Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME  Sodium Silicate Lumps
Available SiO2:Na2O ratio: 2.1:1 and 3.3:1
CHEMICAL NAME  Sodium Silicate
SYNONYMS  Water Glass, Silicic Acid, Sodium Salt
MANUFACTURED BY  Adwan Chemical Industries Co. Ltd.
Riyadh 2nd Industrial City – Al Kharj Road
PO Box 355128 Riyadh 11383
Kingdom of Saudi Arabia
PHONE  +966-11-265-0041
FAX  +966-11-265-0023

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Appearance  Glass Lumps
Physical State  Solid
Odor  Odorless

WARNING! SHARP EDGES WILL CUT SKIN. EYE CONTACT WITH DUST WILL CAUSE IRRITATION, LARGE DUST PARTICLES MAY SCRAPE EYE SURFACE.

POTENTIAL HEALTH EFFECTS

ACUTE TOXICITY

Skin  Causes severe skin irritation on continued contact
Inhalation  Spray mist irritating to respiratory system.
Ingestion  May cause irritation to mouth, esophagus, and stomach
Eyes  Severely irritating to eyes.

CHRONIC TOXICITY

Chronic Ingestion  May cause Kidney lesions at high doses.

AGGRAVATED MEDICAL CONDITIONS  Persons with pre-existing skin, eye or respiratory disorders may be more susceptible to the effects of exposure.
3. COMPOSITION / INFORMATION INGREDIENTS

Chemical Name  Sodium silicate
Cas-No.  1344-09-8
Weight  %100

4. FIRST AID MEASURES

EYE CONTACT
Rinse out thoroughly with plenty of water for at least 10 minutes, with the eyelids wide open. Consult a physician.

SKIN CONTACT
Wash off immediately with plenty of water for at least 10 minutes and remove all the contaminated clothing and shoes. Get medical attention.

INHALATION
Remove from exposure, restore and/or support breathing as needed. Seek immediate medical attention.

INGESTION
Do NOT induce vomiting. Immediately rinse mouth out with water and give large quantities (3-4 Glasses) of water to drink. If vomiting occurs, give water again. Call physician immediately

5. FIRE-FIGHTING MEASURES

FLAMMABLE PROPERTIES
Not flammable

FLASH POINT
None

INSTRUCTIONS TO FIREFIGHTERS
As in any fire wear self-contained breathing apparatus pressure-demand, MSHA / NIOSH (approved or equivalent) and full protective gear.

SUITABLE EXTINGUISHING MEDIA
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

HAZARDOUS COMBUSTION PRODUCTS
None
6. ACCIDENTAL RELEASE MEASURES

ENVIRONMENTAL PROTECTION
Do not allow to enter sewerage system

PERSONAL PRECAUTIONS
Ventilate area of leak or spill. Wear appropriate personal protective equipment as Chemical gogles, protective clothing, gloves, boots. See section 8

METHODS FOR CONTAINMENT
Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. Contain the discharged material. Do not allow product to enter public drainage systems or open water courses.

METHODS FOR CLEANING UP
Pick up and transfer to properly labeled containers.

ADDITIONAL NOTES
Neutralize with dilute Hydrochloric acid

7. HANDLING AND STORAGE

HANDLING
Handle in accordance with good industrial hygiene and safety practice.

STORAGE
Keep container tightly closed in a dry and well-ventilated place. At +5°C to +30°C.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING MEASURES
Showers.
Eyewash stations.
Ventilation systems.

PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE PROTECTION
Wear safety glasses. Wear chemical resistant goggles and face shield when splashing is possible.

SKIN AND BODY PROTECTION
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

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RESPIRATORY PROTECTION
If exposure limits are exceeded or irritation is experienced, MSHA/NIOSH approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations.

