

SAFETY DATA SHEET

Version: 4.0 Date: 5th February 2021



ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

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

1.1 Product identifier

Product name	SODIUM CARBONATE
Substance name	Sodium carbonate
Alternative names	Disodium carbonate, soda ash
Chemical Formula	Na ₂ CO ₃
CAS No.	497-19-8
EINECS No.	207-838-8
REACH Registration No.	01-2119485498-19-0018

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

Identified Use(s) Glass production; Intermediate in chemicals production; Water treatment chemicals; Washing and cleaning products; Other industrial, professional and consumer uses.

No.	Exposure Scenario	Page:
1	Manufacturing of sodium carbonate	8
2	Glass production	11
3	Formulation	14
4	Other industrial and professional uses	17
5	Consumer use	24

Uses advised against None

1.3 Details of the supplier of the safety data sheet

Company Identification	Intra-Laboratories Ltd Unit 8, Devonshire Meadows Plymouth Devon PL6 7EZ
Telephone	01752 724109
E-mail (competent person)	admin@intralabs.co.uk
Website	www.intralabs.co.uk

1.4 Emergency telephone number

Emergency Phone No.	+44 (0) 1752 724109
Languages spoken	English

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1 Regulation (EC) No. 1272/2008 (CLP) Eye Irrit. 2; H319

2.2 Label elements According to Regulation (EC) No. 1272/2008 (CLP)

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- | | | |
|-----|---|--------------------------------|
| 4.2 | Most important symptoms and effects, both acute and delayed | Causes serious eye irritation. |
| 4.3 | Indication of any immediate medical attention and special treatment needed | Treat symptomatically. |

SECTION 5: FIREFIGHTING MEASURES

- | | | |
|-----|--|--|
| 5.1 | Extinguishing media
Suitable extinguishing media
Unsuitable extinguishing media | As appropriate for surrounding fire.
Do not use water jet. Direct water jet may spread the fire. |
| 5.2 | Special hazards arising from the substance or mixture | Not flammable. |
| 5.3 | Advice for firefighters | Fight fire with normal precautions from a reasonable distance. Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Keep containers cool by spraying with water if exposed to fire. Avoid run off to waterways and sewers. |

SECTION 6: ACCIDENTAL RELEASE MEASURES

- | | | |
|-----|--|---|
| 6.1 | Personal precautions, protective equipment and emergency procedures | No action should be taken involving personal risk. Wear appropriate personal protective equipment, avoid direct contact. Ensure adequate ventilation. Avoid breathing dust. Remove contaminated clothing and wash all affected areas with plenty of water. Avoid dust generation. |
| 6.2 | Environmental precautions | Avoid release to the environment. |
| 6.3 | Methods and material for containment and cleaning up | Damp down to avoid dust generation. Use vacuum cleaner to collect spilt material. Recover the product where possible. Ventilate the area and wash spill site after material pick-up is complete. Transfer to a container for disposal or recovery. |
| 6.4 | Reference to other sections | See Section: 8,13 |

SECTION 7: HANDLING AND STORAGE

- | | | |
|-----|---|--|
| 7.1 | Precautions for safe handling | Ensure adequate ventilation. Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Remove contaminated clothing and wash clothing before reuse. |
| 7.2 | Conditions for safe storage, including any incompatibilities | Keep container tightly closed. Store in a cool/low-temperature, well-ventilated (dry) place away from heat and ignition sources. Control dust formation. |
| | Storage temperature | Keep in a cool, well ventilated place. |
| | | Suitable material: Polyethylene |
| | | Unsuitable material: Material moisture permeable |
| | Incompatible materials | Finely divided aluminium |
| 7.3 | Specific end use(s) | See Section: 1.2 |

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

- | | | |
|-------|-------------------------------------|--|
| 8.1 | Control parameters | |
| 8.1.1 | Occupational exposure limits | The UK HSE (EH40) recommends the following limits for dusts: 10 mg/m ³ (8hr TWA) total inhalable dust; 4 mg/m ³ (8hr TWA) total respirable dust. |
| 8.1.2 | Biological limit value | Not established |
| 8.1.3 | PNECs and DNELs | |

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Sodium carbonate Derived No Effect Level	Oral	Inhalation	Dermal
Worker - Long Term - Systemic effects	-	10 mg/m ³	-
Consumer - Long Term - Systemic effects	-	10 mg/m ³	-

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The lowest L(E)C50 value is > 100 mg/l (48-h EC50 is 200 mg/l in daphnids (Ceriodaphnia sp)). Therefore sodium carbonate need not be classified according to Directive 67/548/EEC and EU Classification, Labelling and Packaging of Substances and Mixtures (CLP) Regulation (EC) No. 1272/2008

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Ensure adequate ventilation. Special ventilation should be used to convey finely divided metallic dust generated by grinding, sawing or polishing operations, in order to eliminate explosion hazards.

8.2.2 Individual protection measures, such as personal protective equipment

Keep good industrial hygiene. Wear appropriate personal protective equipment, avoid direct contact. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke at the work place. Avoid breathing dust.

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Eye/ face protection



Wear eye protection with side protection (EN166). Eyewash bottles should be available.

