

## Material Safety Data Sheet

### SECTION 1 – CHEMICAL PRODUCT AND COMPANY INFORMATION

**Product Name:** A + Solution

**Chemical Family:** Alkali

**Manufacturer's Name:** Siemens Industry, Inc. - Water Technologies Business Unit

**Address:** 2650 Tallevast Road, Sarasota, FL 34243

**Product/Technical Information Phone Number:** 941.355.2971

**Medical/Handling Emergency Phone Number:** CHEMTREC 1.800.424.9300  
24 hours a day

**Transportation Emergency Phone Number:** CHEMTREC 1.800.424.9300  
24 hours a day

**Issue Date:** June 2003

**Revision Number / Date:** Rev 3 April 2011

### SECTION 2 – COMPOSITION INFORMATION

<u>Chemical Name</u>	<u>Percent by Weight</u>	<u>CAS#</u>
Sodium Hydroxide	50	1310-73-2
Water	50	7732-18-5

### SECTION 3 – HAZARDS IDENTIFICATION

**Appearance & Odor:** Clear odorless solution.

**Emergency Overview:** Sodium hydroxide is very corrosive to the skin, eyes, respiratory tract, and digestive system. Spills make the floor slippery.

**Fire & Explosion Hazards:** None.

**Primary Route(s) of Exposure:** Skin and eye contact, inhalation, and ingestion.

**Inhalation – Acute Effects:** Sodium hydroxide aerosols may cause severe irritation of the respiratory tract and could cause pulmonary edema. Inhalation may cause a cough and labored breathing. The symptoms of lung edema often do not manifest until a few hours have passed and they are aggravated by physical effort.

**Skin Contact – Acute Effects:** Sodium hydroxide is extremely corrosive to skin and is capable of causing severe burns with deep ulceration and permanent scarring. The severity of injury depends on the concentration of the solution and the duration of exposure. Burns may not be immediately painful; onset of pain may be delayed minutes to hours. Multiple skin burns may cause temporary loss of hair.

**Eye Contact – Acute Effects:** Sodium hydroxide is extremely corrosive to the eyes. The severity of injury depends on the concentration of the solution, the duration of exposure, and the speed of penetration into the eye. Damage can range from severe irritation and mild scarring to blistering, disintegration, ulceration, severe scarring, and clouding. Conditions which affect vision, such as glaucoma and cataracts, are possible late developments. In severe cases, there is progressive ulceration and clouding of eye tissue which may lead to permanent blindness.

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**Ingestion – Acute Effects:** Ingestion may produce severe burns to the esophageal tissue, which may progress to stricture formation. Should ingestion occur, severe pain, burning of the mouth, throat and esophagus, vomiting, diarrhea, collapse, and possible death may result. Ingestion causes swallowing to become painful and difficult almost immediately.

### SECTION 4 – FIRST AID MEASURES

**Inhalation First Aid:** Remove affected person from area to fresh air and provide oxygen if breathing is difficult. Give artificial respiration ONLY if breathing has stopped. **Obtain medical attention immediately.**

**Skin Contact First Aid:** Immediately shower for 15-20 minutes with flowing water and remove clothing while showering. Remove goggles last to keep material from washing into eyes. Clothing should be discarded or washed before reuse. DO NOT instruct person to neutralize affected skin area. **Obtain medical attention immediately.**

**Eye Contact First Aid:** Immediately irrigate eyes with flowing water continuously for 15-20 minutes while holding eyes open. Contacts should be removed before or during flushing. DO NOT instruct person to neutralize. **Obtain medical attention immediately.**

**Ingestion First Aid:** If victim is alert and not convulsing rinse mouth with water and give large amounts of water to drink. Do not induce vomiting. If spontaneous vomiting occurs, have affected person lean forward with head down to avoid breathing in of vomitus. Rinse mouth again and give more water to drink. **Obtain medical attention immediately.**

**Medical Conditions Aggravated:** None known.

**Note to Physician:** Treat symptomatically.

### SECTION 5 – FIRE FIGHTING MEASURES

**Flash Point/Method:** Not applicable.

**Auto Ignition Temperature:** Not applicable.

**Upper/Lower Explosion Limits:** Not applicable.

**Extinguishing Media:** Use media appropriate for surrounding material.

**Fire Fighting Procedures:** Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products. Use water with caution and in flooding amounts.

**Fire & Explosion Hazards:** Not applicable.

**Hazardous Products of Decomposition and/or Combustion:** Toxic fumes of sodium oxide, sodium peroxide fumes.

**NFPA Ratings:** HEALTH - 3 FLAMMABILITY - 0 REACTIVITY - 1

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### SECTION 6 – ACCIDENTAL RELEASE MEASURES

If safe to do so, absorb spill with inert material, (e.g., vermiculite, dry sand, or earth), and then place into a chemical waste container. Neutralize sodium hydroxide with dilute mineral acid or dilute with water. **DO NOT DUMP ON THE GROUND OR INTO ANY BODY OF WATER.** All disposal methods must be in compliance with all Federal, State, Local and Provincial laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waster generator.