HYGIENE MEASURES
Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPEARANCE</td>
<td>Glass Lumps</td>
</tr>
<tr>
<td>ODOR</td>
<td>Odorless</td>
</tr>
<tr>
<td>PHYSICAL STATE</td>
<td>Solid</td>
</tr>
<tr>
<td>PH AT 20 °C</td>
<td>11 - 12.5</td>
</tr>
<tr>
<td>FLASH POINT</td>
<td>None</td>
</tr>
<tr>
<td>AUTOIGNITION TEMPERATURE</td>
<td>Not applicable</td>
</tr>
<tr>
<td>BOILING POINT/RANGE</td>
<td>NA</td>
</tr>
<tr>
<td>MELTING POINT/RANGE</td>
<td>About 700 Degree C</td>
</tr>
<tr>
<td>FLAMMABILITY LIMITS IN AIR</td>
<td>Not flammable</td>
</tr>
<tr>
<td>EXPLOSION LIMITS</td>
<td>Not applicable</td>
</tr>
<tr>
<td>SPECIFIC GRAVITY</td>
<td>About 2.3</td>
</tr>
<tr>
<td>WATER SOLUBILITY</td>
<td>Miscible with water</td>
</tr>
<tr>
<td>SOLUBILITY IN WATER 20 °C</td>
<td>Slight in Cold water</td>
</tr>
<tr>
<td>VAPOR PRESSURE</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>DENSITY AT 20 °C</td>
<td>2.61 g/cm³</td>
</tr>
<tr>
<td>EVAPORATION RATE</td>
<td>No information available</td>
</tr>
<tr>
<td>VAPOR DENSITY</td>
<td>Not applicable</td>
</tr>
<tr>
<td>VOC CONTENT(%)</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

STABILITY
Stable under recommended storage conditions.

INCOMPATIBLE PRODUCTS
Alkaline Material, avoid contact with acidic materials.
Contact with metals (aluminum, zinc, tin) may release hydrogen gas. Acids.

CONDITIONS TO AVOID
Incompatibles, Strong Heating

SUBSTANCES TO BE AVOIDED
Fluorine

HAZARDOUS DECOMPOSITION PRODUCTS
No information available.

HAZARDOUS REACTIONS
None under normal processing.

HAZARDOUS POLYMERIZATION
Hazardous polymerization does not occur

11. TOXICOGICAL INFORMATION

ACUTE TOXICITY

PRODUCT INFORMATION

<table>
<thead>
<tr>
<th>CHEMICAL NAME</th>
<th>Sodium silicate</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 ORAL</td>
<td>1153 mg/kg (Rat)</td>
</tr>
<tr>
<td>LD50 DERMAL</td>
<td>4640 mg/kg (Rabbit)</td>
</tr>
<tr>
<td>LC50 INHALATION</td>
<td></td>
</tr>
</tbody>
</table>

CHRONIC EFFECTS
Acute effects dominate.
12. ECOLOGICAL INFORMATION

ECOTOXICITY EFFECTS

Chemical Name: Sodium Silicate

Toxicity to Algae: LC50 301 - 478 mg/L
Lepomis macrochirus 96 h
LC50= 3185 mg/L
Brachydanio rerio 96 h

Toxicity to Fish: Microtox
Daphnia Magna (Water Flea) EC50 = 216 mg/L 96 h

PERSISTENCE AND DEGRADABILITY: Persistent.

BIOACCUMULATION/ACCUMULATION: Does not bioaccumulate.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods
Liquid and/or solid residues from neutralization may be disposed of in a permitted waste management facility. All disposals of this material must be done in accordance with local, state and federal regulations. Waste characterization and compliance with disposal regulations are the responsibilities of the waste generator.

Contaminated Packaging
Dispose of in accordance with local regulations.

14. TRANSPORT INFORMATION

Not subject to transport regulations
15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Country</th>
<th>Complies</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA (TSCA)</td>
<td></td>
</tr>
<tr>
<td>Canada (DSL)</td>
<td></td>
</tr>
<tr>
<td>European Union (EINECS)</td>
<td></td>
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<tr>
<td>Japan (ENCS)</td>
<td></td>
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<tr>
<td>China (IECSC)</td>
<td></td>
</tr>
<tr>
<td>Korea (KECL)</td>
<td></td>
</tr>
<tr>
<td>Philippines (PICCS)</td>
<td></td>
</tr>
<tr>
<td>Australia (AICS)</td>
<td></td>
</tr>
<tr>
<td>New Zealand (NZIoC)</td>
<td></td>
</tr>
</tbody>
</table>

Federal Regulations

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.

