

KEMIRON COMPANIES, INC.

MATERIAL SAFETY DATA SHEET

Sodium Aluminate

SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

SALES OFFICE
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Product Name: Sodium Aluminate, SAX-19, SAX-23, SAX-24 **Major Update:** 02/19/99
CAS#: 1302-42-7 **Minor Revision:** 11/24/99
MSDS Code: SAX
Product Use: Water treatment chemical

Emergency Contacts (24 hr.)

Δ FOR EMERGENCIES INVOLVING CHEMICAL SPILL OR RELEASE, CALL
1-888-306-7070.

SECTION 2 – COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient(s)	% (w/w)	ACGIH TWA	CAS NO.
Sodium Aluminate	38 – 46	2 mg/m ³ (TWA) (as Aluminum salts)	1302-42-7
Sodium Hydroxide	5	2 mg/m ³ (STEL)	1310-73-2
Water	57 - 49	Not Applicable	7732-18-5

SECTION 3 – HAZARD IDENTIFICATION

Emergency Overview: Corrosive! Causes burns to skin, eyes, respiratory tract and mucous membranes. Harmful or fatal if swallowed. Not flammable, but reacts with most metals to form explosive/flammable hydrogen gas. Read the entire MSDS for a more thorough evaluation of the hazards.

Potential Health Effects:

Inhalation: Causes respiratory irritation and at high concentrations may cause severe injury and burns to the mucous membranes and lungs.

Skin Contact: Corrosive to skin and can cause severe burns.

Eye Contact: Can cause severe burns and corneal damage, which may result in permanent blindness.

Ingestion: Causes burns of the mouth, throat, esophagus and stomach.

Chronic Effects: No chronic effects expected.

Carcinogenicity: Sodium aluminate is not classified as carcinogenic by ACGIH (American Conference of Governmental Industrial Hygienists) or IARC (International Agency for Research on Cancer), not regulated as carcinogens by OSHA (Occupational Safety and Health Administration), and not listed as carcinogens by NTP (National Toxicology Program).

SECTION 4 – FIRST AID MEASURES

General: If you feel unwell seek medical advice (show the label where possible).

Inhalation: Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Do not use mouth-to-mouth method if victim 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. Give Cardiopulmonary Resuscitation (CPR) only if there is no pulse AND no breathing. Obtain medical attention IMMEDIATELY.

Skin Contact: Remove contaminated clothing, jewelry, and shoes. Immediately flush skin with running water for at least 15 - 20 minutes until no evidence of chemical remains. For burns, obtain medical attention immediately. Discard heavily contaminated clothing and shoes in a manner, which limits further exposure. Otherwise, wash clothing separately before reuse.

Eye Contact: Immediately flush eyes with running water for a **minimum** of 20 minutes. Hold eyelids open during flushing. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY. Do not transport victim until the recommended flushing period is completed unless flushing can be continued during transport.

Ingestion: DO NOT INDUCE VOMITING. If victim is alert and not convulsing, rinse mouth and give as much water as possible to dilute material. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. IMMEDIATELY transport victim to an emergency facility.

Note to Physicians: For inhalation, consider oxygen. To relieve the GI distress caused by swallowing aluminum salts, the degree of dehydration and electrolyte loss caused by vomiting and diarrhea must be determined, and corrected by IV infusions of appropriate solutions.

SECTION 5 – FIRE FIGHTING MEASURES

Flash Point	Not applicable. Not combustible
Flammable Limits (Lower)	Not applicable
Flammable Limits (Upper)	Not applicable
Auto Ignition Temperature	Not applicable
Combustion and Thermal Decomposition Products	Oxides of Sulfur
Rate of Burning	Not applicable
Explosive Power	Not applicable
Sensitivity to Mechanical Impact	Not applicable

Fire and Explosion Hazards: Not flammable. Reacts with many metals to liberate hydrogen gas which can form explosive mixtures with air. Hydrogen, a highly flammable gas, can accumulate to explosive concentrations inside drums, or any types of steel containers or tanks upon storage. Oxides of sulfur may be produced in fire.

Extinguishing Media : Small fires: Dry chemical, carbon dioxide or water spray. Large fires: Dry chemical, carbon dioxide, alcohol-resistant foam or water spray.

Special Information: Firefighters should wear proper protective equipment and self-contained breathing apparatus with full facepiece operated in positive pressure mode. Move containers from fire area if you can do it without risk. Dike fire control water for later disposal; do not scatter the material. Fire involving tanks or car/trailer loads: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Do not get water inside containers. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from the ends of tanks.

Evacuation: If tank, rail car or tank truck involved in a fire, ISOLATE and consider evacuation of one-half (1/2) mile radius.

