

## 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1 Product identifier

**Product or trade name:** InstaFREEZE®  
**Type of Product:** Solution containing Sodium Silicate, ~37%

### 1.2 Relevant identified uses of the substance or mixture and uses advised against:

**Identified Use(s)\*:** Soil stabilizing agent / soil binding agent / dust binding aid / viscosity control agent

\* The "Recommended Use(s)" identified for this product is provided solely to comply with a US Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

**Uses advised against:** None known

### 1.3 Details of the supplier of the safety data sheet:

**Manufacturer/Supplier:** **KB International LLC**  
735 Broad Street  
Suite 209  
Chattanooga, TN 37402  
USA

**Telephone number:** +1 (423) 266-6964

**E-mail (competent person):** info@kbtech.com

### 1.4 Emergency contact and telephone number:

**Emergency contact:** ChemTel, Inc.

**Emergency telephone number:** +1 (800) 255-3924

## 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture:

**According to Regulation (EC) No. 1272/2008 [CLP]:**

This mixture is classified as not hazardous according to regulation (EC)1272/2008 [CLP].

**According to Directive 67/548/EEC or 1999/45/EC:**

This mixture is classified as not hazardous according to 1999/45/EC.

**According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200:**

This mixture is classified as not hazardous according to GHS regulations.

**Information concerning particular hazards for human and environment:**

**Hazard summary:** Alkaline

**Classification system:**

The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

### 2.2 Label elements:

**According to Regulation (EC) No. 1272/2008:**

This mixture is not regulated according to regulation (EC)1272/2008.

**Hazard pictogram(s):** Not Required

**Signal word(s):** Not Required

**Hazards statement(s):** Not Required

**Additional Information:** Safety data sheet available on request.

## 2. HAZARDS IDENTIFICATION

### Precautionary statement(s):

Do not get in eyes, on skin, or on clothing.

Wear protective gloves/protective clothing/eye protection/face protection.

**IF SWALLOWED:** Rinse mouth. Do NOT induce vomiting.

**IF ON SKIN (or hair):** Remove/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.

Dispose of contents and container as instructed in Section 13.

### Code(s)

P262

P280

P301+330+331

P303+361+353

P305+351+338

P501

### Hazard description:

**WHMIS-symbol(s):** None Required

**Other Hazard(s):** Not classified as PBT or vPvB.

### 2.3 Hazards not otherwise classified:

Dries to form glass film which can easily cut skin. Can etch glass if not promptly removed.

### 2.4 Other Non-GHS classifications:



NFPA Scale (0-4)

Health = 2  
Fire = 0  
Reactivity = 0

HEALTH	2
FLAMMABILITY	0
REACTIVITY	0
PERSONAL PROTECTION	X

HMIS Ratings (0-4)

Health = 2  
Fire = 0  
Reactivity = 0  
PPE = X

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.2 Mixtures:

#### Product description / chemical characterization:

**Description:** aqueous sodium silicate solution, filled.

#### Hazardous Ingredients:

**Classification according to Regulation (EC) No. 1272/2008 [CLP] and Directive 67/548/EEC or 1999/45/EC**

Ingredient(s)	%W/W	CAS No.	EINECS No. / REACH Registration	Hazard symbol(s) and hazard statement(s)
Silicic acid, sodium salt (MR>3.2)	20 - 40	1344-09-8	215-687-4 01-2119448725-31	H315 : Skin Irrit. 2 ; H319 : Eye Irrit. 2 ; H335 : STOT SE 3 ;
Water	60 - 80	7732-18-5	231-791-2	

*The classification of the ingredient silicic acid, sodium salt is based on the powder form.*

**Additional information:** Full text of R-phrases: see section 16.

Full text of H-phrases: see section 16.

## 4. FIRST AID MEASURES

### 4.1 Description of first aid measures:

**Inhalation:** Remove casualty to fresh air and keep warm and at rest. In case of irregular breathing or respiratory arrest provide artificial respiration.

**Skin contact:** Wash affected skin with plenty of water. If symptoms develop, obtain medical attention.

**Eye contact:** Remove contact lenses if worn. Irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes. Get prompt medical attention.

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

**General:** In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness give nothing by mouth, place in recovery position and seek medical advice.

**4.2 Most important symptoms and effects, both acute and delayed:** Alkaline. The toxicity of sodium silicate is dependent on the silica to alkali ratio and on the pH.

