ConnectingChemistry

BRENNTAG

SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

SODIUM CARBONATE

Version 9.1 Print Date 2021/10/01

Revision date / valid from 2021/10/01
Part No: SODA ASH-CED

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name	:	SODIUM CARBONATE
Substance name	:	sodium carbonate
Index-No.	:	011-005-00-2
CAS-No.	:	497-19-8
EC-No.	:	207-838-8
EU REACH-Reg. No.	:	01-2119485498-19-xxxx

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

Use of the Substance/Mixture	:	Identified use: See table in front of appendix for a complete overview of identified uses.
Uses advised against	:	At this moment we have not identified any uses advised against
Remarks	:	Before referring to any Exposure Scenario attached to this Safety Data Sheet please check the grade of the product: the Exposure Scenarios presented are not related to all product grade

1.3. Details of the supplier of the safety data sheet

Company	:	Brenntag UK Limited Alpha House, Lawnswood Business Park GB LS16 6QY Leeds
Telephone	:	+44 (0) 113 3879 200
Telefax	:	+44 (0) 113 3879 280
E-mail address	:	msds@brenntag.co.uk

1.4. Emergency telephone number

Emergency telephone number	:	Emergency only telephone number (open 24 hours): +44 (0) 1865 407333 (N.C.E.C. Culham)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation S.I. 2019/720 (GB CLP)

Regulation S.I. 2019/720 (GB CLP)

Hazard class	Hazard category	Target Organs	Hazard statements
Eye irritation	Category 2	---	H319

For the full text of the H-Statements mentioned in this Section, see Section 16.

Most important adverse effects

Human Health	:	See section 11 for toxicological information.
Physical and chemical hazards	:	See section 9/10 for physicochemical information.
Potential environmental effects	:	See section 12 for environmental information.

2.2. Label elements

Labelling according to Regulation S.I. 2019/720 (GB CLP)

Hazard symbols :



Signal word	:	Warning	
Hazard statements	:	H319	Causes serious eye irritation.
Precautionary statements			
Prevention	:	P264	Wash skin thoroughly after handling.
		P280	Wear eye protection/ face protection.
Response	:	P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		P337 + P313	If eye irritation persists: Get medical advice/ attention.

Hazardous components which must be listed on the label:

- sodium carbonate

2.3. Other hazards

For Results of PBT and vPvB assessment see section 12.5.

SECTION 3: Composition/information on ingredients

3.1. Substances

Hazardous components	Amount [%]	Classification (Regulation S.I. 2019/720 (GB CLP))	
		Hazard class / Hazard category	Hazard statements
sodium carbonate			
Index-No. : 011-005-00-2 CAS-No. : 497-19-8 EC-No. : 207-838-8 EU REACH-Reg. No. : 01-2119485498-19-xxxx	>= 90 - < 100	Eye Irrit.2	H319

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice : Take off all contaminated clothing immediately.

If inhaled : Remove to fresh air. If symptoms persist, call a physician.

In case of skin contact : Wash off immediately with soap and plenty of water. If skin irritation persists, call a physician.

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 5 minutes. Consult an eye specialist immediately. Go to an ophthalmic hospital if possible.

If swallowed : Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms : See Section 11 for more detailed information on health effects and symptoms.

Effects : See Section 11 for more detailed information on health effects and symptoms.

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

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	:	High volume water jet

5.2. Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Incomplete combustion may form toxic pyrolysis products.
Hazardous combustion products	:	Carbon monoxide, Carbon dioxide (CO2)

5.3. Advice for firefighters

Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus.Wear personal protective equipment.
Further advice	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Use personal protective equipment. Keep away unprotected persons. Ensure adequate ventilation. Avoid contact with skin and eyes.

6.2. Environmental precautions

Environmental precautions	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.

6.3. Methods and materials for containment and cleaning up

Methods and materials for containment and cleaning up	:	Use mechanical handling equipment. Keep in suitable, closed containers for disposal.
Further information	:	Treat recovered material as described in the section "Disposal considerations".