Skin protection



Hand protection: Wear impervious gloves (EN374). Gloves should be changed regularly to avoid permeation problems. Breakthrough time of the glove material: refer to the information provided by the gloves' producer. Protective index 6, corresponding > 480 minutes of permeation time according to EN 374. Recommended: Butyl rubber, Neoprene, Nitrile (Minimum thickness 0.5mm)

Body protection: Wear dust-resistant protective clothing.

Respiratory protection



Not normally required. Wear suitable respiratory protective equipment if processing involves working in areas where dusts or vapours are likely to be evolved. In case of inadequate ventilation wear respiratory protection. Recommended: EN143 Type A-P2.

Thermal hazards

Not applicable.

8.2.3 Environmental exposure controls

Avoid release to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	White powder
Odour	Odourless
Odour threshold	Not applicable
pH	>11 (saturated solution, study result, OECD 105)
Melting point/freezing point	851°C
Initial boiling point and boiling range	Not applicable >300°C (Melting point)
Flash point	Not applicable (inorganic substance)
Evaporation rate	Not applicable >300°C (Melting point)
Flammability (solid, gas)	Not flammable (study result, EU Method A.10)
Upper/lower flammability or explosive limits	Not flammable
Vapour pressure	Not applicable (inorganic substance, vapour pressure negligible)
Vapour density	Not applicable

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Relative density

2.52 @ 20°C (study result, EU Method A.3)

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Solubility(ies)	In water: 212.5 g/l @ 20°C (study result OECD 105)
Partition coefficient: n-octanol/water	Not applicable
Auto-ignition temperature	Not applicable
Decomposition temperature	Not flammable
Viscosity	Not relevant (solid)
Explosive properties	Not explosive
Oxidising properties	Not oxidising

9.2 Other information None known

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity	Decomposes by reaction with strong acids.
10.2 Chemical stability	Stable under normal conditions.
10.3 Possibility of hazardous reactions	None anticipated.
10.4 Conditions to avoid	Avoid contact with acids. Exposure to moisture.
10.5 Incompatible materials	Finely divided aluminium.
10.6 Hazardous decomposition products	Contact with acid will evolve CO ₂ .

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects	
Acute Toxicity - Ingestion	Based upon the available data, the classification criteria are not met.
Acute Toxicity - Inhalation	Based upon the available data, the classification criteria are not met.
Acute Toxicity - Skin contact	Based upon the available data, the classification criteria are not met.
Skin corrosion/irritation	Based upon the available data, the classification criteria are not met.
Serious eye damage/irritation	Eye Irrit. 2; H319: Causes serious eye irritation. EU Harmonised Classification Irritating to eyes. (rabbit) (Rinehart, WE, 1978)
Respiratory or skin sensitisation	Based upon the available data, the classification criteria are not met.
Germ cell mutagenicity	Based upon the available data, the classification criteria are not met.
Carcinogenicity	Based upon the available data, the classification criteria are not met.
Reproductive toxicity	Based upon the available data, the classification criteria are not met.
STOT - single exposure	Based upon the available data, the classification criteria are not met.
STOT - repeated exposure	Based upon the available data, the classification criteria are not met.
Aspiration hazard	Based upon the available data, the classification criteria are not met.
11.2 Other information	None known.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity	Based upon the available data, the classification criteria are not met. Estimated LC50 (Substance): >100 mg/l.
12.2 Persistence and degradability	Not applicable for inorganic substances.
12.3 Bioaccumulative potential	Not applicable for inorganic substances.
12.4 Mobility in soil	Not applicable for inorganic substances.
12.5 Results of PBT and vPvB assessment	According to Annex XIII of the REACH Regulation 1907/2006/EC inorganic substances do not need to be subjected to a PBT assessment.
12.6 Other adverse effects	None known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods	Dispose of contents in accordance with local, state or national legislation. Do not allow to enter drains, sewers or watercourses. Recycle packaging.
13.2 Additional information	Avoid release to the environment. Dispose of empty containers and wastes safely.

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SECTION 14: TRANSPORT INFORMATION

Not classified according to the United Nations 'Recommendations on the Transport of Dangerous Goods'.

	ADR/RID	IMDG	IATA/ICAO
14.1 UN number	None assigned.	None assigned.	None assigned.
14.2 UN proper shipping name	None assigned.	None assigned.	None assigned.
14.3 Transport hazard class(es)	None assigned.	None assigned.	None assigned.
14.4 Packing group	None assigned.	None assigned.	None assigned.
14.5 Environmental hazards	Not classified	Not classified as a Marine Pollutant.	Not classified
14.6 Special precautions for user	See Section: 2		
14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	No information available.	No information available.	No information available.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture	
15.1.1 EU regulations	
Authorisations and/or restrictions on use	Not restricted
15.1.2 National regulations	
Germany	Water hazard class (WGK): 1
TSCA Inventory	Listed
15.2 Chemical Safety Assessment	A REACH chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: Updated substance / mixture classification. Updated version and date. New format has been issued, all sections have been updated to include new information. Review SDS with care.