**4.3 Indication of any immediate medical attention and special treatment needed:** Obtain immediate medical attention.

**5. FIRE-FIGHTING MEASURES****5.1 Extinguishing media**

**Suitable extinguishing media:** Compatible with all standard fire fighting techniques.

**Extinguishing media which must not be used for safety reasons:** None known.

**5.2 Special hazards arising from the substance or mixture:**

Not applicable. Aqueous solution. Non-combustible.

**5.3 Special protective equipment for firefighters:**

Provide a conveniently located respiratory protective device.

**5.4 Additional information:**

Cool closed containers that are near the source of the fire.

**6. ACCIDENTAL RELEASE MEASURES****6.1 Personal precautions, protective equipment and emergency procedures:**

Wear suitable protective clothing. Wear eye/face protection. See Section: 8.2

**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 containment and cleaning up:**

Isolate leaked material using non-flammable absorption agent (e.g. sand, earth, vermiculite, diatomaceous earth) and collect it for disposal in appropriate containers in accordance with the local regulations (see chapter 13). Clean using cleansing agents. Do not use solvents.

**6.4 Reference to other sections:**

Observe protective provisions (see chapter 7 and 8).

**7. HANDLING AND STORAGE****7.1 Precautions for safe handling:****Advice for safe handling:**

Avoid contact with eyes, skin and clothing.

When using do not eat, drink or smoke.

Avoid generation of mist.

Provide adequate ventilation.

Follow the legal protection and safety regulations.

Emergency shower and eye wash facilities should be readily available.

Personal protection equipment: refer to chapter 8.

**7.2 Conditions for safe storage, including any incompatibilities:****Requirements for safe storage rooms and vessels:**

Storage in accordance with the Ordinance on Industrial Safety and Health (BetrSIVO).

Storage temperature 0-95° C. Loading temperature 45-95° C.

Do not allow material to freeze.

Provide an adequate bund wall.

Keep container tightly closed.

Store carefully closed containers upright to prevent any leaks.

Unsuitable containers: Aluminum.

See also Section 10.

**Hints on joint storage:**

Keep away from strongly acidic and alkaline materials as well as oxidizers.

**Further information on storage conditions:**

Take care of instructions on label. Protect from heat and direct sunlight.

**7. HANDLING AND STORAGE - continued**

**7.3 Specific end use(s):**

Observe technical data sheet. Observe instructions for use.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**8.1 Control parameters**

Substance	Occupational Exposure Limits
Silicic acid, metal salt	No Occupational Exposure Limit assigned. An exposure limit of 2 mg/m <sup>3</sup> (15 min TWA) is recommended by analogy with sodium hydroxide (UK EH40).

Derived No Effect Level (DNEL)	Oral / mg/kg bw/d	Inhalation / mg/m <sup>3</sup>	Dermal / mg/kg bw/d
Workers - Acute - Systemic effects	-	-	-
Workers - Acute - Local effects	-	-	-
Workers - Long Term - Systemic effects	-	5.61	1.59
Workers - Long Term - Local effects	-	-	-
Consumers - Acute - Systemic effects	-	-	-
Consumers - Acute - Local effects	-	-	-
Consumers - Long Term - Systemic effects	0.80	1.38	0.80
Consumers - Long Term - Local effects	-	-	-

For further details and guidance see Exposure Scenarios in Annex to the extended Safety Data Sheet (eSDS). Risk management measures (RMMs) for identified uses must be implemented as described in this SDS and in the relevant exposure scenarios.

	Predicted No Effect Concentration
PNEC Water (fresh)	7.5 mg/l
PNEC Water (marine)	1 mg/l
PNEC Water (intermittent)	7.5 mg/l
PNEC Sediment	Not available
PNEC Soil	Not available
PNEC Sewage treatment plant	348 mg/l
PNEC Secondary Poisoning (oral)	Not available

**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 Occupational exposure controls (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. If concentration of solvents is beyond the occupational exposure limit values, approved and suitable respiratory protection must be used. Observe the wear time limits according GefStoffV in combination with the rules for using respiratory protection apparatus (BGR 190). Use only respiratory protection equipment with CE-symbol including four digit test number.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION****Hand protection:**

For prolonged or repeated handling the following glove material must be used: NBR (Nitrile rubber). Thickness of the glove material > 0,4 mm; Breakthrough time (maximum wearing time) >480 min. Observe the instructions and details for use, storage, maintenance and replacement provided by the protective glove manufacturer. Penetration time of glove material depending on intensity and duration of exposure to skin. Recommended glove articles DIN EN 374. Barrier creams can help protecting exposed skin areas. In no case should they be used after contact.