6.4. Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on personal protective equipment.
See Section 13 for waste treatment information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	:	Keep container tightly closed. Use personal protective equipment. Avoid dust formation. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Emergency eye wash fountains and emergency showers should be available in the immediate vicinity.
Hygiene measures	:	Keep away from food, drink and animal feedingstuffs. Smoking, eating and drinking should be prohibited in the application area. Wash hands before breaks and at the end of workday. Take off all contaminated clothing immediately.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Store in original container. Suitable materials for containers: polyethylene; Unsuitable materials for containers: Aluminium
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Further information on storage conditions	:	Keep tightly closed in a dry and cool place. Product is hygroscopic.
Advice on common storage	:	Keep away from food, drink and animal feedingstuffs. Do not store near acids.

7.3. Specific end use(s)

Specific use(s)	:	Identified use: See table in front of appendix for a complete overview of identified uses.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Other Occupational Exposure Limit Values

(Additional) Information	:	Contains no substances with occupational exposure limit values.

Contains no substances with occupational exposure limit values.

Component:	**sodium carbonate**	**CAS-No. 497-19-8**

Derived No Effect Level (DNEL)/Derived Minimal Effect Level (DMEL)

DNEL Workers, long-term, Inhalation	:	10 mg/m3
DNEL Consumers, Acute - local effects, Inhalation	:	10 mg/m3

Component:	**sodium carbonate**	**CAS-No. 497-19-8**

Predicted No Effect Concentration (PNEC)	
Not applicable	:

8.2. Exposure controls

Appropriate engineering controls

Refer to protective measures listed in sections 7 and 8.

Personal protective equipment

Respiratory protection

Advice	:	Required, if exposure limit is exceeded (e.g. OEL). Respiratory protection complying with EN 141. Respirator with a dust filter Particle filter:P2 Particle filter:P3

Hand protection

Advice	:	Protective gloves complying with EN 374. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Protective gloves should be replaced at first signs of wear.
Material	:	Natural Rubber
Break through time	:	>= 8 h
Glove thickness	:	0.5 mm
Material	:	polychloroprene
Break through time	:	>= 8 h
Glove thickness	:	0.5 mm
Material	:	Nitrile rubber
Break through time	:	>= 8 h
Glove thickness	:	0.35 mm
Material	:	Fluorinated rubber
Break through time	:	>= 8 h
Glove thickness	:	0.4 mm
Material	:	Polyvinylchloride
Break through time	:	>= 8 h
Glove thickness	:	0.5 mm

Eye protection

Advice : Safety goggles

Skin and body protection

Advice : Wear personal protective equipment.

Environmental exposure controls

General advice : Do not flush into surface water or sanitary sewer system.
Avoid subsoil penetration.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Form	:	solid
Colour	:	white
Odour	:	odourless
Odour Threshold	:	no data available
pH	:	11.2 (1 g/l ; 20 °C)
Melting point/range	:	851 °C
Boiling point/boiling range	:	1,600 °C
Flash point	:	Not applicable
Evaporation rate	:	no data available
Flammability (solid, gas)	:	The product is not flammable.
Upper explosion limit	:	The product is not flammable.
Lower explosion limit	:	The product is not flammable.
Vapour pressure	:	Not applicable
Relative vapour density	:	no data available
Relative density	:	2.52 (20 °C) (EU Method A.3)
Water solubility	:	212.5 g/l (20 °C) (OECD Test Guideline 105) 71 g/l (0 °C)
Partition coefficient: n-octanol/water	:	no data available
Auto-ignition temperature	:	no data available

Thermal decomposition	:	> 400 °C
Viscosity, dynamic	:	Not applicable
Viscosity, kinematic	:	Not applicable
Explosivity	:	no data available
Oxidizing properties	:	no data available

9.2. Other information

Molecular weight	:	106 g/mol
Bulk density	:	0.5 - 0.6 kg/dm3 Light soda ash 0.97 - 1.10 kg/dm3 Dense soda ash

SECTION 10: Stability and reactivity

10.1. Reactivity

Advice : No decomposition if stored and applied as directed.