References:

Existing Safety Data Sheet (SDS), Chemical Safety Report,
Harmonised Classification and existing ECHA registration for Sodium carbonate (CAS No. 497-19-8).

Literature References:

1. Rinehart, WE, 1978. Rabbit Eye Irritation Study. Toxicological Resources Unit, Bio/dynamics Inc. Taken from OECD SIDS UNEP for Sodium Carbonate.

EU Classification: This Safety Data Sheet was prepared in accordance with EC Regulation (EC) 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830.

Legend

ADR	ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DNEL	Derived no effect level
EU	European Union
IATA	IATA: International Air Transport Association
ICAO	ICAO: International Civil Aviation Organization
IMDG	IMDG: International Maritime Dangerous Goods
LC50	Lethal concentration at which 50% of the population is killed
LD50	Lethal dose at which 50% of the population is killed
LTEL	Long term exposure limit
PBT	PBT: Persistent, Bioaccumulative and Toxic
PNEC	Predicted No Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals

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RID
STEL

RID: Regulations concerning the international railway transport of dangerous goods
Short term exposure limit

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vPvB vPvB: very Persistent and very Bioaccumulative
WGK Wassergefährdungsklasse (Germany) / Water hazard class

Hazard classification / Classification code:

Eye Irrit. 2; Eye Irritation, Category 2

Hazard Statement(s)

H319: Causes serious eye irritation.

Training advice: Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

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Annex to the extended Safety Data Sheet (eSDS)

See below -

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Exposure Scenario for communication:
ES 1: Manufacturing of sodium carbonate

0. General information

ES identifier	ES 1
Version	01
Revision date	28.10.2010
EC #	207-838-8
CAS #	497-19-8

1. List of use descriptors

Manufacturing of sodium carbonate

Market sector: SU 3 (Industrial uses)
Sector of uses SU: SU 8 (SU8 Manufacture of bulk, large scale chemicals (including petroleum products))

Environment: (Environmental Release Categories (ERC)) Manufacture of substances ERC 1

Worker (Process category [PROC] - Phrase)

Use in closed process, no likelihood of exposure	PROC 1
Use in closed, continuous process with occasional controlled exposure	PROC 2
Use in closed batch process (synthesis or formulation)	PROC 3
Use in batch and other process (synthesis) where opportunity for exposure arises	PROC 4
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	PROC 8a
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	PROC 8b
Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC 9
Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting	PROC 22

Processes, tasks, activities covered

Manufacturing, maintenance, loading, packaging, sampling and monitoring.

2. Conditions of use affecting exposure

2.0 Product characteristics

Physical form of product	Solid
Volatility	Not relevant

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Level of dustiness	Medium (PROCs 1, 2, 3, 4, 8a, 8b, 9) Low (PROC 22)
2.1. Control of environmental exposure:	
Manufacture of substances – ERC 1	
Amounts used	
Annual site tonnage (tons/year): up to 600 000.	
Frequency and duration of use	
Continuous	
Other given operational conditions affecting environmental exposure	
Not applicable.	
Technical and organisational conditions and measures	
See section 8 of Safety Data Sheet	
Conditions and measures related to municipal sewage treatment plant	
Wastewater streams from sodium carbonate 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	
In Chapter 2.3.5 of the Reference Document on Best Available Techniques for the Manufacture of Large Volume Inorganic Chemicals - Solids and Others Industry (EC, 2007) two types of solid waste, generated during the manufacturing of sodium carbonate, are discussed. Both types of solid waste originate from raw materials and the concentration of sodium carbonate in the solid waste is negligible. For this reason specific waste related measures are not needed.	
Additional good practice advice beyond the REACH CSR (Chemical Safety Report)	
See sections 6 and 13 of Safety Data Sheet	
2.2. Control of worker exposure	
Valid for PROCs 1, 2, 3, 4, 8a, 8b, 9, 22.	
Amount used, frequency and duration of use/exposure	
Amounts used	Not relevant Not considered to influence the exposure as such for this scenario
Frequency and duration of use	Daily use 8h/day
Technical and organisational conditions and measures	
See section 8 of Safety Data Sheet Ensure operatives are trained to minimise exposures.	
Additional good practice advice beyond the REACH CSR (Chemical Safety Report)	
See sections 7 and 8 of Safety Data Sheet	
3. Exposure estimation and reference to its source	
3.1 Environment exposure estimation and reference to its source	

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The table below gives the summary of the environment exposure estimation made in the Chemical Safety Report, referring to Document on Best Available Techniques for the Manufacture of Large Volume Inorganic Chemicals - Solids and Others Industry.