**Eye protection:**

Chemical goggles (EN 166) are recommended.

**Protective clothing:**

Wear antistatic clothing of natural fibers (cotton) or heat resistant synthetic fibers.

**Protective measures:**

After contact clean skin thoroughly with water and soap or use appropriate cleanser.

**8.2.3 Environmental exposure controls:**

The primary hazard of sodium silicate is the alkalinity. Avoid release to the environment. Do not allow to enter into surface water or drains. See chapter 7. No additional measures necessary.

**9. PHYSICAL AND CHEMICAL PROPERTIES - Continued****9.1 Information on basic physical and chemical properties:**

Appearance:	Liquid. Almost colorless.
Odor:	Odorless.
Odor Threshold (ppm):	Not applicable.
Specific Gravity:	1.394
pH (Value):	Alkaline 11-12
Freezing Point (°C):	Not applicable.
Melting Point (°C):	Not applicable.
Boiling Point (°C):	100
Flash Point (°C) [Closed cup]:	Not applicable.
Evaporation rate:	Not applicable.
Flammability (solid, gas):	Not applicable
Explosive Limit Ranges:	Not applicable.
Vapor Pressure (mm Hg):	Not applicable.
Vapor Density (Air=1):	No data.
Density (g/ml):	1.41 g/cm <sup>3</sup> (20°C), 42.0° Bé, 11.75 lbs/gal.
Solubility (Water):	Soluble.
Solubility (Other):	No data.
Partition Coefficient:	No data.
Auto Ignition Point (°C):	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

**10. STABILITY AND REACTIVITY**

- 10.1 Reactivity:** See Section: 10.3
- 10.2 Chemical stability:** Stable
- 10.3 Possibility of hazardous reaction:** 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 product(s):** None Known.

**11. TOXICOLOGICAL INFORMATION****11.1 Information on toxicological effects:****Acute toxicity:**

**Ingestion:** All symptoms 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/m<sup>3</sup>

**Skin contact:** Repeated and/or prolonged skin contact may cause slight irritation. Dermal LD50 (rat) >5000 mg/kg bw.

**Eye contact:** Liquid or mist may cause discomfort and mild irritation.

**Skin corrosion/irritation:** Repeated and/or prolonged skin contact may cause slight irritation.

**Serious eye damage/irritation:** Liquid or mist may cause discomfort and mild irritation.

**Sensitization:** Not sensitizing.

**Mutagenicity:** No evidence of genotoxicity. In vitro/in vivo negative.

**Carcinogenicity:** No structural alerts.

**Reproductive toxicity:** No evidence of reproductive toxicity or developmental toxicity.

**STOT - single exposure:** Not classified

**STOT - repeated exposure:** Not classified. NOAEL oral (rat) >159 mg/kg bw/d

**Aspiration hazard:** Not classified

**12. ECOLOGICAL INFORMATION****12.1 Toxicity:**

*Information on the product as supplied:*

**Aquatic toxicity to fish:** (Brachydanio rerio) LC50 (96 hour) 1108 mg/l

*Information on the product as supplied:*

**Acute toxicity to invertebrates:** (Daphnia magna) EC50 (48 hour) 1700 mg/l

**Acute toxicity to algae:** Algal inhibition tests are not appropriate. The flocculation characteristics of the product interfere directly in the test medium preventing homogeneous distribution which invalidates the test.

**Chronic toxicity to fish:** No data available.

**Chronic toxicity to invertebrates:** No data available.

**Toxicity to microorganisms:** No data available.

**Effects on terrestrial organisms:** No data available.

**Sediment toxicity:** No data available.

**12. ECOLOGICAL INFORMATION - Continued****12.2 Persistence and degradability:**

Inorganic. Soluble silicates, upon dilution, rapidly depolymerize into molecular species indistinguishable from natural dissolved silica.

*Information on the product as supplied:*

**12.3 Bioaccumulative potential:**

*Information on the product as supplied:*

Inorganic. The product is not expected to bioaccumulate.