10.2. Chemical stability

Advice : Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions : Product is hygroscopic. Contact with acids liberates carbon dioxide. In contact with metals generates hydrogen gas, which together with air can form explosive mixtures.

10.4. Conditions to avoid

Conditions to avoid : Protect from humidity and keep away from water.
Thermal decomposition : > 400 °C

10.5. Incompatible materials

Materials to avoid : Acids, Light metals, Aluminium powder

10.6. Hazardous decomposition products

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Component:	sodium carbonate	CAS-No. 497-19-8

Acute toxicity		
Oral		
LD50	:	2800 mg/kg body weight(Rat, male and female)
Inhalation		
LC50	:	2.3 mg/l (Rat; 2 h) (OECD Test Guideline 403)Inhalation may cause pain and cough.
Dermal		
LD50	:	> 2000 mg/kg body weight(Rabbit) (US-EPA method)
Irritation		
Skin		
Result	:	No skin irritation (Rabbit) (OECD Test Guideline 404)
Eyes		
Result	:	Severe eye irritation (Rabbit) (US-EPA method)
Sensitisation		
Result	:	not sensitizing
CMR effects		
CMR Properties		
Carcinogenicity	:	Study scientifically not justified.
Mutagenicity	:	In vitro tests did not show mutagenic effects
Teratogenicity	:	Animal testing did not show any effects on foetal development.
Reproductive toxicity	:	Study scientifically not justified.
Specific Target Organ Toxicity		
Single exposure		
Remarks	:	The substance or mixture is not classified as specific target organ toxicant, single exposure.
Repeated exposure		

Remarks	:	The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Other toxic properties
Repeated dose toxicity
; Sodium carbonate dissociates into ions that are present physiologically in relatively high levels in vertebrates. Therefore, repeated dose toxicity studies are considered (scientifically) unnecessary, in accordance with column 2 of REACH Annex VIII and IX.
Aspiration hazard
Not applicable,

SECTION 12: Ecological information

12.1. Toxicity

Component:	sodium carbonate	CAS-No. 497-19-8
Acute toxicity		
Fish		
EC50	:	300 mg/l (Lepomis macrochirus; 96 h)
Toxicity to daphnia and other aquatic invertebrates		
	:	200 - 227 mg/l (Freshwater invertebrates; 48 h)
algae		
	:	Study scientifically unjustified.
Bacteria		
	:	Study scientifically unjustified.

Short-term (acute) aquatic hazard		
Result	:	This product has no known ecotoxicological effects. Study scientifically unjustified.

Chronic toxicity

Long-term (chronic) aquatic hazard		
Result	:	Study scientifically unjustified.

12.2. Persistence and degradability

Component:	sodium carbonate	CAS-No. 497-19-8

Persistence and degradability

Persistence		
Result	:	decomposition by hydrolysis.

Biodegradability		
Result	:	The methods for determining the biological degradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Component:	sodium carbonate	CAS-No. 497-19-8

Bioaccumulation		
Result	:	Bioaccumulation is not expected.

12.4. Mobility in soil

Component:	sodium carbonate	CAS-No. 497-19-8

Mobility		
	:	study scientifically unjustified

12.5. Results of PBT and vPvB assessment

Component:	sodium carbonate	CAS-No. 497-19-8

Results of PBT and vPvB assessment		
Result	:	The PBT or vPvB criteria of Annex XIII to the REACH Regulation does not apply to inorganic substances.

12.6. Other adverse effects

Data for the product		
Additional ecological information		
Result	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.
Result	:	

Component:	**sodium carbonate**	**CAS-No. 497-19-8**
Additional ecological information		
Result	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product	:	Disposal together with normal waste is not allowed. Special disposal required according to local regulations. Do not let product enter drains. Contact waste disposal services.
Contaminated packaging	:	Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning. If recycling is not practicable, dispose of in compliance with local regulations.
European Waste Catalogue Number	:	No waste code according to the European Waste Catalogue can be assigned for this product, as the intended use dictates the assignment. The waste code is established in consultation with the regional waste disposer.