Compartment	Measured release (kg/d)	Explanation / source of measured data
Aquatic	Negligible	Reference Document on Best Available Techniques (EC, 2007)
Air (direct)	2.2 - 118	
Soil (direct only)	Negligible	Reference Document on Best Available Techniques (EC, 2007)

3.2 Workers exposure estimation and reference to its source

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Production of sodium carbonate: long-term exposure concentrations to workers

Route of Exposure	Exposure concentrations (mg/m ³)	Explanation / source of measured data (Characteristics, Duration, Frequency, OC and RMM described above)
Modelled exposure data		
Dermal exposure	Not relevant	No assessment for dermal exposure because of no local skin effects and no systemic availability after dermal contact.
Inhalation exposure	0.01	ECETOC TRA V2. PROC 1
	0.5	ECETOC TRA V2. PROC 2
	1	ECETOC TRA V2. PROC 3
	5	ECETOC TRA V2. PROC 4
	5	ECETOC TRA V2. PROC 8a
	5	ECETOC TRA V2. PROC 8b
	5	ECETOC TRA V2. PROC 9
	1	ECETOC TRA V2. PROC 22
Measured exposure data		
Inhalation exposure	7.9	An extensive set (in total: 698 observations) of worker exposure data from 4 sites that manufacture sodium carbonate. Measurements are representative for a workday of 8 hours.

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

4.1 Environment.

Not applicable: this scenario does not concern DU.

4.2 Health.

Not applicable: this scenario does not concern DU.

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Substance: Sodium Carbonate ; EC : 207-838-8 ; CAS : 497-19-8

Exposure Scenario for communication:
ES 2: Glass production

0. General information

ES identifier	ES 2
Version	01
Revision date	28.10.2010
EC #	207-838-8
CAS #	497-19-8

1. List of use descriptors

Glass production

Market sector: SU 3 (Industrial uses)
Sector of uses SU: SU 8 (Industrial uses)

Environment: (Environmental Release Categories (ERC) Industrial use resulting in manufacture of another substance (use of intermediates) ERC 6a

Worker (Process category [PROC] - Phrase)

Use in closed process, no likelihood of exposure	PROC 1
Use in closed, continuous process with occasional controlled exposure	PROC 2
Use in closed batch process (synthesis or formulation)	PROC 3
Use in batch and other process (synthesis) where opportunity for exposure arises	PROC 4
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	PROC 8a
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	PROC 8b
Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting	PROC 22
Open processing and transfer operations with minerals/metals at elevated temperature	PROC 23
Handling of solid inorganic substances at ambient temperature	PROC 26

Processes, tasks, activities covered

Manufacturing, maintenance, loading, packaging, sampling and monitoring.

2. Conditions of use affecting exposure

2.0 Product characteristics

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Physical form of product	Solid
Volatility	Not relevant
Level of dustiness	Medium (PROCs 1, 2, 3, 4, 8a, 8b, 26) High (PROCs 22 and 23)
Concentration of substance in preparation/mixture or article For PROCs 1, 2, 3, 4, 8a, 8b and 26 the neat substance is taken into account, because the neat substance is transferred to the process. Percentage of 5-25% sodium carbonate in the mixture during the melting process is assumed.	
2.1. Control of environmental exposure:	
Use as an intermediate: Industrial use resulting in manufacture of another substance (use of intermediates).	
Amounts used	
Up to 200 000 tons/year.	
Frequency and duration of use	
Continuous	
Other given operational conditions affecting environmental exposure	
The impact of glass manufacturing on the environment has been described extensively in the Reference Document on Best Available Techniques in the Glass Manufacturing Industry (EC, 2001). The document was established in the context of the EU Directive on Integrated Pollution Prevention and Control (Directive 96/61/EC).	
Technical and organisational conditions and measures	
See section 8 of Safety Data Sheet In case of dust formation, use filter to reduce atmospheric emissions.	
Conditions and measures related to municipal sewage treatment plant	
Wastewater streams of the glass industry do not contain sodium carbonate as it is stored in covered silos and not linked to internal sewage systems. For this reason an emission assessment for the sewage treatment plant is not needed for the industrial end use of sodium carbonate in the glass industry.	
Conditions and measures related to external treatment of waste for disposal	
No specific measures identified.	
Additional good practice advice beyond the REACH CSR (Chemical Safety Report)	
See sections 6 and 13 of Safety Data Sheet	
2.2. Control of worker exposure	
Valid for PROCs 1, 2, 3, 4, 8a, 8b, 9, 22, 26.	
Amount used, frequency and duration of use/exposure	
Amounts used	Not relevant Not considered to influence the exposure as such for this scenario
Frequency and duration of use	Daily use 8h/day
Technical and organisational conditions and measures	
See section 8 of Safety Data Sheet	
Additional good practice advice beyond the REACH CSR (Chemical Safety Report)	

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See sections 7 and 8 of Safety Data Sheet		
3. Exposure estimation and reference to its source		
3.1 Environment exposure estimation and reference to its source		
The table below gives the summary of the environment exposure estimation made in the Chemical Safety Report, referring to Document on Best Available Techniques in the Glass Manufacturing Industry (EC, 2001).		
Compartment	Measured release (kg/d)	Explanation / source of measured data
Aquatic	Negligible	Reference Document on Best Available Techniques (EC, 2001)
Air (direct)	Negligible	Reference Document on Best Available Techniques (EC, 2001)
Soil (direct only)	Negligible	Reference Document on Best Available Techniques (EC, 2001)
3.2 Workers exposure estimation and reference to its source		
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.		
Glass production: long-term exposure concentrations to workers		
Route of Exposure	Exposure concentrations (mg/m ³)	Explanation / source of measured data (Characteristics, Duration, Frequency, OC and RMM described above)
Dermal exposure	Not relevant	No assessment for dermal exposure because of no local skin effects and no systemic availability after dermal contact.
Inhalation exposure	0.01	ECETOC TRA V2. PROC 1
	0.5	ECETOC TRA V2. PROC 2
	1	ECETOC TRA V2. PROC 3
	5	ECETOC TRA V2. PROC 4
	5	ECETOC TRA V2. PROC 8a
	5	ECETOC TRA V2. PROC 8b
	1	ECETOC TRA V2. PROC 22a
	1	ECETOC TRA V2. PROC 23a
PROC26 is not foreseen in ECETOC TRA but it involves activities which are described by PROC 8a and 8b. Therefore the calculation with PROC 8a and 8b covers PROC 26.		
4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES		
4.1 Environment.		
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.		
4.2 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.		