NOTE: Also see "Section 10 - Stability and Reactivity"

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Spills, Leaks, or Releases:

- Restrict access to area until completion of clean up. Ensure trained personnel conduct clean up.
- Remove all ignition sources (no smoking, flares, sparks or flames). All equipment should be grounded. Ventilate area.
- Wear adequate personal protective equipment. Do not touch spilled material.
- Stop leak if possible without personal risk.
- Small spills: Cover with DRY earth, sand or other non-combustible material. Use clean non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal.
- Large spills: Prevent entry into sewers and confined areas. Dike with inert material (sand, earth, etc.). Collect into plastic containers for disposal. Consider insitu neutralization and disposal. Ensure adequate decontamination of tools and equipment following clean up. Comply with Federal, Provincial/State and local regulations on reporting releases.

Waste Disposal Methods: Dispose of waste material at an approved waste treatment/disposal facility,

in accordance with applicable regulations. Do not dispose of waste with normal garbage or to sewer systems.

Note - Clean-up material may be a RCRA Hazardous Waste on disposal.

- Spills are subject to CERCLA reporting requirements: RQ = 1000 lbs.

SECTION 7 – HANDLING AND STORAGE

Precautions: Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled. Wear appropriate Personal Protection Equipment. Use EXTREME care when diluting with water. **Always add sodium aluminate to water.** People working with this chemical should be properly trained regarding its hazards and its safe use.

Handling Procedures and Equipment: Keep containers closed when not in use. Empty containers may contain hazardous residues. Use corrosion-resistant transfer equipment when dispensing.

Storage Requirements: Store in a cool, dry, well-ventilated area, out of direct sunlight. Store away from incompatible materials such as strong acids. Keep containers tightly closed when not in use and when empty. Store in suitable labeled containers. Protect from damage.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

PREVENTIVE MEASURES

Recommendations listed in this section indicate the type of equipment, which will provide protection against over exposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

Engineering Controls: Local exhaust ventilation should be applied wherever there is an incidence of point source emissions or dispersion of regulated contaminants in the work area. Ventilation control of the contaminant as close to its point of generation is both the most economical and safest method to minimize personnel exposure to airborne contaminants. The most effective measures are the total enclosure of processes and the mechanization of handling procedures to prevent all personal contact. Smoking should be prohibited in areas in which sodium aluminate is stored or handled.

PERSONAL PROTECTIVE EQUIPMENT

Eye Protection: Wear splash resistant chemical goggles and full-face shield. Maintain eye wash fountain and quick-drench facilities in work area.

Skin Protection: Wear impervious protective clothing, such as PVC, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory Protection: A NIOSH/MSHA approved air-purifying full facepiece respirator equipped with high efficiency particulate filters for concentrations up to 10 mg/m³. A supplied air respirator if concentrations are higher or unknown.

EXPOSURE GUIDELINES

PRODUCT:

Sodium Aluminate:

ACGIH TLV 2 mg/m³ (TWA as Aluminum, soluble salts)

Sodium Hydroxide

ACGIH TLV 2 mg/m³ ceiling
ACGIH IDLH 10 mg/m³ (IDLH)

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Alternate Name(s)	SAX-19, SAX-23, SAX-24
Chemical Name	Sodium Aluminate
Chemical Family	Aluminum salt
Molecular Formula	Na ₂ Al ₂ O ₄
Molecular Weight	163.94
Appearance	Yellow brown liquid
Odor	Odorless
pH	14
Vapor Pressure (mm Hg at 21 °C(69.8°F))	16
Vapor Density (Air = 1)	0.6
Boiling Point	116 °C (240 °F)
Freezing Point	Not available
Solubility (Water)	Very soluble
Specific Gravity	1.457 – 1.55 @25°C
Viscosity	20-125 cPs @ 38°C
Evaporation Rate	Not available
% Volatile by Volume	Not available
% Volatile Organic Compounds	Not available

SECTION 10 – STABILITY AND REACTIVITY

Hazardous Decomposition Products: Thermal decomposition: sulfur dioxide, sulfur trioxide, sulfuric acid vapors and hydrogen gas.

Chemical Stability: Stable, but reacts violently with water and organic materials with evolution of heat.

Conditions to Avoid: Avoid heat, flames, sparks and other sources of ignition.

Incompatibility with other Substances: Flammable liquids, halogenated hydrocarbons, strong acids (e.g. sulfuric, phosphoric, nitric, hydrochloric, hydrofluoric, chromic, oleum, sulfonic), carbon dioxide in large amounts and organic materials (such as aldehydes, acetaldehyde, acrolein, acrylonitrile, 4-chloro-2-methylphenol, chloronitrotoluenes, chloropicrin, 2,2-dichloro-3,3-dimethylbutane, 1,2-dichloroethylene, maleic anhydride, nitrobenzene, nitroethane, nitromethane, nitroparaffins, nitropropane, organic peroxides, propylene oxide, tetrahydrofuran) may cause violent reaction or explosions. Contact with metals may produce flammable hydrogen gas.