SECTION 14: Transport information

Not dangerous goods for ADR, RID, IMDG and IATA.

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

Not applicable.

14.4. Packaging group

Not applicable.

14.5. Environmental hazards

Not applicable.

14.6. Special precautions for user

Not applicable.

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

IMDG : Not applicable.

SECTION 15: Regulatory information

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

Component:	**sodium carbonate**	**CAS-No. 497-19-8**

EU. Chemicals Subject to PIC Procedure: Regulation 649/2012/EU on export and import of dangerous chemicals, as amended	:	; The substance/mixture does not fall under this legislation.
EU. REACH, Annex XVII, Marketing and Use Restrictions (Regulation 1907/2006/EC)	:	; The substance/mixture does not fall under this legislation.
EU. Regulation No 1451/2007 [Biocides], Annex I, OJ (L 325)	:	EC Number: , 207-838-8; Listed
EU. Directive 2012/18/EU (SEVESO III) Annex I	:	; The substance/mixture does not fall under this legislation.

Notification status
sodium carbonate:

Regulatory List	Notification	Notification number
AICS	YES	
DSL	YES	

EINECS	YES	207-838-8
ENCS (JP)	YES	(1)-164
IECSC	YES	
INSQ	YES	
ISHL (JP)	YES	(1)-164
KECI (KR)	YES	KE-31380
NZIOC	YES	HSR003265
ONT INV	YES	
PHARM (JP)	YES	
PICCS (PH)	YES	
TCSI	YES	
TH INV	YES	2836.20
TH INV	YES	55-1-03923
TSCA	YES	
VN INVL	YES	

15.2. Chemical safety assessment

no data available

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H319	Causes serious eye irritation.

Abbreviations and Acronyms

BCF	bioconcentration factor
BOD	biochemical oxygen demand
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging
CMR	carcinogenic, mutagenic or toxic to reproduction
COD	chemical oxygen demand
DNEL	derived no-effect level
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
LC50	median lethal concentration
LOAEC	lowest observed adverse effect concentration
LOAEL	lowest observed adverse effect level
LOEL	lowest observed effect level
NLP	no-longer polymer
NOAEC	no observed adverse effect concentration
NOAEL	no observed adverse effect level

NOEC	no observed effect concentration
NOEL	no observed effect level
OECD	Organisation for Economic Cooperation and Development
OEL	occupational exposure limit
PBT	persistent, bioaccumulative and toxic
REACH Auth. No.:	REACH Authorisation Number
REACH AuthAppC. No.	REACH Authorisation Application Consultation Number
PNEC	predicted no-effect concentration
STOT	specific target organ toxicity
SVHC	substance of very high concern
UVCB	substance of unknown or variable composition, complex reaction products or biological materials
vPvB	very persistent and very bioaccumulative

Further information

Key literature references and sources for data	:	Supplier information and data from the "Database of registered substances" of the European Chemicals Agency (ECHA) were used to create this safety data sheet.
Methods used for product classification	:	The classification for human health, physical and chemical hazards and environmental hazards were derived from a combination of calculation methods and if available test data.
Hints for trainings	:	The workers have to be trained regularly on the safe handling of the products based on the information provided in the Safety Data Sheet and the local conditions of the workplace. National regulations for the training of workers in the handling of hazardous materials must be adhered to.
Other information	:	The information provided in this Safety Data Sheet is correct to our knowledge at the date of its revision. The information given only describes the products with regard to safety arrangements and is not to be considered as a warranty or quality specification and does not constitute a legal relationship. The information contained in this Safety Data Sheet relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

|| Indicates updated section.