SARA 311/312 Hazard Categories

- Acute Health Hazard: No
- Chronic Health Hazard: No
- Fire Hazard: No
- Sudden Release of Pressure Hazard: No
- Reactivity Hazard: No

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)
This product does not contain any substances regulated as hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act Amendments of 1990.

CERCLA
This product, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

U.S. State Regulations

U.S. State Right-to-Know Regulations
This product does not contain any substances regulated by state right-to-know regulations.

Other International Regulations
**Canada**
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

**WHMIS Hazard Class**
D2B  Toxic materials
# Safety Data Sheet

## 1. PRODUCT AND COMPANY IDENTIFICATION

| PRODUCT NAME       | Sodium Silicate Solution  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Available SiO2:Na2O ratio: 2.1:1 and 3.3:1</td>
</tr>
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<td>CHEMICAL NAME</td>
<td>Sodium Silicate</td>
</tr>
<tr>
<td>SYNONYMS</td>
<td>Water Glass</td>
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| MANUFACTURED BY    | Adwan Chemical Industries Co. Ltd.  
|                    | Riyadh 2nd Industrial City – Al Kharj Road  
|                    | PO Box 355128 Riyadh 11383  
|                    | Kingdom of Saudi Arabia    |

| PHONE              | +966-11-265-0041 |
| FAX                | +966-11-265-0023 |

## 2. HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Clear Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Viscous Liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
</tbody>
</table>

**WARNING!** HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO EYES AND RESPIRATORY TRACT.

**POTENTIAL HEALTH EFFECTS**

### ACUTE TOXICITY

<table>
<thead>
<tr>
<th>Skin</th>
<th>Contact causes severe skin irritation and possible burns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>Irritating to mucous membranes</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea</td>
</tr>
<tr>
<td>Eyes</td>
<td>Severely irritating to eyes.</td>
</tr>
</tbody>
</table>

### CHRONIC TOXICITY

| Chronic Effects | Acute effects dominate |

**AGGRAVATED MEDICAL CONDITIONS**

Persons with pre-existing skin, eye or respiratory disorders may be more susceptible to the effects of exposure.
3. COMPOSITION / INFORMATION INGREDIENTS

Chemical Name  
Sodium silicate

Cas-No.  
1344-09-8

Weight  
%100

4. FIRST AID MEASURES

EYE CONTACT
Rinse out thoroughly with plenty of water for at least 10 minutes, with the eyelids wide open. Consult a physician.

SKIN CONTACT
Wash off immediately with plenty of water for at least 10 minutes and remove all the contaminated clothing and shoes. Get medical attention.

INHALATION
Remove from exposure, restore and/or support breathing as needed. Seek immediate medical attention.

INGESTION
Do NOT induce vomiting. Immediately rinse mouth out with water and give large quantities (3-4 Glasses) of water to drink. If vomiting occurs, give water again. Call physician immediately

5. FIRE-FIGHTING MEASURES

FLAMMABLE PROPERTIES
Not flammable

FLASH POINT
None

INSTRUCTIONS TO FIREFIGHTERS
As in any fire wear self-contained breathing apparatus pressure-demand, MSHA / NIOSH (approved or equivalent) and full protective gear.

SUITABLE EXTINGUISHING MEDIA
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

HAZARDOUS COMBUSTION PRODUCTS
None
6. ACCIDENTAL RELEASE MEASURES

ENVIRONMENTAL PROTECTION
Do not allow to enter sewerage system

PERSONAL PRECAUTIONS
Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in section 8

METHODS FOR CONTAINMENT
Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. Contain the discharged material. Do not allow product to enter public drainage systems or open water courses.

METHODS FOR CLEANING UP
Pick up and transfer to properly labeled containers.

