Safety Data Sheet

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier
   - Product Name: Shot-Set 250 Liquid Accelerator
   - Alternative Names: Modified Liquid Sodium Silicate, SS250 (Shot Set 250)
   - CAS No.: 1344-09-S

1.2 Relevant identified uses of the substance or mixture and uses advised against
   - Identified use(s): General industrial chemical for us in a wide range of applications.
     Applications: Concrete Accelerator
   - Uses advised against: None known

1.3 Details of supplier of the safety data sheet
   - Company Identification: Shotcrete Technologies, Inc.
     PO Box 3274
     1431 Miner Street
     Idaho Springs, CO 80452
     USA
   - Telephone: 303-567-4871
   - E-Mail (competent person): info@shotcretetechnologies.com

1.4 Emergency telephone no.: 303-567-4871

Section 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance of mixture
   - GHS Classification: Skin Irritation, Eye Irritation
   - Hazards summary: Alkaline
     Irritating to eyes and skin. Spilled material is slippery
2.2 Label Elements

Hazard Pictogram(s) N/A

Signal word(s) Warning

Hazard statement(s) H315: Causes skin irritation

P262: Do not get in eyes, on skin, or on clothing
P280: Wear protective gloves/protective clothing/eye protection/face protection
P303+P361+P353: IF ON SKIN (or hair):
Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other hazards

Not Applicable

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient(s)</th>
<th>% W/W</th>
<th>CAS No.</th>
<th>EINECS No./REACH Registration</th>
<th>Hazard Symbol(s) &amp; Hazard Statement(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicic Acid, Sodium Salt</td>
<td>78-82</td>
<td>1344-09-8</td>
<td>215-687-4</td>
<td>H315: Skin Irrit.2; H319: Eye Irrit.2</td>
</tr>
<tr>
<td>Water</td>
<td>22-18</td>
<td>7732-18-5</td>
<td>231-791-2</td>
<td></td>
</tr>
</tbody>
</table>

Section 4: FIRST AID MEASURES

4.1 Eye Contact

Irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes. Obtain immediate medical attention.

Skin Contact

Wash affected skin with plenty of water. If symptoms develop, obtain medical attention.

Inhalation

Remove patient from exposure, keep warm and at rest. Obtain medical attention.

Ingestion

Do not induce vomiting. Wash out mouth with water and give 200-300ml (half a pint) of water to drink. Obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Alkaline.

Irritating to eyes and skin. The toxicity of sodium silicate is dependent on the silica to alkali ratio on the pH

4.3 Indication of any immediate Medical attention and special treatment needed

Obtain immediate medical attention
SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media
Suitable Extinguishing Media: Compatible with all standard firefighting techniques
Unsuitable extinguishing Media: None known

5.2 Special Hazards arising from the substance or mixture
Not applicable. Aqueous solution. Non-combustible

5.3 Advice for fire-fighters
None

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, Protective equipment and Emergency procedures
Wear suitable protective clothing. Wear eye/face protection.

6.2 Environmental precautions
Do not allow to enter drains, sewers or watercourses. Advise authorities if spillage has entered water course or sewer or has contaminated soil or vegetation

6.3 Methods and materials for Contamination and cleaning up
Caution – spillages may be slippery. Contain spillages with sand, earth or any suitable absorbent material. Transfer to a container for disposal or recovery.

6.4 Reference to other sections
See also Section 8

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe Handling
Avoid contact with eyes, skin and clothing
Avoid generation of mist. Provide adequate ventilation
Emergency shower and eye wash facilities should be readily available
See also Section 8

7.2 Condition for safe storage
Storage temperature 45-95 degrees F.
Including any incompatibilities
Loading temperatures 45-95 degrees F.
Do not allow material to freeze
Provide an adequate bund wall
Unsuitable containers: Aluminum
See also section 10

7.3 Specific end use(s)
See also Annex to the extended Safety Data Sheet
SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

<table>
<thead>
<tr>
<th>SUBSTANCE</th>
<th>Occupational Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicic acid, sodium salt</td>
<td>No Occupational Exposure Limit assigned. An exposure limit of 2 mg/m³ (15 min TWA) is recommended by analogy with sodium hydroxide (UK #H40).</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Wear protective equipment to comply with good occupational hygiene practice. Do not eat, drink or smoke at the work place.

8.2.1 Appropriate engineering Controls

Engineering methods to prevent or control exposure are preferred. Methods include process or personnel enclosure, mechanical ventilation (dilution and local exhaust) and control of process conditions.

8.2.2 Personal Protection

**Respiratory Protection**

Respiratory protection not normally required. Advice on respiratory protective equipment is given in the HSE (Health and Safety Executive) publication HS(G)53.

**Eye/Face protection**

Chemical Goggles (EN 166)

**Skin Protection**

Wear suitable protective clothing and gloves. Plastic or rubber gloves. For example EN674-3, level 6 breakthrough time (>480 min). Wear suitable overalls.