SODIUM CARBONATE

No.	Short title	Main User Group (SU)	Sector of Use (SU)	Product Category (PC)	Process Category (PROC)	Environmental Release Category (ERC)	Article Category (AC)	Specified
1	Manufacture of substance	3	8	NA	1, 2, 3, 4, 8a, 8b, 9, 22	1	NA	ES864
2	Formulation & (re)packing of substances and mixtures	3	10	NA	1, 2, 3, 5, 8a, 8b, 9, 14, 15	2	NA	ES878
3	Use in glass production	3	NA	NA	1, 2, 3, 4, 8a, 8b, 22, 23, 26	6a	NA	ES866
4	Industrial use	3	NA	NA	1, 2, 3, 4, 7, 8a, 8b, 9, 10, 13, 15, 17, 18, 19, 22, 23, 26	4, 5, 6a, 6b, 6d, 7	NA	ES871
5	Professional use	22	NA	0, 1, 2, 3, 4, 7, 8, 9a, 9b, 9c, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40	1, 2, 4, 8a, 8b, 9, 10, 11, 13, 15, 19	8a, 8b, 8c, 8d, 8e, 8f, 9a, 9b	NA	ES873
6	Consumer use	21	NA	1, 2, 3, 4, 7, 8, 9a, 9b, 9c, 0, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40	NA	8a, 8b, 8c, 8d, 8e, 8f, 9a, 9b	NA	ES869

1. Short title of Exposure Scenario 1: Manufacture of substance	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU8: Manufacture of bulk, large scale chemicals (including petroleum products)
Process categories	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 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) PROC22: Potentially closed processing operations with minerals/ metals at elevated temperature; Industrial setting
Environmental Release Categories	ERC1: Manufacture of substances

2.1 Contributing scenario controlling environmental exposure for: ERC1		
Amount used	Annual site tonnage	1.5 Million tonnes/year
Frequency and duration of use	Continuous exposure	Continuous release
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Water	Wastewater streams from production sites contain inorganic substances and are therefore not treated in sewage treatment plants
Conditions and measures related to external treatment of waste for disposal	Waste treatment	No specific waste treatment required/proposed

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC22		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
	Physical Form (at time of use)	solid
Amount used	Not applicable	
Frequency and duration of use	Exposure duration per day	<= 8 h
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures	

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR

---	---	Air	---	2.2 - 118 kg/day	---

Workers

ECETOC TRA Version 2 with modifications has been used
Workplace measurements

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
---	8 hours/day, Modeled exposure data	Inhalation worker exposure	7.9mg/m³	---
PROC1	8 hours/day, Modeled exposure data	Inhalation worker exposure	0.01mg/m³	---
PROC2	8 hours/day, Modeled exposure data	Inhalation worker exposure	0.5mg/m³	---
PROC3, PROC22	8 hours/day, Modeled exposure data	Inhalation worker exposure	1mg/m³	---
PROC4, PROC8a, PROC8b, PROC9	8 hours/day, Modeled exposure data	Inhalation worker exposure	5mg/m³	---

Measured exposure data.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Not applicable

1. Short title of Exposure Scenario 2: Formulation & (re)packing of substances and mixtures	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU 10: Formulation
Process categories	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) PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) 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) PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC15: Use as laboratory reagent
Environmental Release Categories	ERC2: Formulation of preparations

2.1 Contributing scenario controlling environmental exposure for: ERC2		
Amount used	Annual amount per site	<= 5000 ton(s)/year
Frequency and duration of use	Continuous exposure	Continuous release
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Exhaust ventilation equipped with filters.
Conditions and measures related to sewage treatment plant	Sludge Treatment	pH adjustment
Conditions and measures related to external treatment of waste for disposal	Waste treatment	No specific waste treatment required/proposed

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	solid
	During use, dust is formed.	
Frequency and duration of use	Frequency of use	8 hours/day

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Air	---	2.7 kg/day	---
Exposure is considered negligible.					