ADDITIONAL NOTES
Neutralize with dilute Hydrochloric acid

7. HANDLING AND STORAGE

HANDLING
Handle in accordance with good industrial hygiene and safety practice.

STORAGE
Keep container tightly closed in a dry and well-ventilated place. At +5°C to +30°C.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING MEASURES
Showers.
Eyewash stations.
Ventilation systems.

PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE PROTECTION
Wear safety glasses. Wear chemical resistant goggles and face shield when splashing is possible.

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Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
RESPIRATORY PROTECTION
If exposure limits are exceeded or irritation is experienced, MSHA/NIOSH approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations.

HYGIENE MEASURES
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<td>AUTOIGNITION TEMPERATURE</td>
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</tr>
<tr>
<td>BOILING POINT/RANGE</td>
<td>&gt;100 Celcius</td>
</tr>
<tr>
<td>MELTING POINT/RANGE</td>
<td>Not applicable</td>
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<td>FLAMMABILITY LIMITS IN AIR</td>
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<td>EXPLOSION LIMITS</td>
<td>Not applicable</td>
</tr>
<tr>
<td>SPECIFIC GRAVITY</td>
<td>1.3 – 1.6</td>
</tr>
<tr>
<td>WATER SOLUBILITY</td>
<td>Miscible with water</td>
</tr>
<tr>
<td>SOLUBILITY IN WATER 20 °C</td>
<td>Soluble</td>
</tr>
<tr>
<td>VAPOR PRESSURE</td>
<td>18 mm Hg @ 20C</td>
</tr>
<tr>
<td>DENSITY AT 20 °C</td>
<td>2.61 g/cm³</td>
</tr>
<tr>
<td>EVAPORATION RATE</td>
<td>No information available</td>
</tr>
<tr>
<td>VAPOR DENSITY</td>
<td>Not applicable</td>
</tr>
<tr>
<td>VISCOSITY DYNAMIC (20C)</td>
<td>130mPa*m3</td>
</tr>
<tr>
<td>VOC CONTENT(%)</td>
<td>Not applicable</td>
</tr>
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10. STABILITY AND REACTIVITY

STABILITY
Stable under recommended storage conditions.

INCOMPATIBLE PRODUCTS
Organic material
Contact with metals (aluminum, zinc, tin) may release hydrogen gas.
Acids.

CONDITIONS TO AVOID
Incompatibles, Strong Heating

SUBSTANCES TO BE AVOIDED
Fluorine

HAZARDOUS DECOMPOSITION PRODUCTS
No information available.

HAZARDOUS REACTIONS
None under normal processing.

HAZARDOUS POLYMERIZATION
Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

PRODUCT INFORMATION

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<td>LC50 INHALATION</td>
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12. ECOLOGICAL INFORMATION

ECOTOXICITY EFFECTS

Chemical Name: Sodium Silicate

Toxicity to Algae

Toxicity to Fish

LC50 301 - 478 mg/L
Lepomis macrochirus 96 h
LC50= 3185 mg/L
Brachydanio rerio 96 h

Microtox

Daphnia Magna (Water Flea)

EC50 = 216 mg/L 96 h

PERSISTENCE AND DEGRADABILITY
Persistent.

BIOACCUMULATION/ACCUMULATION
Does not bioaccumulate.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods
Liquid and/or solid residues from neutralization may be disposed of in a permitted waste management facility. All disposals of this material must be done in accordance with local, state and federal regulations. Waste characterization and compliance with disposal regulations are the responsibilities of the waste generator.

Contaminated Packaging
Dispose of in accordance with local regulations.

14. TRANSPORT INFORMATION

Not subject to transport regulations
15. REGULATORY INFORMATION

International Inventories

USA (TSCA) Complies
Canada (DSL) Complies
European Union (EINECS) Complies
Japan (ENCS) Complies
China (IECSC) Complies
Korea (KECL) Complies
Philippines (PICCS) Complies
Australia (AICS) Complies
New Zealand (NZIoC) Complies

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D2B Toxic materials