TENNANTS DISTRIBUTION LIMITED
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PRODUCT: POTASSIUM SILICATE K66 (POSIK66)

PRODUCT SPECIFICATION

Product Name	Potassium Silicate Solution
Alternative Name	Silicic acid, potassium salt (2.6<MR<=3.2)
Product Grade	K66
Specification Reference	POSI67/2 (R15/03/96/09/0051206)

SALES SPECIFICATION

Test Schedule	Method	Test Description	Units	Value
S	24.2	Silica as SiO_2	%	For information only
S	10.2	Total Alkali (as K_2O)	%	11.1 – 11.7
S	76.2	Wt. Ratio SiO_2;K_2O		2.00 – 2.10:1
S	2.2	Specific Gravity at 20°C		1.325 – 1.335
S	-	Equivalent Twadell	oTw	65.0 – 67.0

Test Schedule Key: S = Snap Test

NOTES

Exclusion of Liability

Information contained in this publication is accurate to the best of the knowledge and belief of Tennants.

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Health and Safety

A Material Safety Data Sheet has been issued describing the health, safety and environmental properties of this product, identifying the potential hazards and giving advice on the handling precautions and emergency procedures. This must be consulted fully before handling, storage and use.

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

1.1 Product Identifier

Product Name — Potassium Silicate Solution K66
Silicic acid, potassium salt (2.6<MR<=3.2)

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

Identified use(s)

General purpose industrial chemical for use in a wide range of applications. Binding agent; dust binding agent; Flame retardant or fire preventing agent; Flotation agent; Stabiliser; Viscosity control agent.
See also Annex to the extended Safety Data Sheet
Uses advised against: None known

1.3 Details of the supplier of the safety data sheet

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1.4 Emergency telephone number

Tel: 44(0)844 335 0001 (24 hours)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification

H319 : Serious eye damage/irritation Category 2
H315 : Skin corrosion/irritation Category 2

Hazard summary

Alkaline. Irritating to eyes and skin

2.2 Label Elements

Signal Word: Warning

Hazard Statements

H319: Causes serious eye irritation.
H315: Causes skin 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.

2.3 Other hazards

Not classified as PBT or vPvB

3. COMPOSITION/INFORMATION ON INGREDIENTS

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

Ingredient	CAS Number	EINECS Number	REACH registration number	Classification according to Regulation1272/2008	Content (W/W)
Silicic acid, potassium salt	1312-76-1	215-199-1	01-2119456888-17-xxxx	H319: Eye Irrit. 2 H315: Skin Irrit.2; H335: STOT SE3;	30 - 50%
Water	7732-18-5	231-791-2			50 - 70%

4. FIRST AID MEASURES

4.1 Description of first aid measures

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

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

Eye contact
Irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes. Obtain immediate 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 import symptoms and effects, both acute and delayed
Alkaline
Irritating to eyes and skin. The toxicity of potassium 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.
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.

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 material for containment and cleaning up
Caution-spillages may be slippery. Contain spillages with sand, earth or any suitable absorbent material. Transfer to container for disposal or recovery

6.4 Reference to other sections
See section 8

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 eyewash should be readily available. See Also Section 8.

7.2 Conditions for safe storage, including any incompatibilities
Keep at room temperature not exceeding (50^{o}C) Do not allow material to freeze. Provide an adequate bund wall.
Unsuitable containers: Aluminium See section 10

7.3 Specific end use(s)
See Annex to the extended Safety Data Sheet

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

No Occupational Exposure Limits Assigned.
An exposure limit of 2 mg/m^3 (15 min TWA) is recommended by analogy with potassium hydroxide (UK EH40)

Derived No Effect Level (DNEL)	Oral mg/kg bw/d	Inhalation mg/m^3	Dermal mg/kg bw/d
Worker –Acute – Systemic effects	-	-	-
Worker –Acute – Local effects	-	-	-
Worker –Long term – Systemic effects	-	5.61	1.49
Worker –Long term – Local effects	-	-	-
Consumer–Acute – Systemic effects	-	-	-
Consumer–Acute – Local effects	-	-	-
Consumer–Long Term – Systemic effects	0.74	1.38	0.74

Consumer–Long Term – Local effects	-	-	-
For further details and guidance see Exposure Scenario 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)	1mg/l		
PNEC Water (intermittent)	7.5mg/l		
PNEC Sediment	Not available		
PNEC Soil	Not available		
PNEC Sewage treatment plant	348mg/l		
PNEC Secondary Poisoning (oral)	Not applicable		

8.2 Exposure controls

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

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.