Workers

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15: ECETOC TRA Version 2 with modifications has been used

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation worker exposure	0.01mg/m³	---
PROC2, PROC15	---	Inhalation worker exposure	0.5mg/m³	---
PROC3	---	Inhalation worker exposure	1mg/m³	---
PROC4, PROC5, PROC8a, PROC8b, PROC9	---	Inhalation worker exposure	5mg/m³	---
PROC14	---	Inhalation worker exposure	1mg/m³	---

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario 3: Use in glass production		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	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 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 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 PROC26: Handling of solid inorganic substances at ambient temperature	
Environmental Release Categories	ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)	
2.1 Contributing scenario controlling environmental exposure for: ERC6a		
Amount used	Annual amount per site	200000 ton(s)/year
Frequency and duration of use	Continuous exposure	Continuous release
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Exhaust ventilation equipped with filters.
Conditions and measures related to sewage treatment plant	Wastewater emission controls are not applicable as there is no direct release to wastewater.	
Conditions and measures related to external treatment of waste for disposal	Waste treatment	No specific waste treatment required/proposed
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC22, PROC23, PROC26		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 5% - 25%
	Physical Form (at time of use)	solid
	During use, dust is formed.	
Frequency and duration of use	Frequency of use	8 hours/day
Other operational conditions affecting workers exposure	Solid, medium dustiness	
3. Exposure estimation and reference to its source		
Environment		
Exposure is considered negligible.		

Workers

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC22, PROC23: ECETOC TRA Version 2 with modifications has been used

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation worker exposure	0.01 mg/m³	---
PROC2	---	Inhalation worker exposure	0.5 mg/m³	---
PROC3	---	Inhalation worker exposure	1 mg/m³	---
PROC4, PROC8a, PROC8b	---	Inhalation worker exposure	5 mg/m³	---
PROC22, PROC23	---	Inhalation worker exposure	1 mg/m³	---

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario 4: Industrial use	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	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 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 PROC13: Treatment of articles by dipping and pouring PROC15: Use as laboratory reagent 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 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 PROC26: Handling of solid inorganic substances at ambient temperature
Environmental Release Categories	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 ERC6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers ERC7: Industrial use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC5, ERC6a, ERC6b, ERC6d, ERC7		
Amount used	Annual amount per site	<= 100000 ton(s)/year
Frequency and duration of use	Continuous exposure	Continuous release
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Exhaust ventilation equipped with filters.
Conditions and measures related to sewage treatment plant	Sludge Treatment	pH adjustment
	No specific measures required.	
Conditions and measures related to external treatment of waste for disposal	No wastewater treatment required.	

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC15, PROC17, PROC18, PROC19, PROC22, PROC23, PROC26

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	solid
	During use, dust is formed.	
Frequency and duration of use	Frequency of use	> 8 hours/day

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Air	---	---	---
---	---	Soil	---	---	---
Small releases might be possible. Exposure is considered negligible.					

Workers

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation worker exposure	0.01mg/m³	---
PROC2	solid	Inhalation worker exposure	0.5mg/m³	---
PROC3	solid	Inhalation worker exposure	1mg/m³	---
PROC4, PROC8a, PROC19	---	Inhalation worker exposure	5mg/m³	---
PROC8b, PROC9, PROC15, PROC26	solid	Inhalation worker exposure	5mg/m³	---
PROC7	---	Inhalation worker exposure	0.022mg/m³	---
PROC17, PROC18	liquid	Inhalation worker exposure	0.022mg/m³	---
PROC22, PROC23	---	Inhalation worker exposure	1mg/m³	---

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario 5: Professional use	
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Chemical product category	PC0: Other (use UCN codes) 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
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises 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

	PROC13: Treatment of articles by dipping and pouring PROC15: Use as laboratory reagent PROC19: Hand-mixing with intimate contact and only PPE available
Environmental Release Categories	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

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8c, ERC8d, ERC8e, ERC8f, ERC9a, ERC9b

Amount used	Annual amount per site	100000 ton(s)/year
Frequency and duration of use	Continuous exposure	Continuous release
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Exhaust ventilation equipped with filters.
Conditions and measures related to sewage treatment plant	Sludge Treatment	pH adjustment
	No specific measures required.	

