

SAFETY DATA SHEET (S.D.S.)

1. IDENTIFICATION

Product Name: ADENA 8000-25
Product Number: AD8000-25
Synonyms: Boiler Scale Inhibitor/Sludge Conditioner
CAS Number: Mixture
Product Use: Alkalinity Adjunct, pH neutralizer
Manufacturer/Supplier: Adena Technologies
Address: 101 Technology Lane
 Export, PA 15632
 www.adenatechnologies.com
General Information: 888-247-2312
Chemical Emergency Number: 800-255-3924

2. HAZARD(S) IDENTIFICATION

GHS Classification:

Health (Appendix A)	Environmental	Physical (App. B)
Acute Toxicity: Category 4 (oral), Skin Corrosion/Irritation: Category 1 Serious eye damage/eye irritation Category 1 Skin Sensitization –not applicable Mutagenicity – not applicable Carcinogenicity – not applicable Reproductive/Developmental not applicable	Hazardous to the aquatic environment, acute hazard. Category 3	Corrosive to metals – Category 1

GHS Label:

Signal Word: DANGER

Symbol(s):



HAZARD STATEMENTS:

May be corrosive to metals.
 Causes severe skin burns and eye damage.
 Harmful if swallowed.
 Harmful to aquatic life

PRECAUTIONARY STATEMENTS:

Prevention

Keep only in original container.
 Wear protective gloves/clothing/eye/face protection.
 Do not eat, drink or smoke when using this product.
 Do not breathe mist or vapor.
 Wash thoroughly after handling.
 Avoid release to the environment.

RESPONSE

IF SWALLOWED: RINSE MOUTH. DO NOT INDUCE VOMITING.

IF INHALED: REMOVE PERSON TO FRESH AIR AND KEEP COMFORTABLE FOR BREATHING.



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IF ON SKIN (OR HAIR): TAKE OFF IMMEDIATELY ALL CONTAMINATED CLOTHING. RINSE SKIN WITH WATER/SHOWER.

IF IN EYES: RINSE CAUTIOUSLY WITH WATER FOR SEVERAL MINUTES. REMOVE CONTACT LENSES, IF PRESENT AND EASY TO DO. CONTINUE RINSING.

IMMEDIATELY CALL A POISON CENTER/DOCTOR/. WASH CONTAMINATED CLOTHING BEFORE REUSE. ABSORB SPILLAGE TO PREVENT MATERIAL DAMAGE.

STORAGE

STORE LOCKED UP.

DISPOSAL

DISPOSE OF CONTENTS/CONTAINER IN ACCORDANCE WITH LOCAL/REGIONAL/NATIONAL/INTERNATIONAL REGULATIONS.

3. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT NAME	CAS NO.	CONCENTRATION %
SODIUM HYDROXIDE	1310-73-2	48-52

(SEE SECTION 8 FOR EXPOSURE LIMITS)

4. FIRST-AID MEASURES

Eye: Eye irritation. Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

Skin: Itching or burning of the skin. Take off immediately all contaminated clothing. Wash off IMMEDIATELY with plenty of water for at least 15-20 minutes. Get medical attention immediately! Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes.

Inhalation: Nasal irritation, headache, dizziness, nausea, vomiting, heart palpitations, breathing difficulty, cyanosis, tremors, weakness, red flushing of face, irritability. Move to fresh air. If breathing is difficult, give oxygen. If breathing stops, provide artificial respiration. Do not use mouth-to-mouth method if victim 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. Call a physician or poison control center immediately.

Ingestion: Call a physician or poison control center immediately. Do not induce vomiting. Immediately rinse mouth and drink plenty of water. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Never give anything by mouth to an unconscious person. Do not use mouth-to-mouth method if victim ingested the substance.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Water fog. Foam. Dry chemical powder. Carbon dioxide (CO₂). Use



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extinguishing agent suitable for type of surrounding fire.

Unsuitable Extinguishing Media: Do not use a solid water stream as it may scatter and spread fire. Do not use halogenated extinguishing agents.

Fire Fighting Procedures: In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers. Fire fighters should enter the area only if they are protected from all contact with the material. Full protective clothing, including self-contained breathing apparatus, coat, pants, gloves, boots and bands around legs, arms, and waist, should be worn. No skin surface should be exposed.

Unusual Fire and Explosion Hazards: None known.