**Partition co-efficient (Log Pow):** < 0

**Bioconcentration factor (BCF):** ~ 0

**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.

**13. DISPOSAL CONSIDERATIONS****13.1 Waste treatment methods:**

- Waste from residues / unused products:** Discharge of this product to sewage treatment works is dependent on local regulations with regard to pH controls.  
Dispose of this material and its container to hazardous or special waste collection point. This material is classified as hazardous waste under EC Directive 2008/98/EC. This material is classified as hazardous waste under the Hazardous Waste (England and Wales) Regulations SI 2005 No. 894. Disposal should be in accordance with local, state or national legislation.
- Contaminated packaging:** Dispose of this material and its container to hazardous or special waste collection point. If recycling is not practicable, dispose of in compliance with local regulations.

**14. TRANSPORTATION INFORMATION****14.1 UN-Number:**

**DOT, ADR, ADN, IMDG, IATA:** Not regulated.

**14.2 UN proper shipping name:**

**DOT, ADR, ADN, IMDG, IATA:** Not regulated.

**14.3 Transport hazard class(es):**

**DOT, ADR, ADN, IMDG, IATA Class:** Not regulated.

**14.4 Packing group:**

**DOT, ADR, IMDG, IATA Not Regulated:** Not regulated.

**14.5 Environmental hazards:**

**Marine pollutant:** Not classified as a Marine Pollutant.

**14.6 Special precautions for user:**

Unsuitable containers: Aluminum

**14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code UN "Model Regulation"**

Not applicable.

## 15. REGULATORY INFORMATION

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

*Information on the product as supplied:*

#### UNITED STATES (USA):

##### SARA:

##### Section 355 (extremely hazardous substances):

None of the ingredients is listed.

##### Section 313 (Specific toxic chemical listings):

None of the ingredients is listed.

##### Section 311 / 312 (hazardous class):

Not concerned.

##### TSCA (Toxic Substances Control Act): DOT, ADR, ADN, IMDG, IATA Class:

All components of this product are either listed on the inventory.

##### RCRA status:

Not RCRA hazardous.

#### PROPOSITION 65 (California):

##### Chemicals known to cause cancer:

None of the ingredients is listed.

##### Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

##### Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

##### Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

#### CARCINOGENIC CATEGORIES

##### EPA (Environmental Protection Agency)

None of the ingredients is listed.

##### IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

##### TLV (Threshold Limit Value established by ACGIH):

None of the ingredients is listed.

##### Section 313 (Specific toxic chemical listings):

None of the ingredients is listed.

##### TSCA (Toxic Substances Control Act):

Reported/Included.

##### NIOSH-Ca (National Institute for Occupational Safety and Health):

None of the ingredients is listed.



**15. REGULATORY INFORMATION**

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture - Continued:

**CARCINOGENIC CATEGORIES****CANADA****Canadian Domestic Substances List (DSL)**

All ingredients are listed.

**Canadian Ingredient Disclosure list (limit 0.1%)**

None of the ingredients is listed.

**AUSTRALIA****Australian Inventory of Chemical Substances (AICS)**

All ingredients are listed.

**GERMANY****German Water Hazard Classification VwVwS:**

Product ID number 1314, WGK class 1 (low hazard to water).

**Other regulations, limitations and prohibitive regulations:****Substances of very high concern (SVHC) according to REACH, Article 57**

None of the ingredients is listed.

**15.2 Chemical Safety Assessment:**

A Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

**16. OTHER INFORMATION**

Data referenced in this eSDS is from company available information and from data legitimately accessed by KB International LLC through membership of Industry Consortia or other agreements. This includes data relating to toxicology, ecotoxicology, DNELs, PNECs and other information in this eSDS and its annex.