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC4, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC15, PROC19

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	solid
	During use, dust is formed.	
Frequency and duration of use	Exposure duration per day	<= 15 min(Solid, medium dustiness PROC1, PROC2)
	Exposure duration per day	<= 60 min(Liquid preparations PROC8a, PROC8b, PROC13, PROC15, PROC19)
	Exposure duration per day	<= 60 min(Solid, medium dustiness PROC19)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Water	---	---	---
---	---	Air	---	---	---
---	Professional agricultural	Soil	---	<= 0.0126kg/ha	---

Exposure is considered negligible.

Workers

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	liquid	Inhalation worker exposure	0.0044mg/m³	---
PROC1	solid	Inhalation worker exposure	0.001mg/m³	---
PROC2, PROC3, PROC4, PROC9	liquid	Inhalation worker exposure	0.044mg/m³	---
PROC2	solid	Inhalation worker exposure	0.1mg/m³	---
PROC5	solid	Inhalation worker exposure	5mg/m³	---
PROC8a, PROC8b, PROC13, PROC15, PROC19	liquid	Inhalation worker exposure	0.088mg/m³	---
PROC8a, PROC19	solid	Inhalation worker exposure	1mg/m³	---
PROC10, PROC11	liquid	Inhalation worker exposure	0.44mg/m³	---
---	---	---	---	---

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario 6: Consumer use	
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	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 PC0: Other (use UCN codes) 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
Environmental Release Categories	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
Activity	Note: this Exposure Scenario is only relevant for an appropriated use according to the quality grade of the substance delivered

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8c, ERC8d, ERC8e, ERC8f, ERC9a, ERC9b

Amount used	The amount of substance used is not considered relevant for these operations.	
Frequency and duration of use	Continuous exposure	Not relevant
2.2 Contributing scenario controlling consumer exposure for: PC35: Laundry regular, PC35: Laundry compact, PC35: Laundry additive, PC35: Dish washing products, PC35: Surface cleaners		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 30%
	Physical Form (at time of use)	liquid, solid, powder
Amount used		<= 37 g/l
Frequency and duration of use	Frequency of use	1 events/week
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Keep out of the reach of children. In case of contact with eyes, rinse immediately with plenty of water
2.6 Contributing scenario controlling consumer exposure for: PC3		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 5%.
	Physical Form (at time of use)	liquid, solid
Amount used		<= 37 g/l
Frequency and duration of use	Frequency of use	1 events/week
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Keep out of the reach of children. In case of contact with eyes, rinse immediately with plenty of water
2.7 Contributing scenario controlling consumer exposure for: PC31		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 10%
	Physical Form (at time of use)	liquid, solid
Amount used		<= 37 g/l
Frequency and duration of use	Frequency of use	1 events/week
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Keep out of the reach of children. In case of contact with eyes, rinse immediately with plenty of water

3. Exposure estimation and reference to its source

Environment

Exposure is considered negligible.

Consumers

PC35: REACT (Reach Exposure Assessment Consumer Tool)

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PC35	Laundry regular, powder	Consumer - dermal, long-term - systemic	0.0156mg/kg bw/day	---
PC35	Laundry regular, liquid	Consumer - dermal, long-term - systemic	0.0229mg/kg bw/day	---
PC35	Laundry compact, powder	Consumer - dermal, long-term - systemic	0.0160mg/kg bw/day	---
PC35	Laundry compact, liquid	Consumer - dermal, long-term - systemic	0.0229mg/kg bw/day	---
PC35	Laundry additive, Laundry bleaching/pre-treatment	Consumer - dermal, long-term - systemic	0.0221mg/kg bw/day	---
PC35	Hand dishwashing liquids	Consumer - dermal, long-term - systemic	0.000312mg/kg bw/day	---
PC35	Surface cleaners, gel	Consumer - dermal, long-term - systemic	0.0429mg/kg bw/day	---

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.