MATERIAL SAFETY DATA SHEET
Sodium Aluminate

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

USA
Supplier: Kemira Water Solutions, Inc.
316 Bartow Municipal Airport
Bartow, Florida 33830

Customer Service Telephones:
(800) 879-6353
(785) 842-7424
(800) 450-7352 - Polymers

CANADA
Supplier: Kemira Water Solutions Canada Inc.
3405 Blvd. Marie Victorin
Varennes, Québec J3X 1T6

Customer Service Telephones:
(800) 465-6171
(450) 652-0665

Emergency Contacts (24 hr.)
FOR EMERGENCIES INVOLVING CHEMICAL SPILL OR RELEASE, CALL
CHEMTREC (800) 424-9300 USA (TOLL FREE)
CANUTEC (613) 996-6666 CANADA (CALL COLLECT)

Product Name: Sodium Aluminate, SAX-15, SAX-19, SAX-19A, SAX-20, SAX-23, SAX-24, SAX-24E, HanFloc, WataFloc
Chemical Family: Inorganic Salts
Formula: NaAlO₂
Synonym: Sodium Aluminate Solution
Acceptable Product Uses: Water treatment

2. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>% (w/w)</th>
<th>ACGIH TWA</th>
<th>CAS NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Aluminate</td>
<td>29-46</td>
<td>2 mg/m³ (TWA) (as Aluminum salts)</td>
<td>1302-42-7</td>
</tr>
<tr>
<td>Sodium Hydroxide</td>
<td>5</td>
<td>2 mg/m³ (STEL)</td>
<td>1310-73-2</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

Principal Risk: Irritating to skin, eyes, respiratory and digestive tracts.

Potential Effects on Health: Acute and chronic.

Carcinogenicity: Does not contain any known carcinogens or potential carcinogens.

4. FIRST AID MEASURES

For more information on the use or the performance of our products, or for sample requests please contact your Kemira Water Solutions Representative or Customer Service at the numbers in Section 1 of this MSDS.
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General: If you feel unwell, seek medical attention (show the label or this MSDS if possible). Ensure that medical personnel are aware of the material(s) involved.

Skin Contact: Avoid contact with skin. Remove contaminated clothing, jewelry, and shoes. Wash affected area with soap or mild detergent and running water for at least 15 minutes. If irritation develops, get medical attention.

Eye Contact: Flush immediately with water for at least 15 minutes, occasionally lifting upper and lower lids to be sure rinsing is complete. Get medical attention.

Inhalation: Move to fresh air. Give artificial respiration ONLY if breathing has stopped. Do not use mouth-to-mouth method if victim has ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Obtain medical attention if cough or other symptoms develop.

Ingestion: DO NOT INDUCE VOMITING. If conscious, give two (2) glasses of water or milk of magnesia. Do not give anything by mouth to an unconscious person. Get medical attention.

5. FIRE FIGHTING MEASURES

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Flash point</td>
<td>Not applicable. Will not burn</td>
</tr>
<tr>
<td>Flammable Limits (Lower)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammable Limits (Upper)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Auto Ignition Temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Combustion and Thermal Decomposition Products</td>
<td>Aluminum oxides.</td>
</tr>
<tr>
<td>Rate of Burning</td>
<td>Does not burn</td>
</tr>
<tr>
<td>Explosive Power</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Sensitivity to Static Discharge</td>
<td>Not available</td>
</tr>
</tbody>
</table>

Fire and Explosion Hazards: During a fire, irritating/toxic and corrosive fumes may evolve. Extinguishing Media: The substance is not combustible. Use extinguishing media appropriate to the surrounding fire.

6. ACCIDENTAL RELEASE MEASURES

Spills, Leaks, or Release:
→ Restrict access until clean-up operations are complete. Wear appropriate Personal Protective Equipment per Section 8. Ensure trained personnel conduct clean up and wear Personal Protective Equipment per Section 8.
→ Stop leak if possible. Avoid personal risk.
7. HANDLING AND STORAGE

Handling: Handle all chemicals with respect. Review the label, this MSDS and any other applicable information before use. Keep separated from incompatible substances. Use appropriate Personal Protective Equipment per Section 8. Handle only with equipment, materials and supplies specified by their manufacturer as being compatible and appropriate for use with this product.