Combustion Products: The product itself does not burn. May decompose upon heating to produce corrosive and/or toxic fumes. Contact with metal may release flammable hydrogen gas.

6. ACCIDENTAL RELEASE MEASURES

Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Local authorities should be advised if significant spillages cannot be contained. (Also see Section 8).

Protective clothing should be worn for spills and leaks.

Small spills: Absorb spill with vermiculite or other inert material. Clean surface thoroughly to remove residual contamination.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Following product recovery, flush area with water.

Do not flush to sewer or waterways. Prevent release to the environment if possible.

Refer to Section 15 for spill/release reporting information.

7. HANDLING AND STORAGE

Handling

Use caution when combining with water; DO NOT add water to caustic; ALWAYS add caustic to water while stirring to minimize heat generation. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe mist or vapor. Use only with adequate ventilation. Wear appropriate personal protective equipment. Transfer and storage systems should be compatible and corrosion resistant. Observe good industrial hygiene practices.

Storage

Keep container tightly closed. Store in a cool, dry, well-ventilated place. Store in corrosive resistant container with a resistant inner liner. Store away from incompatible materials (See Section 10).

Store at temperatures not exceeding 40°C/104°F. Compatible storage materials may include, but not be limited to, the following: nickel and nickel alloys, steel, plastics, plastic or rubber-lined steel, FRP, or Derakane vinyl ester resin. Do not allow material to freeze.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

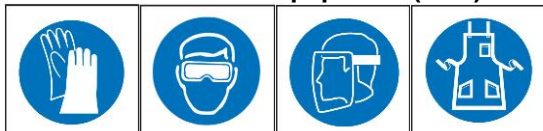
COMPONENT	OSHA TWA	OSHA STEL	ACGIH TWA	ACGIH STEL	OTHER PELS	NIOSH PELS
SODIUM HYDROXIDE	NONE LISTED	NONE LISTED	2 mg/m ³	NONE LISTED	2 mg/m ³	2 mg/m ³

Engineering Controls: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

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Personal Protective Equipment (PPE):



Eye Protection: Wear chemical safety goggles and face shield. Have eye-wash stations available where eye contact can occur.

Skin Protection: Avoid skin contact. Wear gloves impervious to conditions of use. Additional protection may be necessary to prevent skin contact including use of apron, face shield, boots or full body protection. A safety shower should be located in the work area. Recommended protective materials include: Butyl rubber and for limited contact Teflon.

Respiratory Protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Respirator type: Chemical respirator with organic vapor cartridge and full facepiece.

8. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Liquid.
Form	Viscous liquid.
Color	Clear.
Odor	Odorless.
Odor threshold	Not available.
pH	14
Melting point/freezing point	50 - 53 °F (10 - 11.67 °C) (50% solution)
Initial boiling point/boiling range	266 - 284 °F (130 - 140 °C) (50% solution)
Flash point	Not applicable
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit – lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	23.76 mm Hg (approximately) (77 °F (25 °C))
Vapor density	Not available.
Relative density	1.525 (50% solution)
Relative density temperature	68 °F (20 °C)
Solubility(ies)	Completely miscible with water.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Molecular formula	NaOH

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Molecular weight 40.1 g/mol.

10. STABILITY AND REACTIVITY

Reactivity: Contact with metal may release flammable hydrogen gas.
Chemical stability: Material is stable under normal conditions.
Possibility of hazardous reactions: Hazardous polymerization does not occur.
Conditions to avoid: Reacts violently with strong acids. This product may react with oxidizing agents. Do not mix with other chemicals. Corrosive to aluminum, tin, zinc, copper and most alloys in which they are present including brass and bronze. Corrosive to steels at elevated temperatures above 40°C (104°F).
Incompatible materials: Oxidizing agents. Acids. Phosphorus. Aluminum. Zinc. Tin. Initiates or catalyzes violent polymerization of acetaldehyde, acrolein or acrylonitrile.
Hazardous decomposition products: Contact with metals (aluminum, zinc, tin) and sodium tetrahydroborate liberates hydrogen gas.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Ingestion Causes digestive tract burns. Harmful if swallowed.
Inhalation May cause irritation to the respiratory system.
Skin contact Causes severe skin burns.
Eye contact Causes severe eye burns. Causes serious eye damage.

Symptoms related to the physical, chemical and toxicological characteristics:

Burning pain and severe corrosive skin damage. Permanent eye damage including blindness could result.

