.
FOR INDUSTRIAL USE ONLY.

Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions
Store in a cool, dry place away from direct heat.
Keep container tightly closed when not in use.
Do not store in unlined metal containers.
Product may slowly corrode iron, brass, copper, aluminum, mild steel, and stainless steel.

Incompatible products
Alkalis.

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.

Appropriate engineering controls
Engineering controls
Local exhaust ventilation as necessary to maintain exposures to within applicable limits. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details. If there are no applicable or established exposure limit requirements or guidelines, general ventilation should be sufficient.

Individual protection measures, such as personal protective equipment

Eye/face Protection
Wear chemical splash goggles and face shield (when eye and face contact is possible due to splashing or spraying of material).

Hand Protection
Appropriate chemical resistant gloves should be worn.

Skin and body protection
Standard work clothing and work shoes.

Respiratory protection
If exposures exceed the PEL or TLV, use NIOSH/MSHA approved respirator in accordance with OSHA Respiratory Protection Requirements under 29 CFR 1910.134. If there are no applicable or established exposure limit requirements or guidelines, general ventilation should be sufficient.

Other personal protection data
Eyewash fountains and safety showers must be easily accessible.

Hygiene measures
Take off contaminated clothing and wash before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks / Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>liquid</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>reddish brown</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>opaque</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>slight amine</td>
<td></td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>2.0 - 3.0</td>
<td>as is</td>
</tr>
<tr>
<td>Melting / freezing point</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
<td>No information available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit</td>
<td>Not applicable</td>
<td>No information available</td>
</tr>
<tr>
<td>Lower flammability limit</td>
<td>Not applicable</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No information available</td>
<td>No information available</td>
</tr>
</tbody>
</table>
Vapor density: No information available

Specific gravity: 1.346 - 1.366

Solubility (water): Soluble below pH 4

Solubility in other solvents: No information available

Partition coefficient: n-octanol/water: No information available

Autoignition temperature: Not applicable

Decomposition temperature: No information available

Kinematic viscosity: No information available

Dynamic viscosity: 20 - 35 cps

Other information:

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>11.23 - 11.39 lb/gal</td>
</tr>
<tr>
<td>Bulk Density</td>
<td>No information available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No information available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No information available</td>
</tr>
<tr>
<td>Softening point</td>
<td>No information available</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>No information available</td>
</tr>
<tr>
<td>Volatile organic compounds (VOCs) content</td>
<td>No information available</td>
</tr>
<tr>
<td>Percent Volatile, wt.%</td>
<td>45 - 65 % (Water)</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity

Reactivity
No data available.

Chemical stability

Chemical stability
Stable under normal conditions of handling, use and transportation.

Possibility of hazardous reactions

Possibility of hazardous reactions
None under normal processing.

Hazardous polymerization
Not anticipated under normal or recommended handling and storage conditions.

Conditions to avoid

Conditions to avoid
None known

Incompatible materials

______________________________________________________________________________________
Materials to avoid
Alkalis.

Hazardous decomposition products

Hazardous decomposition products
Thermal decomposition may release toxic and/or hazardous gases such as aluminum, Cl₂, and HCl.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Eye contact
May cause moderate eye irritation that can become severe with prolonged contact. Prolonged exposure to Aluminum salts may cause conjunctivitis.

Skin contact
Prolonged and/or repeated contact may cause skin irritation.

Ingestion
May be harmful if swallowed. May cause irritation of the mouth, throat and stomach. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Inhalation
Inhalation of mist or vapor may cause respiratory tract irritation.

Acute toxicity - Product Information

<table>
<thead>
<tr>
<th></th>
<th>Oral LD₅₀</th>
<th>Dermal LD₅₀</th>
<th>Inhalation LC₅₀</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral LD₅₀</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermal LD₅₀</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation LC₅₀</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Acute toxicity - Component Information

<table>
<thead>
<tr>
<th>Component</th>
<th>weight-%</th>
<th>Oral LD₅₀</th>
<th>Dermal LD₅₀</th>
<th>Inhalation LC₅₀</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade Secret Ingredient</td>
<td>40 - 50%</td>
<td>&gt; 2000 mg/kg (Rat)</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Trade Secret Ingredient</td>
<td>&lt;10%</td>
<td>= 500 mg/kg (Rat)</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

Information on toxicological effects

Symptoms
No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation
Irritating to skin

Serious eye damage/eye irritation
Causes serious eye irritation

Sensitization
No information available
Germ cell mutagenicity
No information available

Carcinogenicity
This product does not contain any components in concentrations greater than or equal to 0.1% that are listed as known or suspected carcinogens by NTP, IARC, ACGIH, or OSHA.

Reproductive toxicity
No information available

Specific target organ toxicity - Single exposure
No information available.