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 protection

Chemical goggles (EN 166)

Skin & hand protection

Wear suitable protective clothing and gloves. Plastic or rubber gloves. For example EN374-3, level 6 breakthrough time (>480min). Wear suitable overalls. For example EN ISO 13982 (dust), EN 14605 (liquid splashes)

8.2.3 Environmental exposure controls

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

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties	
Appearance	Liquid. Almost colourless
Odour	Odourless
Odour threshold	Not applicable
pH value	Alkaline
Melting point/freezing point	Not applicable
Boiling point/boiling range	100ºC
Flash point	Not applicable
Evaporation rate	Not applicable
Flammability (solid, gas)	Not applicable
Explosive limit ranges	Not applicable
Vapour pressure(mm Hg)	Not applicable
Vapour density (Air=1)	No data
Density	No data
Solubility (Water)	Soluble
Solubility (Other	No data
Partition of coefficient	No data
Auto-ignition temperature	Not applicable
Decomposition temperature	Not applicable
Viscosity	Not applicable
Explosive properties	Not applicable
Oxidising 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 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 aluminium, 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 residue 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 products
None known

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute Oral Toxicity
All symptoms of acute toxicity are due to high alkalinity. Material will cause irritation.
Oral LD50 (rat) >5000 mg/kg bw

Acute inhalation toxicity
Mist is irritation to the respiratory tract. All symptoms of acute toxicity are due to high alkalinity.
Inhalation LC50 (rat) >2.06 g/m^3.

Acute Dermal Toxicity
Skin contact- Repeated and/or prolonged skin contact may cause slight irritation. Dermal LD50 (rat) >5000mg/kg bw
Eye contact- Liquid or mist may cause discomfort and mild irritation

Skin Corrosion/Irritation
Repeated or prolonged skin contact may cause slight irritation

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

Sensitisation
Not sensitising

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

Carcinogenicity
No structural alerts.

Reproductive toxicity
No evidence of reproductive toxicity or development toxicity.

STOT- single exposure
Not classified

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

Aspiration hazard
Not classified

12. ECOLOGICAL INFORMATION

12.1 Toxicity
Fish (Leuciscus idus) LC50 (48 hour) >146 mg/l Aquatic invertebrates: (Daphnia magna) EC50 (24 hour) >146 mg/l

12.2 Persistence and degradability
Inorganic. Soluble silicates, upon dilution, rapidly depolymerise 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.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Discharge of this product to sewage treatment works is dependent on local regulations with regard to pH controls. Dispose of this material and its containers to hazardous or special waste collection point. This material is classified as hazardous waste under EC Directive 2008/98/EC (and amendments). 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.

14. TRANSPORT INFORMATION

14.1 UN Number	Not classified according to the United Nations 'Recommendations on the Transport of Dangerous Goods'
14.2 Proper Shipping Name	Not applicable
14.3 Transport hazard class	Not applicable
14.4 Packing group	Not applicable
14.5 Environmental	Not classified as a Marine Pollutant
14.6 Special precautions for users	Unsuitable packaging - Aluminium

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

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
TSCA Inventory Status: Reported/Included.
AICS Inventory Status: Reported/Included.
DSL/NDSL Inventory Status: Reported/Included.
German Water Hazard Classification VwVwS: Product ID number 1316, WGK class 1 (low hazard to water)

15.2 Chemical safety assessment
Information available on request

16. OTHER INFORMATION

Glossary
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
STOT SE 3 : Specific target organ toxicity — single exposure Category 3
DNEL : Derived No Effect Level
PNEC : Predicted No Effect Concentration PBT: Persistent, Bioaccumulative and Toxic

Source of key data used to compile the data sheet
Supplier information

Modifications from last revision
Section 2 of the Safety Data Sheet has been revised in accordance with GHS requirements
Date: 29/01/16

Annex to the extended Safety Data Sheet (eSDS)

Substance: **SILICIC ACID, POTASSIUM SALT**
Alternative name: **POTASSIUM SILICATE**

Contents **Page**

SECTION 1	Title of Exposure Scenario
Title	**Workplace exposure to potassium silicate powder**
Use Descriptor	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
Processes and activities covered by the exposure scenario	Manufacture of the substance as well as industrial and professional uses.
SECTION 2	**Operational conditions and risk management measures**
	Whenever handling potassium 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.
SECTION 2.1	**Worker Exposure Controls**
Characteristics of chemical products	
Physical form of the product	Solid, Powder, Vapour pressure 0.00016 kPa (1172 °C)
Concentration of substance in preparation / mixture or article	Covers percentage substance in the product up to 100 %, unless otherwise stated.
Amount used per time or activity	No limit.
Duration and frequency of use	Covers frequency up to: daily use, weekly, monthly, yearly, 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. The work occurs inside as well as outside.
Contributing Scenarios	**Risk Management Measures**
PROC 1, 2, 3	Use in closed systems.
PROC 4, 5, 6, 8a, 8b, 9, 10, 13, 14, 22, 23, 24	Wear protective gloves/eye protection. Gloves: Wear impervious gloves (EN 374).
PROC 7, 11	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).
SECTION 2.2	**Environmental Exposure Controls**
	Not required, as soluble silicates, including potassium 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.