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

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# Annex to the extended Safety Data Sheet (eSDS)

**Product name: InstaFREEZE**

*Reportable component: Silicic Acid, Sodium Salt*

*Alternative name for component: Sodium Silicate*

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<b>SECTION 1</b>		<b>Title of Exposure Scenario</b>
<b>Title</b>	<b>Workplace exposure to sodium silicate powder</b>	
<b>Use Descriptor</b>	Sectors of use [SU]: 3, 22	
	Process category [PROC]: 1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 10, 11, 13, 14, 22, 23, 24	
	Environmental release categories [ERC]: not required	
<b>Processes and activities covered by the exposure scenario</b>	Manufacture of the substance as well as industrial and professional uses.	
<b>SECTION 2</b>		<b>Operational conditions and risk management measures</b>
		Whenever handling sodium silicate as a substance on its own (lumps/powder/granules) or in a preparation outside closed systems, depending on the use and concentration suitable personal protective equipment (gloves, goggles, dust masks or respirators) are the preferred and only measure of control.
<b>SECTION 2.1</b>		<b>Worker Exposure Controls</b>
<b>Characteristics of chemical products</b>		
<b>Physical form of the product</b>	Solid, Powder, Vapor pressure 0.00016 kPa (1172 °C)	
<b>Concentration of substance in preparation / mixture or article</b>	Covers percentage substance in the product up to 100 %, unless otherwise stated.	
<b>Amount used per time or activity</b>	No limit.	
<b>Duration and frequency of use</b>	Covers frequency up to: daily use, weekly, monthly, yearly, unless otherwise stated.	
<b>Human factors not influenced by risk management</b>	Not applicable.	
<b>Other Operational Conditions affecting worker exposure</b>	Assumes a good basic standard of occupational hygiene is implemented. The work occurs inside as well as outside.	
<b>Contributing Scenarios</b>		<b>Risk Management Measures</b>
<b>PROC 1, 2, 3</b>		Use in closed systems.
<b>PROC 4, 5, 6, 8a, 8b, 9, 10, 13, 14, 22, 23, 24</b>		Wear protective gloves/eye protection. Gloves: Wear impervious gloves (EN 374).
<b>PROC 7, 11</b>		Provide enhanced general ventilation by mechanical means. An approved dust mask should be worn if dust is generated during handling. Wear half-face mask (DIN EN 140)/Quarter-face mask (DIN EN 140); Filter type: A/P2. Wear protective gloves/eye protection. Gloves: Wear impervious gloves (EN 374).
<b>SECTION 2.2</b>		<b>Environmental Exposure Controls</b>
		Not required, as soluble silicates, including sodium silicate, do not meet the criteria for classification as dangerous to the environment according to 67/548/EEC (see Article 14.4 of REACH Regulation). Furthermore, as high production volume substances, soluble silicates have been reviewed to a great extent for their exposure potential to the environment and the possible risks arising from their release (Van Dokkum et al. 2002, OECD SIDS 2004, HERA 2005, and CEES 2008). It was concluded that soluble silicates are currently of low priority for further work because of their low hazard profile.

<b>SECTION 1</b>		<b>Title of Exposure Scenario</b>
<b>Title</b>	<b>Workplace exposure to sodium silicate solutions</b>	
<b>Use Descriptor</b>	Sectors of use [SU]: 3, 22	
	Process category [PROC]: 1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 10, 11, 13, 14, 22, 23, 24	
	Environmental release categories [ERC]: not required	
<b>Processes and activities covered by the exposure scenario</b>	Manufacture of the substance as well as industrial and professional uses.	
<b>SECTION 2</b>		<b>Operational conditions and risk management measures</b>
		Whenever handling sodium silicate as a substance on its own (lumps/powder/granules) or in a preparation outside closed systems, depending on the use and concentration suitable personal protective equipment (gloves, goggles, dust masks or respirators) are the preferred and only measure of control.
<b>SECTION 2.1</b>		<b>Worker Exposure Controls</b>
<b>Characteristics of chemical products</b>		
<b>Physical form of the product</b>	Solid, Powder, Vapor pressure 0.00016 kPa (1172 °C)	
<b>Concentration of substance in preparation / mixture or article</b>	Covers percentage substance in the product up to 100 %, unless otherwise stated.	
<b>Amount used per time or activity</b>	No limit.	
<b>Duration and frequency of use</b>	Covers frequency up to: daily use, weekly, monthly, yearly Except for PROCs 7 and 11: Avoid carrying out operation for more than 1 hour.	
<b>Human factors not influenced by risk management</b>	Not applicable.	
<b>Other Operational Conditions affecting worker exposure</b>	Assumes a good basic standard of occupational hygiene is implemented. The work occurs inside as well as outside.	
<b>Contributing Scenarios</b>		<b>Risk Management Measures</b>
<b>PROC 1, 2, 3</b>		Use in closed systems.
<b>PROC 4, 5, 6, 8a, 8b, 9, 10, 13, 14, 22, 23, 24</b>		Wear protective gloves/eye protection. Gloves: Wear impervious gloves (EN 374).
<b>PROC 7, 11</b>		Covers percentage substance in the product up to 25 %. Provide enhanced general ventilation by mechanical means. An approved dust mask should be worn if dust is generated during handling. Wear half-face mask (DIN EN 140)/ Quarter-face mask (DIN EN 140); Filter type: A/P2. Wear protective gloves/eye protection. Gloves: Wear impervious gloves (EN 374).
<b>SECTION 2.2</b>		<b>Environmental Exposure Controls</b>
		Not required, as soluble silicates, including sodium silicate, do not meet the criteria for classification as dangerous to the environment according to 67/548/EEC (see Article 14.4 of REACH Regulation). Furthermore, as high production volume substances, soluble silicates have been reviewed to a great extent for their exposure potential to the environment and the possible risks arising from their release (Van Dokkum et al. 2002, OECD SIDS 2004, HERA 2005, and CEES 2008). It was concluded that soluble silicates are currently of low priority for further work because of their low hazard profile.