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Substance: Sodium Carbonate ; EC : 207-838-8 ; CAS : 497-19-8

Exposure Scenario for communication:
ES 3: Formulation

0. General information

ES identifier	ES 3
Version	01
Revision date	28.10.2010
EC #	207-838-8
CAS #	497-19-8

1. List of use descriptors

Formulation

Market sector: SU 3 (Industrial uses)

Sector of uses SU:10 (Formulation [mixing] of preparations and/or re-packaging (excluding alloys))

Environment: (Environmental Release Categories (ERC) Formulation of preparations)

ERC 2

Worker (Process category [PROC] - Phrase)

Use in closed process, no likelihood of exposure	PROC 1
Use in closed, continuous process with occasional controlled exposure	PROC 2
Use in closed batch process (synthesis or formulation)	PROC 3
Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)	PROC 5
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	PROC 8a
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	PROC 8b
Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC 9
Production of preparations or articles by tableting, compression, extrusion, pelletisation	PROC 14
Use as laboratory reagent	PROC 15

Processes, tasks, activities covered

Storage, materials transfers, mixing, maintenance, sampling and associated laboratory activities.

2. Conditions of use affecting exposure

2.0 Product characteristics

Physical form of product	Solid
Volatility	Not relevant

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Level of dustiness	Medium
Concentration of substance in preparation/mixture or article	
Not relevant: for exposure estimation the neat substance is taken into account, because the neat substance is added to the formulation process.	
2.1. Control of environmental exposure:	
Formulation of preparations – ERC 2 SPERC (AISE, 2010E) are also used (http://www.aise.eu/reach/exposureass_sub4.htm).	
Amounts used	
Up to 5 000 tonnes/year	
Frequency and duration of use	
Continuous	
Other given operational conditions affecting environmental exposure	
See sections 8 and 13 of Safety Data Sheet	
Technical and organisational conditions and measures	
In case of dust formation, use filter to reduce atmospheric emissions.	
Conditions and measures related to municipal sewage treatment plant	
Control the pH of the liquid effluent if the effluent is sent to STP.	
Conditions and measures related to external treatment of waste for disposal	
No specific measures identified.	
Additional good practice advice beyond the REACH CSR (Chemical Safety Report)	
See sections 6 and 13 of Safety Data Sheet	
2.2. Control of worker exposure	
Valid for PROCs 1, 2, 3, 5, 4, 8a, 8b, 9, 14, 15.	
Amount used (or contained in articles), frequency and duration of use/exposure	
Amounts used	Not relevant Not considered to influence the exposure as such for this scenario
Frequency and duration of use	Daily use 8h/day
Technical and organisational conditions and measures	
See section 8 of Safety Data Sheet	
Additional good practice advice beyond the REACH CSR (Chemical Safety Report)	
See sections 7 and 8 of Safety Data Sheet	
3. Exposure estimation and reference to its source	
3.1 Environment exposure estimation and reference to its source	
The table below gives the summary of the environment exposure estimation made in the Chemical Safety Report and in Specific Environmental Release Categories (SPERC) (AISE, 2010):	

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ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

Compartment	Measured release (kg/d)	Explanation / source of measured data
Aquatic	Negligible	
Air (direct)	2.7	Specific Environmental Release Categories (SPERC) (AISE, 2010)
Soil (direct only)	Negligible	Specific Environmental Release Categories (SPERC) (AISE, 2010)

3.2 Workers exposure estimation and reference to its source

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Formulation: long-term exposure concentrations to workers

Route of Exposure	Exposure concentrations (mg/m ³)	Explanation / source of measured data (Characteristics, Duration, Frequency, OC and RMM described above)
Dermal exposure	Not relevant	No assessment for dermal exposure because of no local skin effects and no systemic availability after dermal contact.
Inhalation exposure	0.01	ECETOC TRA V2. PROC 1
	0.5	ECETOC TRA V2. PROC 2
	1	ECETOC TRA V2. PROC 3
	5	ECETOC TRA V2. PROC 4
	5	ECETOC TRA V2. PROC 5
	5	ECETOC TRA V2. PROC 8a
	5	ECETOC TRA V2. PROC 8b
	5	ECETOC TRA V2. PROC 9
	1	ECETOC TRA V2. PROC 14
0.5	ECETOC TRA V2. PROC 15	

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

4.1 Environment.

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

4.2 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.