SECTION 1	Title of Exposure Scenario
Title	**Workplace exposure to potassium silicate solutions**
Use Descriptor	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
Processes and activities covered by the exposure scenario	Manufacture of the substance as well as industrial and professional uses.
SECTION 2	**Operational conditions and risk management measures**
	Whenever handling potassium silicate 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 respirators) are the preferred and only measure of control.
SECTION 2.1	**Worker Exposure Controls**
Characteristics of chemical products	
Physical form of the product	Liquid, Solution, Vapour pressure 0.00016 kPa (1172 °C)
Concentration of substance in preparation / mixture or article	Covers percentage substance in the product up to 100 %, unless otherwise stated.
Amount used per time or activity	No limit.
Duration and frequency of use	Covers frequency up to: daily use, weekly, monthly, yearly Except for PROCs 7 and 11: Avoid carrying out operation for more than 1 hour.
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. The work occurs inside as well as outside.
Contributing Scenarios	**Risk Management Measures**
PROC 1, 2, 3	Use in closed systems.
PROC 4, 5, 6, 8a, 8b, 9, 10, 13, 14, 22, 23, 24	Wear protective gloves/eye protection. Gloves: Wear impervious gloves (EN 374).
PROC 7, 11	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. Avoid carrying out operation for more than 1 hour. Wear protective gloves/eye protection. Gloves: Wear impervious gloves (EN 374).
SECTION 2.2	**Environmental Exposure Controls**
	Not required, as soluble silicates, including potassium 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.

SECTION 1	**Title of Exposure Scenario**	
Title	**Use in Consumer products**	
Use Descriptor	Sectors of use [SU]: 21	
	Chemical product category [PC]: 1, 9a, 9b, 14, 15, 17, 23, 24, 26, 30, 33, 34, 35, 39	
	Environmental release categories [ERC]: not required	
Processes and activities covered by the exposure scenario	General exposures to consumers arising from the use of household products sold.	
SECTION 2	**Operational conditions and risk management measures**	
SECTION 2.1	**Control of consumer exposure**	
Characteristics of chemical products		
Physical form of the product	Powder/Granules or Liquid	
Vapour pressure (kPa)	< 0.5 kPa	
Concentration of substance in preparation / mixture or article	Covers percentage substance in the product up to 100 %, unless otherwise stated.	
Amount used per time or activity	Unless otherwise stated, covers use amounts up to 37500g; covers skin contact area up to 6660cm².	
Duration and frequency of use	Unless otherwise stated, covers use frequency up to 4 times per day; covers exposure up to 8 hours per event.	
Other Operational Conditions affecting exposure	Unless otherwise stated assumes use at ambient temperatures; assumes use in a 20m³ room; assumes use with typical ventilation.	
Chemical product category [PC]	**Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)**	
PCs - general case	OC	In consumer 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; covers use under typical household ventilation; 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%; covers use up to 4 days/week; covers use up to 1 time/day of use; covers skin contact area up to 1980 cm²; covers use under typical household ventilation; covers use in room size of 20m³; for each use event, covers exposure up to 0.17 hr/event.
	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%; covers use up to 21 tasks/week; covers skin contact area up to 840cm²; covers use under typical household ventilation; covers use in room size of 20m³; for each use event, covers exposure up to 0.17 hr/event.
	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. 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, POTASSIUM SALT (potassium 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-1	Production uses. Production of soluble silicates: lumps, dried powder & granules, solutions	PROC 2, 3, 4, 5, 7, 8a, 9, 22, 23, 24 PC 0: bulk chemical ERC 2
IW-2	Manufacture and use of Detergents: Fabric washing detergents, dishwasher detergents, industrial cleansing agents, hard surface cleaning and disinfecting agents	PROC 1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 14 PC 8, 14, 15, 35 SU 4, 10, 14, 20, 0: NACE code 2041 ERC 2, 4, 6b, 8a, 8d
IW-3	Adhesives and binders in manufacture of • paperboard and cardboard • mineral dust/particles briquetting & agglomeration • roofing tiles • bricks, ceramics and other construction materials • refractory cements and other refractory masses/mixes • foundry moulds and cores • wood construction materials • fibreboard • fibreglass and rockwool/mineral wool insulation materials • building boards and prefabricated parts based on inorganic/organic materials • plastic insulation materials	PROC 1, 2, 3, 4, 5, 7, 8a, 8b, 10, 14, 16, 23 PC 1, 0: Binding agent SU 6b, 13, 15, 18, 19, 0: NACE code 2041 ERC 3, 5, 8c, 8f
IW-4	Adhesives and binders in manufacture and use of • plasters and mortars • welding rods	PROC 1, 2, 3, 4, 5, 8a, 13, 25 PC 38 SU 13, 15, 17, 19 ERC 3, 5, 8c
IW-5	Surface Coatings: • Concrete • Paints for masonry and glass surfaces, architectural coatings • Fire-proof glass and surface coatings • Coatings for fire-proof construction materials • Spray-coating in tunnel construction and mining	PROC 2, 4, 5, 7, 8a, 9, 10, 13 PC 1, 9a, 0: construction materials SU 2a, 10, 13, 19 ERC 3, 5, 8c, 8f
IW-6	Pulp and paper manufacture: Coating	PROC 5, 7, 9, 10 PC 26 SU 6b ERC 5, 8c
IW-7	Civil Engineering: Soil sealing and stabilisation in drilling, tunnelling and mining, sealing of landfills, building pits, buildings, coastline stabilisation	PROC 4, 5, 8a, 9 PC 1, 0 SU 2a, 19 ERC 5, 8f
IW-8	Textile and textile fibre processing: • Bleach and dye stabiliser • Fire retardant	PROC 2, 8a, 9, 13 PC 34 SU 5 ERC 3, 4, 5, 6b, 8c