<b>SECTION 1</b>		<b>Title of Exposure Scenario</b>
<b>Title</b>	<b>Use in Consumer products</b>	
<b>Use Descriptor</b>	Sectors of use [SU]: 21	
	Process category [PC]: 1, 9a, 9b, 14, 15, 17, 23, 24, 26, 30, 33, 34, 35, 39	
	Environmental release categories [ERC]: not required	
<b>Processes and activities covered by the exposure scenario</b>	General exposure to consumers arising from the use of household products sold.	
<b>SECTION 2</b>		<b>Operational conditions and risk management measures</b>
<b>SECTION 2.1</b>		<b>Control of consumer exposure</b>
<b>Characteristics of chemical products</b>		
<b>Physical form of the product</b>	Powder/Granules or Liquid	
<b>Vapor pressure (kPa)</b>	< 0.5 kPa	
<b>Concentration of substance in preparation/ mixture or article</b>	Covers percentage substance in the product up to 100%, unless otherwise stated.	
<b>Amount used per time or activity</b>	Unless otherwise stated, covers use amounts up to 37500g; covers skin contact area up to 6660cm <sup>2</sup> .	
<b>Duration and frequency of use</b>	Unless otherwise stated, covers use frequency up to 4 times per day; covers exposure up to 8 hours per event.	
<b>Other Operational Conditions affecting exposure</b>	Unless otherwise stated assumes use at ambient temperatures; assumes use in a 20m <sup>3</sup> room; assumes use with typical ventilation.	
<b>Chemical product category [PC]</b>		<b>Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)</b>
<b>PCs - general case</b>	<b>OC</b>	In consumer products the irritation hazard of soluble silicates is addressed, if necessary, by appropriate labeling and the advice to use (household) gloves on the consumer product. In general, dermal, inhalation and oral consumer exposure are minimized due to formulation (limited concentration of soluble silicates, particle size distribution, agglomeration and dust potential, tablets and gels), packaging and bad taste of commercially available products.
	<b>RMM</b>	No specific RMMs identified beyond those OCs stated.
<b>PC 1, 9a,9b, 14, 15, 17, 23, 24, 26, 30, 33, 34, 39</b>	<b>OC</b>	Covers use up to 365 days/year; covers use under typical household ventilation; covers default OCs of ECETOC TRA tool.
	<b>RMM</b>	No specific RMMs identified beyond those OCs stated.
<b>PC 35 – laundry hand washing (example)</b>	<b>OC</b>	Unless otherwise stated, covers concentrations up to 25%; covers use up to 4 days/week; covers use up to 1 time/day of use; covers skin contact area up to 1980 cm <sup>2</sup> ; covers use under typical household ventilation; covers use in room size of 20m <sup>3</sup> ; for each use event, covers exposure up to 0.17 hr/event.
	<b>RMM</b>	No specific RMMs identified beyond those OCs stated.
<b>PC 35 –pre-treatment of clothes (example)</b>	<b>OC</b>	Unless otherwise stated, covers concentrations up to 60%; covers use up to 21 tasks/week; covers skin contact area up to 840cm <sup>2</sup> ; covers use under typical household ventilation; covers use in room size of 20m <sup>3</sup> ; for each use event, covers exposure up to 0.17 hr/event.
	<b>RMM</b>	No specific RMMs identified beyond those OCs stated.
<b>SECTION 3: Exposure estimation</b>		
<b>3.1 Health</b>		
The ECETOC TRA tool has been used to estimate consumer exposures, consistent with the content of ECETOC Report no. 107 and the Chapter R15 of the IR&CSA TGD. Where exposure determinants differ to these sources, then they are indicated.		
<b>SECTION 4: Guidance to check compliance with the Exposure Scenario</b>		
<b>4.1 Health</b>		
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.		