8.2.3 Environmental Exposure Controls

The primary hazard of sodium silicate is the alkalinity. Avoid release to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid. Almost colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odor Threshold (ppm)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>pH (Value)</td>
<td>Alkaline. 11-12</td>
</tr>
<tr>
<td>Freezing Point (F)</td>
<td>34</td>
</tr>
<tr>
<td>Melting Point (F)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling Point (F)</td>
<td>100</td>
</tr>
<tr>
<td>Flash Point (F)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Explosive Limit Ranges</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>
Vapor Pressure (mm Hg) Not Applicable
Vapor Density (Air=1) No data
Specific Gravity (g/ml) 1.3
Solubility (Water) Soluble
Solubility (Other) No data
Partition Coefficient No data
Auto Ignition Point (F) Not Applicable
Decomposition Temperature (C) Not Applicable
Viscosity (mPa.S) Not Applicable
Explosive properties Not Applicable
Oxidizing Properties Not Applicable
9.2 Other information No data

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity See Section: 10.3
10.2 Chemical Stability Stable
10.3 Possibility of hazardous reactions When arc welding vessels containing aqueous solutions of this material, take care to control any explosion risk from hydrogen evolved by electrolysis. Aqueous solutions will react with aluminum, zinc, tin and their alloys evolving hydrogen gas which can form an explosive mixture with air. Can react violently if in contact with acids. Can react with sugar residues to form carbon monoxide
10.4 Conditions to avoid See Section: 10.3
10.5 Incompatible Materials See Section: 10.3
10.6 Hazardous decomposition Non known.
Product(s)

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Acute toxicity
Ingestion All symptom of acute toxicity are due to high alkalinity. Material will cause irritation. Oral LD50(rat) 3400 mg/kg bw
Inhalation Mist is irritant to the respiratory tract. All symptoms of acute toxicity are due to high alkalinity. Inhalation LC50 (rat)>2.06 g/m3
Skin Contact Material will cause irritation. Dermal LD50 (rat)>5000mg/kg bw
Eye Contact Material will cause irritation.
Skin Corrosion/irritation Irritating to skin
Serious eye damage/irritation Irritating to eyes
Sensitization Not sensitizing
Mutagenicity  No evidence of genotoxicity. In vitro/in vivo negative
Carcinogenicity  No structural alerts. IARC, NTP, OSHA,. ACGIH do not list this product as a known or suspected carcinogen.
Reproductive toxicity  No evidence of reproductive toxicity or developmental toxicity
STOT – single exposure  Not classified
STOT – repeated exposure  Not classified. NOAEL oral (rat)>159mg/kg bw/d
Aspiration hazard  Not classified
Other information  No data

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity  Fish (Brachydanio rerio) LC50 (96 hour) 1108 mg/l
12.2 Persistence and Degradability  Inorganic. Soluble silicates, upon dilution, rapidly depolymerize into molecular species indistinguishable from natural dissolved silica.
12.3 Bio accumulative potential  Inorganic. The substance has no potential for bioaccumulation.
12.4 Mobility in soil  Not applicable
12.5 Results of PBT and vPvB Assessment  Not classified as PBT or vPvB
12.6 Other adverse effects  The alkalinity of this material will have a local effect on ecosystems sensitive to changes in pH

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods  Dispose of this material and its container to hazardous or special waste collection point. Disposal should be in accordance with local, state or national legislation.
SECTION 14: TRANSPORT INFORMATION

14.1 UN number
Not classified according to the United Nations ‘Recommendations on the Transport of Dangerous Goods’.
Not classified as hazardous under DOT or US Transport Recommendations
International Maritime Dangerous Goods (IMDG) Code: Not classified as hazardous

14.2 Proper Shipping Name
Not Applicable

14.3 Transport hazard Class (es)
Not Applicable

14.4 Packing Group
Not Applicable

14.5 Environmental hazards
Not classified as a Marine Pollutant

14.6 Special precaution for user
Unsuitable containers: Aluminum

14.7 Transport in bulk according
To Annex II of MARPOL73/78 and the IBC code

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance of mixture

TSCA Inventory Status: Reported/Included
AICS Inventory Status: Reported/Included
DSL/NDSL Inventory Status: Reported/Included SARA TITLE III: Not an Extremely Hazardous Substance under Sec. 302. Not a toxic Chemical under Sec 313. Hazard Categories under Sub Sec 311/312: Acute

German Water Hazard Classification VwVwS: Product ID number 1314, WGK class 1 (low hazard to water)

HMIS (Hazardous Material Information System) 2,0,0

15.2 Chemical Safety Assessment – Information available on request.

SECTION 16: OTHER INFORMATION

Data referenced in the DSD is from company-owned information and from data legitimately accessed by Shotcrete Technologies. This includes data relating to toxicology, ecotoxicology, DNELs, PNECs and other information in the SDS.
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