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ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

Substance: Sodium Carbonate ; EC : 207-838-8 ; CAS : 497-19-8	
Exposure Scenario for communication: ES 4: Other industrial and professional uses	
0. General information	
ES identifier	ES 4
Version	01
Revision date	28.10.2010
EC #	207-838-8
CAS #	497-19-8
1. List of use descriptors	
1.1 Industrial uses	
Market sector: SU 3 (Industrial uses) Sector of uses SU: No restriction (SUs 0-20, 23, 24)	
Environment: (Environmental Release Categories (ERC))	
Formulation of preparations	ERC 4
Industrial use resulting in inclusion into or onto a matrix	ERC 5
Industrial use resulting in manufacture of another substance (use of intermediates)	ERC 6a
Industrial use of reactive processing aids	ERC 6b
Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers	ERC 6d
Industrial use of substances in closed systems	ERC 7
Worker (Process category [PROC] - Phrase)	
Use in closed process, no likelihood of exposure	PROC 1
Use in closed, continuous process with occasional controlled exposure	PROC 2
Use in closed batch process (synthesis or formulation)	PROC 3
Use in batch and other process (synthesis) where opportunity for exposure arises	PROC 4
Spraying in industrial settings and applications	PROC 7
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	PROC 8a

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Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	PROC 8b
Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC 9
Roller application or brushing of adhesive and other coating.	PROC 10
Treatment of articles by dipping and pouring	PROC 13
Use as laboratory reagent	PROC 15
Lubrication at high energy conditions and in partly open process	PROC 17
Greasing at high energy conditions	PROC 18
Hand-mixing with intimate contact and only PPE available	PROC 19
Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting. The process temperature is higher than the melting point (High fugacity)	PROC 22
Open processing and transfer operations with minerals/metals at elevated temperature. The process temperature is higher than the melting point (High fugacity)	PROC 23
Handling of solid inorganic substances at ambient temperature	PROC 26
Processes, tasks, activities covered	
Manufacturing, maintenance, loading, packaging, sampling and monitoring.	
1.2 Professional uses	
Market sector: SU 22 (Professional uses) Sector of uses SU: SU 22 (Professional uses)	
Environment: (Environmental Release Categories (ERC))	
Wide dispersive indoor use of processing aids in open systems	ERC 8a
Wide dispersive indoor use of reactive substances in open systems	ERC 8b
Wide dispersive indoor use resulting in inclusion into or onto a matrix	ERC 8c
Wide dispersive outdoor use of processing aids in open systems	ERC 8d
Wide dispersive outdoor use of reactive substances in open systems	ERC 8e
Wide dispersive outdoor use resulting in inclusion into or onto a matrix	ERC 8f
Wide dispersive indoor use of substances in closed systems	ERC 9a

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Wide dispersive outdoor use of substances in closed systems	ERC 9b
Worker (Process category [PROC] -Phrase)	
Use in closed process, no likelihood of exposure	PROC 1
Use in closed, continuous process with occasional controlled exposure	PROC 2
Use in batch and other process (synthesis) where opportunity for exposure arises	PROC 4
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	PROC 8a
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	PROC 8b
Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC 9
Roller application or brushing of adhesive and other coating.	PROC 10
Non industrial spraying	PROC 11
Treatment of articles by dipping and pouring	PROC 13
Use as laboratory reagent	PROC 15
Hand-mixing with intimate contact and only PPE available	PROC 19
Processes, tasks, activities covered Manufacturing, maintenance, loading, packaging, sampling and monitoring.	
2. Conditions of use affecting exposure	
2.0 Product characteristics	
Physical form of product	Solid
Volatility	Not relevant
Level of dustiness	Medium (PROCs 1, 2, 3, 4, 8a, 8b, 9, 15, 19) High (PROCs 22 and 23)
2.1. Control of environmental exposure:	
Industrial uses: ERC4, ERC5, ERC 6a/6b/6d, ERC 7. Professional uses: ERC 8a/8b/8c/8d/8e/8f; ERC 9a/9b.	
Amounts used	
Industrial use up to 100 000 tons/year. Professional use much lower	
Frequency and duration of use	
Up to continuous.	

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ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

Other given operational conditions affecting environmental exposure																																														
See sections 8 and 13 of Safety Data Sheet																																														
Technical and organisational conditions and measures																																														
In case of dust formation, use filter to reduce atmospheric emissions.																																														
Conditions and measures related to municipal sewage treatment plant																																														
Control the pH of the liquid effluent if the effluent is sent to STP.																																														
Conditions and measures related to external treatment of waste for disposal																																														
No specific waste related measures are to be defined.																																														
Additional good practice advice beyond the REACH CSR (Chemical Safety Report)																																														
See sections 6 and 13 of Safety Data Sheet																																														
2.2. Control of worker exposure																																														
Valid for PROC 1-4, 7, 8a, 8b, 9, 10, 11, 13, 15, 17, 18, 19, 22, 23, 26.																																														
Amount used (or contained in articles), frequency and duration of use/exposure																																														
Amounts used	Not relevant Not considered to influence the exposure as such for this scenario																																													
Frequency and duration of use																																														
Operational conditions of use	<table border="1"> <thead> <tr> <th>Process category [PROC]</th> <th>Industrial (Data)</th> <th>Professional (Data)</th> </tr> </thead> <tbody> <tr> <td>PROC 1</td> <td></td> <td>Less than 15 min/day</td> </tr> <tr> <td>PROC 2</td> <td></td> <td>Less than 15 min/day</td> </tr> <tr> <td>PROC 3</td> <td>> 4 hours/day (Liquid mixture)</td> <td></td> </tr> <tr> <td>PROC 4</td> <td></td> <td>> 4 hours/day</td> </tr> <tr> <td>PROC 7</td> <td>> 4 hours/day (Liquid mixture)</td> <td></td> </tr> <tr> <td>PROC 8a</td> <td></td> <td>15 min/day to 1 hour/day</td> </tr> <tr> <td>PROC 8b</td> <td></td> <td>15 min/day to 1 hour/day</td> </tr> <tr> <td>PROC 9</td> <td>> 4 hours/day (Liquid mixture)</td> <td></td> </tr> <tr> <td>PROC 10</td> <td></td> <td>> 4 hours/day</td> </tr> <tr> <td>PROC 11</td> <td></td> <td>> 4 hours/day</td> </tr> <tr> <td>PROC 13</td> <td></td> <td>15 min/day to 1 hour/day</td> </tr> <tr> <td>PROC 15</td> <td></td> <td>15 min/day to 1 hour/day</td> </tr> <tr> <td>PROC 17</td> <td>> 4 hours/day Liquid mixture)</td> <td></td> </tr> <tr> <td>PROC 18</td> <td>> 4 hours/day (Liquid mixture)</td> <td></td> </tr> </tbody> </table>	Process category [PROC]	Industrial (Data)	Professional (Data)	PROC 1		Less than 15 min/day	PROC 2		Less than 15 min/day	PROC 3	> 4 hours/day (Liquid mixture)		PROC 4		> 4 hours/day	PROC 7	> 4 hours/day (Liquid mixture)		PROC 8a		15 min/day to 1 hour/day	PROC 8b		15 min/day to 1 hour/day	PROC 9	> 4 hours/day (Liquid mixture)		PROC 10		> 4 hours/day	PROC 11		> 4 hours/day	PROC 13		15 min/day to 1 hour/day	PROC 15		15 min/day to 1 hour/day	PROC 17	> 4 hours/day Liquid mixture)		PROC 18	> 4 hours/day (Liquid mixture)	
Process category [PROC]	Industrial (Data)	Professional (Data)																																												
PROC 1		Less than 15 min/day																																												
PROC 2		Less than 15 min/day																																												
PROC 3	> 4 hours/day (Liquid mixture)																																													
PROC 4		> 4 hours/day																																												
PROC 7	> 4 hours/day (Liquid mixture)																																													
PROC 8a		15 min/day to 1 hour/day																																												
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PROC 13		15 min/day to 1 hour/day																																												
PROC 15		15 min/day to 1 hour/day																																												
PROC 17	> 4 hours/day Liquid mixture)																																													
PROC 18	> 4 hours/day (Liquid mixture)																																													
Exposure duration per day in workplace [1 Worker]																																														

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	PROC 19		15 min/day to 1 hour/day
PROC26 is not foreseen in ECETOC TRA but it involves activities which are described by PROC 8a and 8b. Therefore the calculation with PROC 8a and 8b covers PROC 26			
Technical and organisational conditions and measures			
See section 8 of Safety Data Sheet			
Additional good practice advice beyond the REACH CSR (Chemical Safety Report)			
See sections 7 and 8 of Safety Data Sheet			

3. Exposure estimation and reference to its source

3.1 Environment exposure estimation and reference to its source

The table below gives the summary of the environment exposure estimation made in the Chemical Safety Report and in Specific Environmental Release Categories :

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ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

Compartment	Measured release (kg/d)
Aquatic	Negligible
Air (direct)	Small releases might be possible
Soil (direct only)	Negligible in all cases except agricultural use Max application use rates of soda ash as co-formulant in plant protection products: Professional agricultural: 0.0126 kg/ ha (tier 1 default use rate: 1 kg/ ha)

3.2 Workers exposure estimation and reference to its source

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Route of Exposure	Explanation / source of measured data (Characteristics, Duration and Frequency of use: , OC and RMM described above)	Industrial: Exposure concentrations (mg/m ³)	Professional: Exposure concentrations (mg/m ³)
Dermal exposure	No local effects and no systemic availability after dermal contact	Not relevant	Not relevant
Inhalation exposure	PROC 1	0.01	0.0044 (Liquid) 0.001 (Solid)
	PROC 2	0.5 (solid)	0.044 (Liquid) 0.1 (Solid)
	PROC 3	1 (solid)	0.044 (Liquid)
	PROC 4	5	0.044 (L Liquid) 5 (Solid)
	PROC 7	0.022	
	PROC 8a	5	0.088 (Liquid) 1 (Solid)
	PROC 8b	5 (solid)	0.088 (Liquid)
	PROC 9	5 (solid)	0.044 (Liquid)
	PROC 10		0.44 (Liquid mixture only)
	PROC 11		0.44 (Liquid mixture only)
	PROC 13		0.088 (Liquid mixture only)
	PROC 15	5 (solid)	0.088 (Liquid mixture only)
	PROC 17	0.022 (Liquid mixture only)	
	PROC 18	0.022 (Liquid mixture)	
	PROC 19	5	0.088 (Liquid) 1 (Solid)
	PROC 22	1	
PROC 23	1		
	Professional agricultural with solid mixture, outdoor, no PPE (ECPA OWB Tier 1: default use rate)		0.142 (Solid)