Specific target organ toxicity - Repeated exposure
No information available

Aspiration hazard
No information available.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral) 3276 mg/kg

Other information
Data is based on a product of similar composition and conclusions are drawn from sources other than direct testing.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Acute aquatic toxicity - Product Information

Fish No information available
Crustacea No information available
Algae/aquatic plants No information available

Acute aquatic toxicity - Component Information

<table>
<thead>
<tr>
<th>Component</th>
<th>weight-%</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade Secret Ingredient</td>
<td>&lt;10%</td>
<td>--</td>
<td>LC50 (96 h static) = 37.2 mg/L (Gambusia affinis)</td>
<td>--</td>
</tr>
</tbody>
</table>

Persistence and degradability

Persistence and degradability
No information available

Bioaccumulative potential

Bioaccumulative potential
No information available.
Mobility

No information available

Results of PBT and vPvB assessment

No information available

Other adverse effects

No other ecological studies have been carried out on this product.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Dispose of wastes
Dispose of product in an approved chemical waste landfill or incinerate in accordance with applicable Federal, state and local regulations.

Contaminated packaging
Since empty containers retain product residue, follow label warnings even after container is emptied.

14. TRANSPORT INFORMATION

DOT

Regulated

DOT UN/NA Number
UN3264

Proper shipping name
Corrosive liquid, acidic, inorganic, N.O.S. (Polyaluminum ferric chlorosulfate solution)

Hazard class
8

Packing group
III

ERG Number
154

Reportable Quantity (RQ)
24,000 lbs

DOT Shipping Name > RQ
UN3264, Corrosive liquid, acidic, inorganic, N.O.S. (Polyaluminum ferric chlorosulfate solution), 8, PG III, RQ, ERG# 154

ICAO/IATA

Regulated

UN number
UN3264

Proper shipping name
Corrosive liquid, acidic, inorganic, N.O.S. (Polyaluminum ferric chlorosulfate solution)

Hazard class
8

Packing group
III

ERG Code
8L

IMDG

Regulated

UN number
UN3264

Proper shipping name
Corrosive liquid, acidic, inorganic, N.O.S. (Polyaluminum ferric chlorosulfate solution)

Hazard class
8

Packing group
III

EmS
F-A; S-B

Harmonized Tariff Number
3824.90
15. REGULATORY INFORMATION

International Inventories

TSCA (United States)
All ingredients are on the inventory or exempt from listing

Australia (AICS)
All ingredients are on the inventory or exempt from listing

Canada (DSL)
All ingredients are on the inventory or exempt from listing

Canada (NDSL)
None of the ingredients are on the inventory.

China (IECSC)
All ingredients are on the inventory or exempt from listing

EINECS (European Inventory of Existing Chemical Substances)
All ingredients are on the inventory or exempt from listing

ELINCS (European List of Notified Chemical Substances)
None of the ingredients are on the inventory.

ENCS (Japan)
All ingredients are on the inventory or exempt from listing

South Korea (KECL)
All ingredients are on the inventory or exempt from listing

Philippines (PICCS)
All ingredients are on the inventory or exempt from listing

Legend
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
AICS - Australian Inventory of Chemical Substances
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
IECSC - China Inventory of Existing Chemical Substances
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances

U.S. Federal Regulations

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

<table>
<thead>
<tr>
<th>Component</th>
<th>CERCLA/SARA Hazardous Substance RQ</th>
<th>CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs</th>
<th>Calculated Product RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferric Sulfate 10028-22-5</td>
<td>1000 lb final RQ; 454 kg final RQ</td>
<td>--</td>
<td>24,000 lbs in solution</td>
</tr>
</tbody>
</table>

CWA (Clean Water Act)
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).
<table>
<thead>
<tr>
<th>Component</th>
<th>CWA - Hazardous Substances</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Toxic Pollutants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferric Sulfate</td>
<td>Present</td>
<td>1000 lb RQ</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

**SARA 311/312 Hazard Categories**

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

**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.

**U.S. 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>Polyaluminum Chloride 1327-41-9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minnesota Hazardous Substance List</td>
</tr>
<tr>
<td>Pennsylvania Right to Know List</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ferric Sulfate 10028-22-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Massachusetts Right to Know Law</td>
</tr>
<tr>
<td>Minnesota Hazardous Substance List</td>
</tr>
<tr>
<td>New Jersey Right to Know List</td>
</tr>
<tr>
<td>Pennsylvania Right to Know List</td>
</tr>
</tbody>
</table>

**16. OTHER INFORMATION**

<table>
<thead>
<tr>
<th>NFPA Rating</th>
<th>Health - 2</th>
<th>Flammability - 0</th>
<th>Instability - 0</th>
<th>Special Hazard -</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMIS Rating</td>
<td>Health - 2</td>
<td>Flammability - 0</td>
<td>Physical hazard - 0</td>
<td>Personal protection - B</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product code</th>
<th>3225N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision date</td>
<td>2015-04-25</td>
</tr>
<tr>
<td>Revision number</td>
<td>1</td>
</tr>
</tbody>
</table>

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet