1. Identification of the substance/mixture and of the company/undertaking ***

1.1. Product identifier

Trade name

INOBOND 705

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

Identified Uses *

	Binders for welding consumables (flux, stick electrodes)
SU15	Manufacture of fabricated metal products, except machinery and equipment
SU17	General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
SU19	Building and construction work
PC38	Welding and soldering products (with flux coatings or flux cores), flux products
PROC2	Use in closed, continuous process with occasional controlled exposure
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)
PROC13	Treatment of articles by dipping and pouring
PROC25	Hot work operations with metals

Uses advised against *

N O N E

1.3. Details of the supplier of the safety data sheet

Address

vanBaerle AG
Schützenmattstrasse 21
4142 Münchenstein

Telephone no.	+41 61 415 92 11
Information provided by / telephone	Department product safety
E-mail address of person responsible for this SDS	silikat@vanbaerle.ch

1.4. Emergency telephone number

Swiss Toxicological Information Centre 145 (international 0041 44 251 51 51)

2. Hazards identification

2.1. Classification of the substance or mixture

Classification (Regulation (EC) No. 1272/2008)

Classification (Regulation (EC) No. 1272/2008)

Skin Irrit. 2	H315
Eye Irrit. 2	H319

Classification in accordance with EC directives

Classification Xi, R36/38

2.2. Label elements

Labelling according to regulation (EC) No 1272/2008

Hazard pictograms

Signal word

Warning

Hazard statements

H315	Causes skin irritation.
H319	Causes serious eye irritation.

Precautionary statements

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.

Labelling in accordance with EC directives 1999/45/EC and 67/548/EEC

The product is classified and labelled in accordance with EC Directive 99/45/EC.
Labelling on the basis of results obtained from toxicological examinations.

Hazard symbols

irritant

R phrases

36/38 Irritating to eyes and skin.

S phrases

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

3. Composition/information on ingredients ***

Chemical characterization

Mixed silicate with a molar ratio Me2O : SiO2 = 1: > 2.60 - < 3.20

Hazardous ingredients ***

Silicic acid, potassium salt (Molar ratio K2O : SiO2 = 1 : > 2.6 - < 3.2)

CAS No.	1312-76-1			
EINECS no.	215-199-1			
Registration no.	01-2119456888-17-0003			
Concentration	25	-	50	%
Classification	Xi, R36/38			

Classification (Regulation (EC) No. 1272/2008)

Skin Irrit. 2	H315
Eye Irrit. 2	H319

Slilicic acid, sodium salt (Molar ratio Na2O : SiO2 = 1 : > 2.6 - < 3.2)

CAS No.	1344-09-8				
EINECS no.	215-687-4				
Registration no.	01-2119448725-31-0021				
Concentration		2.5	-	10	%
Classification	Xi, R36/38				

Classification (Regulation (EC) No. 1272/2008)

Skin Irrit. 2	H315
Eye Irrit. 2	H319

Lithium hydroxide

CAS No.	1310-65-2				
EINECS no.	215-183-4				
Concentration		1	-	5	%
Classification	C, R35				

Classification (Regulation (EC) No. 1272/2008)

Acute Tox. 4	H302
Skin Corr. 1B	H314
Aquatic Chronic 3	H412

Further ingredients ***

Water

CAS No.	7732-18-5				
EINECS no.	231-191-2				
Concentration		50	-	75	%

4. First aid measures

4.1. Description of first aid measures

General information

No special measures necessary.

After inhalation

No special measures required.

After skin contact

After contact with skin, wash immediately with plenty of water. Do not allow the product to dry on the skin. Consult a doctor if skin irritation persists.

After eye contact

Separate eyelids, wash the eyes thoroughly with water (15 min.). In case of irritation consult an oculist.

After ingestion

Rinse out mouth and give plenty of water to drink. Do not induce vomiting. Summon a doctor immediately.

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

Hints for the physician / hazards

This product contains alkali silicates.

5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Product itself is non-combustible; adapt fire extinguishing measures to surrounding areas.

Non Suitable extinguishing media

Compatible with all usual extinguishing media.

5.2. Special hazards arising from the substance or mixture

None known

5.3. Advice for firefighters

Special protective equipment for fire-fighting

In case of combustion use a suitable breathing apparatus.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective clothing. High risk of slipping due to leakage/spillage of product.

6.2. Environmental precautions

Do not allow to enter drains or waterways.

6.3. Methods and material for containment and cleaning up

Take up with absorbent material (eg sand, kieselguhr, universal binder). Rinse away rest with plenty of water.

7. Handling and storage ***

7.1. Precautions for safe handling

Advice on safe handling

Observe the usual precautions for handling chemicals. Handle and open container with care.

7.2. Conditions for safe storage, including any incompatibilities

Recommended storage temperature

Value	5	-	45	℃

Storage stability ***

Storage period: 12 month

Requirements for storage rooms and vessels

Keep only in the original container.

VCI storage category

VCI storage category	12	Non-combustible liquids

Further information on storage conditions

Protect from frost.

8. Exposure controls/personal protection

8.2. Exposure controls

General protective and hygiene measures

Take off immediately all contaminated clothing. Wash hands before breaks and after work. Do not eat,

drink or smoke during work time.

Respiratory protection

Breathing apparatus in the event of aerosol or mist formation. Short term: filter apparatus, Filter B

Hand protection

Gloves (alkali-resistant)
Appropriate Material Natural Latex
KCL Lapren 706 / 0.6mm / 480 min.

Eye protection

Safety glasses with side protection shield

Body protection

Clothing as usual in the chemical industry.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Form	liquid, clear				
Colour	colourless				
Odour	odourless				
pH					
Value		12	to	13	
Melting point					
Remarks	Not applicable				
Boiling point					
Value	appr.	100			℃
Flash point					
Remarks	Non flammable.				
Flammability					
Not ignitable					
Explosion limits					
Remarks	Not applicable				
Vapour pressure					
Remarks	not determined				
Density					
Value	appr.	1.39			kg/l
Temperature		20	℃		
Solubility in water					
Remarks	Completely miscible				
Octanol/water partition coefficient (log Pow)					
Remarks	Not applicable				
Ignition temperature					
Remarks	Non flammable.				
Viscosity					
Value	appr.	300			mPa.s
Temperature		20	℃		
Oxidising properties					
Remarks	Not applicable				

9.2. Other information

Solids content

Value	appr.	39	%

10. Stability and reactivity

10.4. Conditions to avoid

Protect from frost.

10.5. Incompatible materials

Acids

10.6. Hazardous decomposition products

No hazardous decomposition products known.

11. Toxicological information

11.1. Information on toxicological effects

Acute oral toxicity

Remarks	The toxicological data shown are those obtained from tests on products of similar composition.		
Reference substance	Slilicic acid, sodium salt (Molar ratio Na2O : SiO2 = 1 : 3.2-3.4; 35-40%)		
Species	rat		
LD50	>	2000	mg/kg
Source	IUCLID		
Reference substance	Silicic acid, potassium salt (Molar ratio K2O : SiO2 = 1 : 3.9-4.0; 28-30%)		
Species	rat		
LD50	>	2000	mg/kg
Source	IUCLID		
Reference substance	Slilicic acid, sodium salt (Molar ratio Na2O : SiO2 = 1 : 2.0; 40-50%)		
Species	rat		
LD50	>	2000	mg/kg
Source	IUCLID		
Remarks	The poisonous effect of the product is caused by its alkalinity and not by substance-specific systemic characteristics. The LD50 value is of no practical significance due to the caustic effect of the product.		

Skin corrosion/irritation

evaluation	irritant

Serious eye damage/irritation

evaluation	irritant

Sensitization

evaluation	non-sensitizing

Experience in practice

Contact of the product with skin or eyes may cause irritation.

Other information

When handled appropiately, even after long years of experience with this product, no adverse health effects are known.

12. Ecological information

12.1. Toxicity

Fish toxicity

Remarks	Ecotoxicological data are taken from a similar product of the same type.		
Reference substance	Slilicic acid, sodium salt (Molar ratio Na2O : SiO2 = 1 : 3.36; 35%)		
Species	Brachidanio rerio		
LC50	>	2000	mg/l
Duration of exposure		96 h	
Source	IUCLID		
Reference substance	Silicic acid, potassium salt (Molar ratio K2O : SiO2 = 1 : 3.9-4.0; 29%)		
Species	Leuciscus idus		
LC0	>	500	mg/l
Duration of exposure		48 h	
Source	IUCLID		
Remarks	The ecotoxic effect of the product is mainly due to its alkalinity.		

Daphnia toxicity

Remarks	Ecotoxicological data are taken from a similar product of the same type.		
Reference substance	Slilicic acid, sodium salt (Molar ratio Na2O : SiO2 = 1 : 3.2; 35%)		
Species	Daphnia magna		
EC0	>	2000	mg/l
Duration of exposure		48 h	
Source	IUCLID		
Reference substance	Silicic acid, potassium salt (Molar ratio K2O : SiO2 = 1 : 3.9-4.0; 29%)		
Species	Daphnia magna		
EC0	>	500	mg/l
Duration of exposure		24 h	
Source	IUCLID		
Remarks	The ecotoxic effect of the product is mainly due to its alkalinity.		

Bacteria toxicity

Remarks	Ecotoxicological data are taken from a similar product of the same type.		
Reference substance	Slilicic acid, sodium salt (Molar ratio Na2O : SiO2 = 1 : 3.36; 35%)		
Species	Pseudomonas putida		
EC0	>	1000	mg/l
Duration of exposure		48 h	
Source	IUCLID		
Remarks	The ecotoxic effect of the product is mainly due to its alkalinity.		

12.2. Persistence and degradability

Biodegradability

Remarks: Inorganic product, cannot be eliminated from the water by biological purification processes.

12.3. Bioaccumulative potential

Octanol/water partition coefficient (log Pow)

Remarks: Not applicable

12.6. Other adverse effects

Behaviour in sewers [waste treatment plants]

The product is an alkaline solution. Neutralization is normally necessary before a waste water is discharged into sewage treatment plants. When low concentrations are discharged correctly into adapted biological sewage treatment plants, disturbance of the degradation activity of activated sludge is not likely.

General information / ecology

Do not allow to enter soil, waterways or waste water canal.

13. Disposal considerations

13.1. Waste treatment methods

Disposal recommendations for the product

EWC waste code 06 02 05* other bases

Dilution and neutralization with acid. After solidification (e.g. as CaSiO3 precipitate), landfill in accordance with local authorities. Re-use without reprocessing as long as not solidified.

Disposal recommendations for packaging

Completely emptied packagings can be given for recycling.
Cleaned and empty drums can be returned to the supplier.

14. Transport information

Land transport ADR/RID

Remarks Not classified as dangerous according to transport regulations.

Marine transport IMDG/GGVSee

Remarks Not classified as dangerous according to transport regulations.

Air transport ICAO/IATA

Remarks Not classified as dangerous according to transport regulations.

15. Regulatory information

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

Water Hazard Class (Germany)

Water Hazard Class (Germany) WGK 1

16. Other information

Restricted to professional users

R-phrases listed in Chapter 3

35	Causes severe burns.
36/38	Irritating to eyes and skin.

Hazard statements listed in Chapter 3

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H412	Harmful to aquatic life with long lasting effects.

CLP categories listed in Chapter 3

Acute Tox. 4	Acute toxicity, Category 4
Aquatic Chronic 3	Hazardous to the aquatic environment, chronic, Category 3
Eye Irrit. 2	Eye irritation, Category 2
Skin Corr. 1B	Skin corrosion, Category 1B
Skin Irrit. 2	Skin irritation, Category 2

Supplemental information

Relevant changes compared with the previous version of the safety data sheet are marked with: ***
This information is based on our present state of knowledge. However, it should not constitute a

guarantee for any specific product properties and shall not establish a legally valid relationship.

E-SDS Chapters

	Exposure Scenario Title
Title	Workplace exposure to sodium silicate (EC 215-687-4), potassium silicate (EC 215-199-1) and disodium metasilicate (EC 229-912-9) powder
Use Descriptor	Sector of Use: SU 3 and SU 22
	Process Categories (PROC): 1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 10, 11, 13, 14, 22, 23, 24
	Environmental Release Categories: not required
Processes, tasks, activities covered	Manufacture of the substance as well as industrial and professional uses.
Section 2	**Operational conditions and risk management measures**
	Whenever handling sodium/potassium silicate/disodium metasilicate as a substance on its own (Lumps. powder/granules or liquid) or in a preparation outside closed systems, depending on the use and concentration suitable personal protective equipment (gloves, goggles, dust masks or respiratiors) are the preferred and only measure of control.
Section 2.1	**Control of worker exposure**
Product characteristics	
Physical form of product	solid, powder, vapour pressure 0.0103 kPa (1175 ℃) [OC3]
Concentration of substance in product	Covers percentage substance in the product up to 100 % [G13], unless otherwise stated.
Amounts used	No limit
Frequency and duration of use	Covers frequency up to: daily use, weekly, monthly, yearly [G6], unless otherwise stated.
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes a good basic standard of occupational hygiene is implemented [G1] The work occurs inside as well outside [OC8, OC9]
Contributing Scenarios	**Risk Management Measures.**
PROC 1, 2, 3	Handle substance within a closed system [E47]. No other specific measures identified [EI20].
PROC 4, 5, 6, 8a, 8b, 9, 10, 13, 14, 22, 23, 24	Wear suitable gloves (tested to EN374) and eye protection [PPE19].
PROC 7, 11	Provide enhanced general ventilation by mechanical means [E48]. Wear suitable gloves (tested to EN374) and eye protection [PPE19]. or Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE 29]. Wear suitable gloves (tested to EN374) and eye protection [PPE19].
Section 2.2	**Control of environmental exposure**
	Not required, as soluble silicates, including sodium/potassium silicate/disodium metasilicate, 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.
Section 3	**Exposure Estimation**
3.1.	**Health**
The ECETOC TRA tool with modifications as outlined in the CAS has been used to estimate worker exposures.	

Section 4	**Guidance to check compliance with the Exposure Scenario**
4.1.	**Health**
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].	

Section 1	**Exposure Scenario Title**
Title	Workplace exposure to sodium silicate (EC 215-687-4), potassium silicate (EC 215-199-1) and disodium metasilicate (EC 229-912-9) solutions
Use Descriptor	Sector of Use: SU 3 and SU 22
	Process Categories (PROC): 1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 10, 11, 13, 14, 22, 23, 24, 25
	Environmental Release Categories: not required
Processes, tasks, activities covered	Manufacture of the substance as well as industrial and professional uses.
Section 2	**Operational conditions and risk management measures**
	Whenever handling sodium/potassium silicate/disodium metasilicate as a substance on its own (Powder/granules or liquid) or in a preparation outside closed systems, depending on the use and concentration suitable personal protective equipment (gloves, goggles, dust masks or respiratiors) are the preferred and only measure of control.
Section 2.1	**Control of worker exposure**
Product characteristics	
Physical form of product	liquid, solution, vapour pressure 0.0103 kPa (1175 ℃) [OC3].
Concentration of substance in product	Covers percentage substance in the product up to 100 % [G13], unless otherwise stated.
Amounts used	No limit
Frequency and duration of use	Covers frequency up to: daily use, weekly, monthly, yearly [G6] Except for PROCs 7 and 11: Avoid carrying out operation for more than 1 hour [OC11]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes a good basic standard of occupational hygiene is implemented [G1]. The work occurs inside as well outside [OC8, OC9]
Contributing Scenarios	**Risk Management Measures.**
PROC 1, 2, 3	Handle substance within a closed system [E47]. No other specific measures identified [EI20].
PROC 4, 5, 6, 8a, 8b, 9, 10, 13, 14, 22, 23, 24	Wear suitable gloves (tested to EN374) and eye protection [PPE19].
PROC 7, 11	Covers percentage substance in the product up to 25% [G12]. Provide enhanced general ventilation by mechanical means [E48]. Wear suitable gloves (tested to EN374) and eye protection [PPE19]. or Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE 29]. Avoid carrying out operation for more than 1 hour [OC11]. Wear suitable gloves (tested to EN374) and eye protection [PPE19].
Section 2.2	**Control of environmental exposure**
	Not required, as soluble silicates, including sodium/potassium silicate/disodium metasilicate, 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.
Section 3	**Exposure Estimation**

3.1.	**Health**
The ECETOC TRA tool with modifications as outlined in the CAS has been used to estimate worker exposures.	
Section 4	**Guidance to check compliance with the Exposure Scenario**
4.1.	**Health**
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].	

Section 1 Exposure Scenario Title		
Title		
Use in Consumer products		
Use Descriptor		
Sector(s) of Use	21	
Product Categories	1, 9a, 9b, 14, 15, 17, 23, 24, 26, 30, 33, 34, 35, 39	
Environmental Release Categories	not required	
Processes, tasks, activities covered		
Covers general exposures to consumers arising from the use of household products sold		
Assessment Method		
See Section 3.		
Section 2 Operational conditions and risk management measures		
Section 2.1 Control of consumer exposure		
Product characteristics		
Physical form of product	Powder or liquid	
Vapour pressure (kPa)	< 0.5 kPa	
Concentration of substance in product	Unless otherwise stated, cover concentrations up to 100% [ConsOC1].	
Amounts used	Unless otherwise stated, covers use amounts up to 37500 g [ConsOC2]; covers skin contact area up to 6660 cm2 [ConsOC5].	
Frequency and duration of use/exposure	Unless otherwise stated, covers use frequency up to 4 times per day [ConsOC4]; covers exposure up to 8 hours per event [ConsOC14].	
Other Operational Conditions affecting exposure	Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m^3 room [ConsOC11]; assumes use with typical ventilation [ConsOC8].	
Product Category	**Specific Risk Management Measures and Operating Conditions *(only required controls to demonstrate safe use listed)***	
PCs - general case	OC	In cosumer products the irritation hazard of soluble silicates is addressed, if necessary, by appropriate labelling and the advice to use (household) gloves on the consumer product. In general, dermal, inhalation and oral consumer exposure are minimised 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.
	RMM	No specific RMMs identified beyond those OCs stated.
PC 1, 9a, 9b, 14, 15, 17, 23, 24, 26, 30, 33, 34, 39	OC	Covers use up to 365 days/year [ConsOC3]; covers use under typical household ventilation [ConsOC8]; covers default OCs of ECETOC TRA tool.
	RMM	No specific RMMs identified beyond those OCs stated.
PC 35 - laundry handwashing (example)	OC	Unless otherwise stated, covers concentrations up to 25% [ConsOC1]; covers use up to 4 days/week [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 1980 cm2 [ConsOC5]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 0.17 hr/event[ConsOC14].
	RMM	No specific RMMs identified beyond those OCs stated.
PC 35 - pre-treatment of clothes (example)	OC	Unless otherwise stated, covers concentrations up to 60% [ConsOC1]; covers use up to 21 tasks/week [ConsOC3]; covers skin contact area up to 840 cm2 [ConsOC5]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20 m3 [ConsOC11]; for each use event, covers exposure up to 0.17 hr/event[ConsOC14].
	RMM	No specific RMMs identified beyond those OCs stated.

Section 3 Exposure Estimation		
3.1. Health		
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.		
Section 4 Guidance to check compliance with the Exposure Scenario		
4.1. Health		
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].		