## Identified Uses for SILICIC ACID, SODIUM SALT (sodium silicate)

Version 2 - 09/2012

### Identified uses by workers in an industrial setting

IU No.	Identified use name	Process category [PROC] Market sector [PC] Sectors of use [SU] Environmental release categories [ERC]
IW-4	Adhesives and binders in manufacture of <ul style="list-style-type: none"> <li>• paperboard and cardboard</li> <li>• mineral dust/particles briquetting &amp; agglomeration</li> <li>• roofing tiles</li> <li>• bricks, ceramics and other construction materials</li> <li>• refractory cements and other refractory masses/mixes</li> <li>• foundry moulds and cores</li> <li>• wood construction materials</li> <li>• fiberboard</li> <li>• fiberglass and rockwool/mineral wool insulation materials</li> <li>• building boards and prefabricated parts based on inorganic organic materials</li> <li>• plastic insulation materials</li> </ul>	PROC 1, 2, 3, 4, 5, 7, 8a, 8b, 10, 14, 16, 23 PC 1, 20, 0: Binding agent SU 6b, 13, 15, 18, 19 ERC 3, 5, 8c
IW-8	Water treatment: Corrosion protection (Sewer pipes, water cooling systems, drinking water)	PROC 2, 8a, 8b, 9 PC 37 SU 19, 0: Deep Foundation borehole / Tunnel ERC 5, 7
IW-16	Industrial end-use stage: Drilling fluid in a mixture	PROC 4, 5, 8a, 9 PC1, 0 SU 2a, 19 ERC 5, 8f

## GLOSSARY – Based on ECHA Guidance on information requirements and chemical

assessment Chapter R.12: Use descriptor system Version 2 March 2010

Sectors of use [SU]
<b>Key descriptor: Main user groups</b>
SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
SU21 Consumer uses: Private households (= general public = consumers)
SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
<b>Supplementary descriptor: Sectors of end-use</b>
SU1 Agriculture, forestry, fishery
SU2a Mining, (without offshore industries)
SU2b Offshore industries
SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
SU4 Manufacture of food products
SU5 Manufacture of textiles, leather, fur
SU6a Manufacture of wood and wood products
SU6b Manufacture of pulp, paper and paper products
SU7 Printing and reproduction of recorded media
SU8 Manufacture of bulk, large scale chemicals (including petroleum products)
SU9 Manufacture of fine chemicals
SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
SU11 Manufacture of rubber products
SU12 Manufacture of plastics products, including compounding and conversion
U13 Manufacture of other non-metallic mineral products, e.g. plasters, cement
SU14 Manufacture of basic metals, including alloys
SU15 Manufacture of fabricated metal products, except machinery and equipment
SU16 Manufacture of computer, electronic and optical products, electrical equipment
SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
SU18 Manufacture of furniture
SU19 Building and construction work
SU20 Health services
SU23 Electricity, steam, gas, water supply and sewage treatment
SU24 Scientific research and development
SU0 Other
Chemical product category [PC]/Market sector [PC]
PC1 Adhesives, sealants
PC2 Adsorbents
PC3 Air care products
PC4 Anti-Freeze and de-icing products
PC7 Base metals and alloys
PC8 Biocidal products (e.g. Disinfectants, pest control)
PC9a Coatings and paints, thinners, paint removers