Storage Requirements:
Handle in containers, piping, and pumps made of steel, stainless steel, FRP or plastic. Avoid prolonged skin contact. Product should be used within one year.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Preventive Measures:
Engineering Controls: A ventilation system of local/general exhaust is recommended to keep employee exposure below the Airborne Exposure Limits. Ensure that eyewash station and safety showers are proximal to the workstation location.

Personal Protection Equipment:
Eye Protection: Wear splash resistant chemical goggles and, where splashing is possible, a full face shield. Maintain eye wash fountain and quick-drench facilities in work area.
Skin Protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to avoid skin contact.
Recommended Protective Material: Neoprene or equivalent. Never use leather.
Respiratory Protection: Under conditions of misting or contact with head gases, respiratory protection may be needed. Consider respirator warning properties before use.
  ▪ With limited contact use an appropriate chemical cartridge respirator.
  ▪ When cleaning, decontaminating or performing maintenance on tanks, containers, piping systems and accessories, and in any other situations where airborne contaminants and/or dust could be generated, use protective equipment to protect against ingestion or inhalation. Chemical respirator or air supplied respirator, full protective coveralls with head cover, gloves and boots or chemical suits, and boots are suggested.
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance:</td>
<td>Straw Yellow to Amber</td>
</tr>
<tr>
<td>Odor:</td>
<td>Odorless</td>
</tr>
<tr>
<td>Form:</td>
<td>Liquid</td>
</tr>
<tr>
<td>pH as is:</td>
<td>12 for a 1% solution</td>
</tr>
<tr>
<td>Vapor Pressure (mm Hg):</td>
<td>N/A</td>
</tr>
<tr>
<td>Boiling Point:</td>
<td>110 - 116 °C (230 - 240 °F)</td>
</tr>
<tr>
<td>Specific Gravity (25°C):</td>
<td>1.34 – 1.56</td>
</tr>
<tr>
<td>Solubility (water):</td>
<td>soluble</td>
</tr>
<tr>
<td>Vapor Density (Air=1):</td>
<td>N/A</td>
</tr>
<tr>
<td>Percent Volatile by Vol.:</td>
<td>N/A</td>
</tr>
<tr>
<td>Freezing Point:</td>
<td>-20 °C (-4 °F)</td>
</tr>
</tbody>
</table>

10. STABILITY AND STORAGE

Hazardous Decomposition Products: Decomposes to toxic fumes of oxides of sodium (Na₂O) when a thermal decomposition occurs.

Chemical Stability: Stable at normal temperatures and pressure. Store at temperature of a minimum of 10 °C (50 °F)

Conditions to Avoid: Contact with strong mineral acids, excessive heat. Do not mix with strong acids without preliminary dilution and agitation to prevent violent or explosive reaction. Product can react explosively with aldehydes and many other organic chemicals. Avoid contact with mineral acids, excessive heat and bases/alkalis

Incompatibility with other Substances: Corrodes steel. Incompatible with carbon steel, aluminum, carbon, brasses, and nylon.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicological Data: Sodium Aluminate: No quantitative data available.
Sodium hydroxide: Irritation data:
500 mg/24 hour(s) skin-rabbit severe; 400 µg eyes-rabbit mild; 1 percent eyes-rabbit severe;
Toxicity data: 1350 mg/kg skin-rabbit LD₅₀; 104-340 mg/kg oral-rat LD₅₀

Mutagenicity: No data available

Page 4 of 7

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Reproductive Effects: No data available
Teratogenicity and Fetotoxicity: No data available
Synergistic Materials: None known