Information on toxicological effects

Product	Species	Test Results
Sodium Hydroxide Solution 30 - 54%		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 2 g/kg
<i>Oral</i>		
LD50	Rat	300 - 500 mg/kg
<i>Other</i>		
LD50	Mouse	40 mg/kg, Intraperitoneal
Skin corrosion/irritation		Causes severe skin burns and eye damage. Standard Draize Test: 500 mg/24 hour(s) skin - rabbit severe.
Serious eye damage/eye irritation		Causes severe eye burns. Causes serious eye damage. Standard Draize Test: 400 µg eyes rabbit mild; 1 percent eyes - rabbit severe.
Respiratory sensitization		No data available.
Skin sensitization		No data available.
Germ cell mutagenicity		No data available to indicate product or any components present at greater than 0.1% are mutagenic or Geno toxic.
Carcinogenicity		This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.



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Reproductive toxicity No data available.
Specific target organ toxicity - single exposure: Not available.
Specific target organ toxicity - repeated exposure: Not available.
Aspiration hazard Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.
Chronic effects Prolonged exposure may cause chronic effects.

12. ECOLOGICAL INFORMATION

Ecotoxicity: Harmful to aquatic life.

Product	Species	Test
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Results
Sodium hydroxide solution 30 - 54%

Aquatic

Acute

Fish

LC50

Bluegill (<i>Lepomis macrochirus</i>)	99 mg/L, 48 hours
Mosquitofish (<i>Gambusia affinis affinis</i>)	125 mg/L, 96 hours

Persistence and degradability

Expected to degrade rapidly in air.

Bioaccumulative potential

The product is not expected to bioaccumulate.

Mobility in soil

Not available.

Other adverse effects

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. DISPOSAL CONSIDERATIONS

Disposal instructions:

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazardous waste code:

The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste (residues/unused products):

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. TRANSPORT INFORMATION

U.S. Department of Transportation (DOT)

Proper shipping name: UN1824, (Sodium hydroxide solution), 8, PG II

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Labels Required:

Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.

Special provisions: B2, IB2, N34, T7, TP2

Packaging exceptions 154

Packaging non bulk 202

Packaging bulk 242

IATA

Proper Shipping Name: UN1824, (Sodium hydroxide solution), 8, PG II

Environmental hazards: No



Labels Required:

ERG Code: 8L

Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.

IMDG

Proper Shipping Name: UN1824, (Sodium hydroxide solution), 8, PG II

Environmental hazards: No



Labels Required:

EmS: F-A, S-B

Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code.

15. REGULATORY INFORMATION

U.S. Federal Regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)- Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)- Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4): Sodium hydroxide (CAS 1310-73-2)-LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)



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Hazard categories Immediate Hazard - Yes
 Delayed Hazard - No
 Fire Hazard - No
 Pressure Hazard - No
 Reactivity Hazard - Yes

SARA 302 Extremely hazardous substance: No

SARA 311/312 Hazardous chemical: Yes

SARA 313 (TRI reporting) Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List:

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

Not regulated.

Safe Drinking Water Act (SDWA)

Not regulated.

Food and Drug Administration (FDA)

Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

Sodium hydroxide (CAS 1310-73-2)

US. New Jersey Worker and Community Right-to-Know Act

Not regulated.

US. Pennsylvania RTK - Hazardous Substances

Sodium hydroxide (CAS 1310-73-2)

US. Rhode Island RTK

Sodium hydroxide (CAS 1310-73-2)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Not listed.

International Inventories

Country(s) or region	Inventory name	On Inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
China	Non-Domestic Substances List (NDSL)	No
	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).



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16. OTHER INFORMATION

National Fire Protection Association (NFPA) Ratings: This information is intended solely for the use of individuals trained in the NFPA system. **Health: 3** **Flammability: 0** **Reactivity: 1**

Revision Indicator: New SDS, January 10, 2015

Prepared by: Dean Norwood, Technical Director

List of abbreviations LD50: Lethal Dose, 50%.
LC50: Lethal Concentration, 50%.
EC50: Effective concentration, 50%. TWA: Time weighted average.

References EPA: AQUIRE database
HSDB® - Hazardous Substances Data Bank
US. IARC Monographs on Occupational Exposures to Chemical Agents
IARC Monographs. Overall Evaluation of Carcinogenicity
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices

Disclaimer This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.