### SECTION 7 – HANDLING AND STORAGE

**Handling:** Wash thoroughly after handling. Use with adequate ventilation. Do not breathe vapors, mists, or gas. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale. Wear all recommended personal protective equipment (PPE).

**Special precautions for diluting sodium hydroxide:** Always add sodium hydroxide solution to water with constant agitation. NEVER add water to sodium hydroxide solution. The water should be lukewarm (80°-100° F). NEVER start with hot or cold water.

**Storage:** Store in tightly sealed containers in a cool, dry, well-ventilated area away from incompatible substances. Keep away from strong acids, metals, flammable liquids, and organic halogens.

**General Comments:** This substance is a strong alkali that reacts violently with acids. This substance is also corrosive in moist air to metals such as zinc, aluminum, tin, and lead forming flammable hydrogen gas. Sodium hydroxide will attack some forms of plastics, rubber or coatings and contact with moisture or water may generate heat.

### SECTION 8 –PERSONAL PROTECTION/ EXPOSURE CONTROL

**Respiratory Protection:** None required under normal use conditions.

**Skin Protection:** Wear neoprene, rubber or vinyl gloves, coveralls, rubber boots and other protective clothing as appropriate to prevent skin contact.

**Eye Protection:** Chemical goggles. Wear chemical goggles and face shield if splashing is likely.

**Ventilation Protection:** None required under normal use conditions.

**Other Protection:** Safety showers, with quick opening valves that stay open, and eye wash fountains or other means of washing the eyes with a gentle flow of cool to tepid tap water should be readily available in all areas where this material is handled or stored. Water should be supplied through insulated and heat-traced lines to prevent freeze-ups in cold weather.

**Exposure Limits:** For Sodium Hydroxide: OSHA PEL-TWA: 2 mg/m<sup>3</sup>  
ACGIH TLV-TWA: 2 mg/m<sup>3</sup>  
NIOSH REL-TWA: 2 mg/m<sup>3</sup>; CEIL: 15 mg/m<sup>3</sup>  
NIOSH IDLH: 10 mg/m<sup>3</sup>

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### SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

**Appearance & Odor:** Clear odorless solution

**Vapor Pressure:** Not applicable

**Vapor Density (Air=1):** Not applicable

**Boiling Point:** 290°F

**Freezing Point:** 40° F

**Specific Gravity:** 1.53

**Solubility in Water:** Complete

### SECTION 10 – STABILITY AND REACTIVITY

**Stability:** This material is stable under normal use conditions

**Incompatibilities:** Heat is generated when mixed with water. Reacts with mineral acids to form corresponding salts; reacts with weak acid gases like hydrogen sulfide, sulfur dioxide, and carbon dioxide; ignites when in contact with cinnamaldehyde or zinc; and reacts explosively with a mixture of chloroform and methane. Corrosive to metals such as aluminum, tin, and zinc as well as to alloys such as steel, and may cause formation of flammable hydrogen gas.

**Polymerization:** Hazardous polymerization will not occur.

**Decomposition:** Toxic fumes of sodium oxide, sodium peroxide fumes.

**Conditions to Avoid:** Avoid moisture and extreme temperatures.

### SECTION 11 – TOXICOLOGICAL INFORMATION

#### **Toxicology Data:**

Oral LDLo (rabbit) = 400 mg/kg

Dermal LD50 (rabbit) = 1350 mg/kg

**Carcinogenicity/Mutagenicity:** Ingestion of massive doses of sodium hydroxide has led to the development of tumors of the esophagus. The relevance of these findings to cancer is unknown due to repeated tissue destruction and scar formation as a result of the corrosivity of sodium hydroxide.

### SECTION 12 – ECOLOGICAL INFORMATION

This material is not lethal to fully developed fish in natural fresh water until the water pH becomes greater than 9.0

### SECTION 13 – DISPOSAL CONSIDERATIONS

Neutralize with dilute mineral acid or dilute with water.

Material that cannot be used, or reprocessed for use, and empty containers should be disposed of in accordance with all applicable regulations. Product containers should be thoroughly emptied before disposal. Generators of waste material are required to evaluate all waste for compliance with RCRA and any local disposal procedures and regulations.

NOTE: State and local regulations may be more stringent than federal regulations.

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### SECTION 14 – TRANSPORTATION INFORMATION

**DOT Shipping Name:** Sodium Hydroxide Solution

**Hazard Class:** 8

**Identification Number:** UN 1824

**Packing Group:** II

### SECTION 15 – REGULATORY INFORMATION

OSHA Hazard Communication: Corrosive

TSCA Inventory: Yes

CERCLA Section 103 (40CFR302.4): Yes

RQ: 1000 lbs for pure sodium hydroxide  
or about 155 gal for this product

SARA Section 302: No

SARA Section 304: No

SARA Section 313: No

SARA Section 311:

Acute: yes

Chronic: no

Fire: no

Pressure Release: no

Reactive: no

### SECTION 16 – OTHER INFORMATION

**Disclaimer:** The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the user thereof. It is the buyer's responsibility to ensure that its activities comply with federal, state, provincial, and local laws.

**Revision Indicator:** Legal Entity name change 04/01/11