12 ECOLOGICAL INFORMATION

Ecotoxicological Information: Chemical oxygen demand (COD): 1,420 mg/L
Biochemical oxygen demand (5-day BOD): 921 mg/L
Aquatic data: Results shown below are based on similar products.
96 hour static acute LC50 to Rainbow Trout = 172 mg/L
96 hour no observed effect concentration is <100 mg/L based on no mortality or abnormal effects. Toxicity Rating: Moderately toxic.
96 hour static acute LC50 to Fathead Minnow = 530 mg/L
96 hour no observed effect concentration is 400 mg/L based on no mortality or abnormal effects. Toxicity Rating: Moderately toxic.
48 hour static acute LC50 to Daphnia magna = 64 mg/L
48 hour no observed effect concentration is 40 mg/L based on no mortality or abnormal effects. Toxicity Rating: Moderately toxic.

Persistence and Degradation: No data available.

13 DISPOSAL CONSIDERATIONS

Review Federal, State, Provincial, and Local government regulations prior to disposal. This material exhibits the characteristic of corrosivity to metals and other building materials and any disposal must comply with hazardous waste disposal requirements. Any residues and/or rinse waters from cleaning of tanks, containers, piping systems and accessories may be a hazardous characteristic waste and must be properly disposed of in accordance with federal, state, provincial and local laws.

RCRA: Test waste material for corrosivity, D002, prior to disposal

14 TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th></th>
<th>Canada (TDG)</th>
<th>U.S. (DOT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipping Name</td>
<td>Sodium Aluminate Solution</td>
<td>Sodium Aluminate Solution</td>
</tr>
<tr>
<td>Hazard Class/Division</td>
<td>8 : Corrosive liquid</td>
<td>8 : Corrosive liquid</td>
</tr>
<tr>
<td>Identification No.</td>
<td>UN 1819</td>
<td>UN 1819</td>
</tr>
<tr>
<td>Packing Group:</td>
<td>II</td>
<td>II</td>
</tr>
</tbody>
</table>

Transportation Emergency Telephone Numbers:
1-800-424-9300 CHEMTREC (USA)
1-613-996-6666 CANUTEC (CANADA) (CALL COLLECT)

IATA/ICAO Class: 8

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15 REGULATORY INFORMATION

USA CLASSIFICATION:


CERCLA: 1000 liquid pounds.

SARA Regulations sections 313 and 40 CFR 372: Yes

SARA Hazard Categories, SARA SECTIONS 311/312 (40CFR370.21):

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reactive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sudden Release</td>
<td></td>
<td></td>
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<tr>
<td>OSHA Process Safety (29CFR1910.119)</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Clean Water Act Requirements: Designated as a hazardous substance under section 311(b)(2)(A) of the Federal Water Pollution Control Act and further regulated by the Clean Water Act Amendments of 1977 and 1978. These regulations apply to discharges of this substance.

TSCA: This substance or all ingredients of this product are listed on the Chemical Substances Inventory of the TSCA. Does not require reporting.

Other Regulations/Legislation which apply to this product:
California Proposition 65: No

Right-To-Know Lists: Massachusetts, New Jersey, Pennsylvania, California
This product does not contain, nor is it manufactured with, ozone-depleting substances.

CANADIAN CLASSIFICATION

This product has been classified in accordance with the hazard criteria of the CPR (Controlled Products Regulations) and this MSDS (Material Safety Data Sheet) contains all information required by the CPR.

Controlled Products Regulation (WHMIS) Classification: E: Corrosive

CEPA / Canadian Domestic Substances List (DSL): The substances in this product are on the Canadian Domestic Substances List (CEPA DSL). The presence on this list does not trigger any legal reporting.

16 OTHER INFORMATION

National Fire Protection Association (NFPA) and Hazardous Materials Identification System (HMIS) Ratings:

<table>
<thead>
<tr>
<th></th>
<th>NFPA</th>
<th>HMIS</th>
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</thead>
<tbody>
<tr>
<td>HEALTH</td>
<td>3</td>
<td>3</td>
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</table>

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