PROC26 is not foreseen in ECETOC TRA but it involves activities which are described by PROC 8a and 8b. Therefore the calculation with PROC 8a and 8b covers PROC 26.

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

4.1 Environment.

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

4.2 Health.

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Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

Substance: Sodium Carbonate EC 207-838-8 CAS 497-19-8

Exposure Scenario for communication:
ES 5: Consumer use

0. General information

ES identifier	ES 5
Version	01
Revision date	28.10.2010
EC #	207-838-8
CAS #	497-19-8

1. List of use descriptors

Consumer use

Market sector: SU 21 Consumer uses: Private households (= general public = consumers)
Sector of uses SU: SU 21 Consumer uses: Private households (= general public = consumers)

Environment:
(Environmental Release Categories (ERC): ERC 8 a/b/c/d/e/f; ERC 9 a/b.)

Product Category (PC): No restriction (from PC 0 to PC 40)

Process category [PROC]: Not applicable

Processes, tasks, activities covered
Cleaning activities

2. Conditions of use affecting exposure

2.0 Product characteristics

Physical form of product	Solid or dissolved in water
Volatility	Not relevant
Level of dustiness	Medium for Powdered Detergents, Low for Household soda

Concentration of substance in preparation / mixture or article

Laundry detergents and surface cleaners: 30%
Machine dish washing tablets: 45%
Household soda (pure sodium carbonate decahydrate) : 37% content of sodium carbonate
Surface cleaning sprays: 10%
Air care products: 5% (PC 3)
Furniture, floor and leather care: 10% (PC 31)

2.1. Control of environmental exposure:

Consumer use – ERC 8 a/b/c/d/e/f; ERC 9 a/b.

Amounts used

Not relevant – Exposure negligible

Frequency and duration of use

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Not relevant – Exposure negligible		
Other given operational conditions affecting environmental exposure		
See sections 8 and 13 of Safety Data Sheet		
Technical and organisational conditions and measures		
See section 8 of Safety Data Sheet		
Conditions and measures related to municipal sewage treatment plant		
See section 13 of Safety Data Sheet		
Conditions and measures related to external treatment of waste for disposal		
See section 13 of Safety Data Sheet		
Additional good practice advice beyond the REACH CSR (Chemical Safety Report)		
See sections 6 and 13 of Safety Data Sheet		
2.2. Control of worker exposure		
Amount used (or contained in articles), frequency and duration of use/exposure		
Amounts used	Household soda: 37 g/l (Worst case assumption)	
Frequency and duration of use	Household soda: one time per week (Frequency) and 5 min (Duration) (Worst case assumption)	
Technical and organisational conditions and measures		
<i>Keep out of reach of children and avoid contact with eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.</i>		
Additional good practice advice beyond the REACH CSR (Chemical Safety Report)		
See sections 7 and 8 of Safety Data Sheet		
3. Exposure estimation and reference to its source		
3.1 Environment exposure estimation and reference to its source		
The table below gives the summary of the environment exposure estimation made in the Chemical Safety Report, referring to HERA (2005a) and to Specific Environmental Release Categories (SPERC) (AISE, 2010).		
Compartment	Measured release (kg/d)	Explanation / source of measured data
Aquatic	Negligible	HERA (2005a); see section 9.5.2.3.2
Air (direct)	Negligible	Specific Environmental Release Categories (SPERC) (AISE, 2010)
Soil (direct only)	Negligible	Specific Environmental Release Categories (SPERC) (AISE, 2010)
3.2 Consumers exposure estimation and reference to its source		
Exposures have been calculated with the software tool REACT (Reach Exposure Assessment Consumer Tool) Consumer - dermal, long-term:		
Product category	Ingredient Weight fraction	Estimated uptake value (mg/kg bw/day)

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Laundry regular (AISE C1, PC35), Powder	0.3	1.56E-02
Laundry regular (AISE C1, PC35), Liquid	0.3	2.29E-02
Laundry compact (AISE C2, PC35), Powder	0.3	1.60E-02
Laundry compact (AISE C2, PC35), Liquid/Gel	0.3	2.29E-02
Laundry additives (AISE C4, PC35), Liquid Bleach	0.3	2.21E-02
Hand Dishwashing (AISE C5, PC35)	0.3	3.12E-04
Surface cleaning (AISE C7, PC35), Gel	0.3	4.29E-02

The negligible inhalation has been confirmed for the laundry washing scenario reported by HERA (2005a).

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

4.1 Environment.

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

4.2 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.