Corrosivity to Metals: Can be very corrosive to aluminum, brass, tin and zinc. Slowly corrosive to iron, copper, and glass. At elevated temperatures will cause embrittlement of steel.

Hazardous Polymerization: Will not occur.

SECTION 11 – TOXICOLOGICAL INFORMATION

TOXICOLOGICAL DATA:

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

Reproductive Effects: No data available

Teratogenicity and Fetotoxicity: No data available

Synergistic Materials: None known

SECTION 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.

SECTION 13 – DISPOSAL CONSIDERATIONS

Review federal, state and local government requirements prior to disposal.

Do not dispose of waste with normal garbage, or to sewer systems.

Whatever cannot be saved for recovery or recycling, including containers should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options.

RCRA: Test waste materials for corrosivity prior to disposal.

SECTION 14 – TRANSPORT INFORMATION

	TDG	DOT
Shipping Name	Sodium Aluminate Solution	Sodium Aluminate Solution
Hazard Class/Division	8: Corrosive liquid	8: Corrosive Liquid
Identification No.	UN1819	UN1819
Packing Group:	II	II

IATA/ICAO Class: 8

Transportation Emergency Telephone Number: 1-888-306-7070

SECTION 15 – REGULATORY INFORMATION

OSHA Classification: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200)

SARA Regulations sections 313 and 40 CFR 372: N

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

ACUTE: Y

CHRONIC: N

FIRE: N

REACTIVE: N

SUDDEN RELEASE: N

OSHA PROCESS SAFETY (29CFR1910.119): N

CERCLA SECTION 103 (40CFR302.4): Y

Sodium hydroxide: 1000 LBS RQ

TSCA Inventory Status: Y

Other Regulations/Legislation which apply to this product:

California Proposition 65: N

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 the information required by the CPR.

Controlled Products Regulations (WHMIS) Classification: Class E - Corrosive

CEPA / Canadian Domestic Substances List (DSL): On the Canadian Domestic Substances List (CEPA DSL).

WHMIS Ingredient Disclosure List: Meets criteria for disclosure at 1% or greater.

EINECS No.: 215-100-1

SECTION 16 – OTHER INFORMATION

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and PIONEER will not be liable for any damages, losses, injuries or consequential damages that may result from the use of or reliance on any information contained herein. This Material Safety Data Sheet is valid for three years.

Revision Indicators:

Δ In the left margin indicates a revision or addition of information since the previous issue.

National Fire Protection Association (NFPA) Rating Hazardous Materials Identification System (HMIS) Rating

	NFPA	HMIS
HEALTH	3	3
FIRE	0	0
REACTIVITY	0	0

4= Extreme/Severe
3 = High/Serious
2 = Moderate
1 = Slight
0 = Minimum
W =Water Reactive

REFERENCES:

1. HSDB-Hazardous Substances Data Bank , through “CCINFO disc”, Canadian Centre for Occupational Health and Safety, Hamilton, Ontario, Canada, (November, 1998).
2. Chemlist, STN Database, Chemical Abstract Service, 1998
3. NIOSH POCKET GUIDE TO CHEMICAL HAZARDS, U.S. Department of Health and Human Services, National Institute for Occupational Safety and Health, June 1997
4. “1998 Threshold Limit Values and Biological Exposure Indices”, American Conference of

Government Industrial Hygienists, 1998.

- 5 Merck, 11th Edition, 1989
6. Supplier's Material Safety Data Sheets.

Legend:

- CAS # - Chemical Abstracts Service Registry Number
CERCLA- Comprehensive Environmental Response, Compensation, and Liability Act
CFR - Code of Federal Regulations
DOT - Department of Transportation
EPA - Environmental Protection Agency
LC₅₀ - The concentration of material in air expected to kill 50% of a group of test animals
LD₅₀ - Lethal Dose expected to kill 50% of a group of test animals
LEL - Lower Explosive Limit
MSHA - Mine Safety and Health Administration
NIOSH - National Institute for Occupational Safety and Health
PEL - Permissible Exposure Limit
PVC - Polyvinyl chloride
RCRA - Resource Conservation and Recovery Act
SARA - Superfund Amendments and Reauthorization Act of the U.S. EPA
STEL - Short Term Exposure Limit
TC - Transport Canada
TDG - Transportation of Dangerous Goods Act/Regulations
TLV - Threshold Limit Value
TSCA - Toxic Substances Control Act
TWA - Time-Weighted Average
UEL - Upper Explosive Limit

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