**Chemical product category [PC]/Market sector [PC] - continued**

PC9b Fillers, putties, plasters, modeling clay
PC9c Finger paints
PC11 Explosives
PC12 Fertilizers
PC13 Fuels
PC14 Metal surface treatment products, including galvanic and electroplating products
PC15 Non-metal-surface treatment products
PC16 Heat transfer fluids
PC17 Hydraulic fluids
PC18 Ink and toners
PC19 Intermediate
PC20 Products such as ph-regulators, flocculants, precipitants, neutralization agents
PC21 Laboratory chemicals
PC23 Leather tanning, dye, finishing, impregnation and care products
PC24 Lubricants, greases, release products
PC25 Metal working fluids
PC26 Paper and board dye, finishing and impregnation products: including bleaches and other processing aids
C27 Plant protection products
PC28 Perfumes, fragrances
PC29 Pharmaceuticals
PC30 Photo-chemicals
PC31 Polishes and wax blends
PC32 Polymer preparations and compounds
PC33 Semiconductors
PC34 Textile dyes, finishing and impregnating products; including bleaches and other processing aids
PC35 Washing and cleaning products (including solvent based products)
PC36 Water softeners
PC37 Water treatment chemicals
PC38 Welding and soldering products (with flux coatings or flux cores), flux products
PC39 Cosmetics, personal care products
PC40 Extraction agents
PC0 Other

**Process category [PROC]**

PROC1 Use in closed process, no likelihood of exposure
PROC2 Use in closed, continuous process with occasional controlled exposure
ROC3 Use in closed batch process (synthesis or formulation)
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
PROC6 Calendering operations
PROC7 Industrial spraying



<b>Process category [PROC]</b>
PROC1 Use in closed process, no likelihood of exposure
PROC2 Use in closed, continuous process with occasional controlled exposure
PROC3 Use in closed batch process (synthesis or formulation)
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
PROC6 Calendring operations
PROC7 Industrial spraying
PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC10 Roller application or brushing
PROC11 Non industrial spraying
PROC12 Use of blowing agents in manufacture of foam
PROC13 Treatment of articles by dipping and pouring
PROC14 Production of preparations or articles by tableting, compression, extrusion, pelletization
PROC15 Use as laboratory reagent
PROC16 Using material as fuel sources, limited exposure to unburned product to be expected
PROC17 Lubrication at high energy conditions and in partly open process
PROC18 Greasing at high energy conditions
PROC19 Hand-mixing with intimate contact and only PPE available
PROC20 Heat and pressure transfer fluids in dispersive, professional use but closed systems
PROC21 Low energy manipulation of substances bound in materials and/or articles
PROC22 Potentially closed processing operations with minerals/metals at elevated temperature Industrial setting
PROC23 Open processing and transfer operations with minerals/metals at elevated temperature
PROC24 High (mechanical) energy work-up of substances bound in materials and/or articles
PROC25 Other hot work operations with metals
PROC26 Handling of solid inorganic substances at ambient temperature
PROC27a Production of metal powders (hot processes)
PROC27b Production of metal powders (wet processes)
<b>Environmental release categories [ERC]</b>
ERC1 Manufacture of substances
ERC2 Formulation of preparations
ERC3 Formulation in materials
ERC4 Industrial use of processing aids in processes and products, not becoming part of articles
ERC5 Industrial use resulting in inclusion into or onto a matrix
ERC6a Industrial use resulting in manufacture of another substance (use of intermediates)
ERC6b Industrial use of reactive processing aids
ERC6c Industrial use of monomers for manufacture of thermo-plastics
ERC6d Industrial use of process regulators for polymerization processes in production of resins, rubbers, polymers
ERC7 Industrial use of substances in closed systems
ERC8a Wide dispersive indoor use of processing aids in open systems

<b>Environmental release categories [ERC] - continued</b>
ERC8b Wide dispersive indoor use of reactive substances in open systems
ERC8c Wide dispersive indoor use resulting in inclusion into or onto a matrix
ERC8d Wide dispersive outdoor use of processing aids in open systems
ERC8e Wide dispersive outdoor use of reactive substances in open systems
ERC8f Wide dispersive outdoor use resulting in inclusion into or onto a matrix
ERC9a Wide dispersive indoor use of substances in closed systems
ERC9b Wide dispersive outdoor use of substances in closed systems
ERC10a Wide dispersive outdoor use of long-life articles and materials with low release
ERC10b Wide dispersive outdoor use of long-life articles and materials with high or intended release (including abrasive processing)
ERC11a Wide dispersive indoor use of long-life articles and materials with low release
ERC11b Wide dispersive indoor use of long-life articles and materials with high or intended release (including abrasive processing)
ERC12a Industrial processing of articles with abrasive techniques (low release)
ERC12b Industrial processing of articles with abrasive techniques (high release)