IW-9	Ceramics & minerals: • Component of porcelain slips and ceramic masses • Flotation agent in mineral processing	PROC 4, 5, 7, 8a, 8b, 9, 10, 13 PC 20, 0 SU 10, 13 ERC 2, 4, 5, 8c, 8d, 8f
IW-10	Processing aid: Developers for photographic plates	PROC 3, 8b, 9 PC 0 SU 7 ERC 2, 4, 6b
IW-11	Timber and Timber Products: Impregnation	PROC 8a, 9, 13 PC 0 SU 18, 19 ERC 4, 5, 6b, 8a, 8c, 8d, 8f
IW-12	Manufacture of Cosmetics: Hair treatment (bleaching and dyeing formulations)	PROC 3, 5, 8a, 9 PC 39 SU 10, 0: NACE code 2041 ERC 2
IW-13	Manufacture of fertilisers and nutrient mixes	PROC 5, 8b, 9 PC 12 SU 1, 10 ERC 2

Identified uses by professional workers

IU No.	Identified use name	Process category [PROC] Market sector [PC] Sectors of use [SU] Environmental release categories [ERC]
PW-1	Use of Detergents: Fabric washing detergents, dishwasher detergents, industrial cleansing agents, hard surface cleaning and disinfecting agents	PROC 10, 11, 13 PC 35 ERC 4, 8a, 8d
PW-2	Cosmetics: Manufacture of Cosmetics: Hair treatment (bleaching and dyeing formulations)	PROC 19 PC 39 ERC 8b, 8c
PW-3	Use of fertilisers and nutrient mixes	PROC 2, 9 PC 12 SU 1 ERC 8b, 8e, 9b

Identified uses by consumers

IU No.	Identified use name	Process category [PROC] Market sector [PC] Sectors of use [SU] Environmental release categories [ERC]
C-1	Consumer use of detergents: Fabric washing detergents, dishwasher detergents, industrial cleansing agents, hard surface cleaning and disinfecting agents	PC 35 ERC 8a, 8b, 8d, 8e
C-2	Adhesives and binders in plasters and mortars.	PC 9b ERC 8c, 8f, 10a, 11a
C-3	Surface Coatings: Paints for masonry and glass surfaces, architectural coatings	PC 9a ERC 8a, 8c, 8d, 8f
C-4	Cosmetics: Manufacture of Cosmetics: Hair treatment (bleaching and dyeing formulations)	PC 39 ERC 8b, 8c

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]
Key descriptor: Main user groups
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)
Supplementary descriptor: Sectors of end-use
SU1 Agriculture, forestry, fishery
SU2a Mining, (without offshore industries)
SU2b Offshore industries
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
SU13 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
PC9b Fillers, putties, plasters, modelling 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
PC27 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
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 Calendering operations
PROC7 Industrial spraying
PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at 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 tabletting, compression, extrusion, pelletisation
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 opera-ions 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)

Environmental release categories [ERC]
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 polymerisation 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
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)