PALATINE PAINTS

Product	:	**SODIUM CARBONATE**
REACH Registration Number	:	**01-2119485498-19-0018**
Issue Number	:	**02 Revision 01**
Issue Date	:	**01-04-2011**
Supercedes	:	**Issue No. 02, dated 10-01-2011**
Page Number	:	**Page 1 of 27**

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

1.1 Product Identifier

Product Name	:	SODIUM CARBONATE
Chemical Name	:	Sodium carbonate
Alternative Name	:	Disodium carbonate, soda ash
Chemical Formula	:	Na_2CO_3
CAS Number	:	497-19-8
EC Number	:	207-838-8
Index Number	:	011-005-00-2

1.2 Relevant identified uses

: glass production; intermediate in chemicals production; water treatment chemicals; washing and cleaning products; other industrial, professional and consumer uses. Exposure scenarios covering uses can be found in the Annex

1.2.1 Uses advised against

: none identified

1.3 Company Details

Company Name	:	Palatine Paints & Chemicals Limited
Address	:	55 Smallbrook Lane,
	:	Leigh,
	:	Lancashire,
	:	WN7 5PZ
	:	UK
Telephone	:	+44 (0)1942 884122
	:	+44 (0)1606 781353
	:	www.palatinepaints.co.uk
	:	sales@palatinepaints.co.uk

1.4 Emergency Telephone Number

Emergency Number (Not 24 hours)	:	+44 (0)1942 884122 - 08.00 - 17.00 Mon to Fri
National Emergency Number	:	0344 892 0111

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance

2.1.1 Classification according to Regulation (EC) 1272/2008 [CLP/GHS]

Classification: Eye Irritant 2

2.1.2 Classification according to Directive 67/548/EEC

Classification: Irritating to eyes

2.2 Labelling

2.2.1 Labelling according to Regulation (EC) 1272/2008 [CLP/GHS]

Hazard Pictograms:

Signal Word : Warning

Hazard Statements

H319 : Causes serious eye irritation

Precautionary Statements:

P264	:	Wash hands and face thoroughly after handling
P280	:	Wear protective gloves/protective clothing/eye protection/face protection
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

2.2.2 Labelling according to Directive 67/548/EEC

Symbol : Xi - irritant

Risk Phrases:

R36 : Irritating to eyes

Safety Phrases:

S2 : Keep out of the reach of children
S22 : Do not breathe dust
S24 : Avoid contact with skin

2.3 Other hazards

- The substance does not meet the criteria for PBT or vPvB according to Annex XIII of the REACH Regulation EC 1907/2006 (an inorganic substance)
- No other hazards identified

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Main constituent	Formula	Purity %w/w (typical)	CAS Number	EC Number
Sodium carbonate	Na_2CO_3	>99.0	497-19-8	207-838-8

IMPURITIES

No impurities relevant for classification and labelling

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

- No known delayed effects

Following inhalation

- Remove to fresh air, keep warm and at rest
- If symptoms persist, seek medical attention

Following skin contact

- Remove contaminated clothing and wash before re-use
- Wash off with soap and water
- If symptoms persist, seek medical attention

Following eye contact

- Remove contact lenses if present
- Irrigate eye thoroughly with eye wash solution or clean water for at least 15 minutes

- Eyelids should be held away from the eyeball to ensure thorough rinsing
- If eye irritation persists seek medical attention

After ingestion

- DO NOT induce vomiting
- Wash out mouth with water and give plenty of water to drink (at least 300 ml.)
- Obtain medical advice if necessary.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

5.1.1 Suitable extinguishing media

- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment

5.1.2 Unsuitable extinguishing media

- None

5.2 Special hazards arising from the substance or mixture

- None

5.3 Advice for firefighters

- No special precautions required

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions

6.1.1 For non-emergency personnel

- Keep dust levels to a minimum
- Wear suitable protective equipment (see Section 8)

6.2 Environmental Precautions

- Prevent uncontrolled discharges into the environment (rivers, water courses, sewers etc.)
- Avoid any mixture with an acid into sewer/drains (CO_2 gas formation)

6.3 Methods for containment and clean up

- In all cases avoid dust formation
- Use vacuum suction, or shovel into bags
- Collect as much as possible in a suitable clean container, preferably for re-use, otherwise for disposal (See Section 13)

6.4 Reference to other sections

- For more information on exposure controls/personal protection or disposal considerations, please see section 8 and 13

7. HANDLING AND STORAGE

7.1 Precautions for Safe Handling

7.1.1 Protective measures

- Keep dust levels to a minimum
- Ensure adequate ventilation
- Wear protective equipment (see Section 8.2)
- Keep away incompatible materials

7.1.2 Advice on general occupational hygiene

- Good personal and housekeeping practices to be used
- No drinking, eating or smoking at the workplace

7.2 Conditions for safe storage, including any incompatibilities

- Store in a dry place

- Store in original, closed and correctly labelled container
- Store away from incompatible materials

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

8.1.1 Occupational Exposure Standards

- Not listed by H&SE (Guidance Note EH40) or ACGIH
- Recommended Limits: WEL 10mg/m^3 (total dust) (8hr TWA)
  4mg/m^3 (respirable dust) (8hr TWA)

8.1.2 DNEL's/PNEC

Exposure route of relevance	DNELs (local effects)			
	Workers		General population	
	Long term	Acute	Long term	Acute
Inhalation	10 mg/m^3			

PNEC :

The lowest L(E)C_{50} value is > 100 mg/l (48-h EC_{50} 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

Environmental Classification is not warranted

8.2 Exposure Controls

8.2.1 Appropriate engineering controls

- provide appropriate exhaust ventilation at places where dust is formed
- apply technical measures to comply with the occupational exposure limits

8.2.2 Personal protection

8.2.2.1 Eye/face protection

- wear eye/face protection rated to protect eyes against dust (EN166) eg.safety eye shields with dust protection, goggles or face visor

8.2.2.2 Hand protection

- wear suitable chemical resistant protective gloves, that comply with the specification of EC Directive 89/686/EEC and the related standard EN374. Suitable materials, Neoprene or natural rubber

8.2.2.3 Skin/body protection

- dust impervious protective suit
- rubber or plastic safety boots

8.2.2.4 Respiratory protection

- in the case of high dust levels wear suitable respiratory protective equipment eg.dust mask or respirator, that
  conform to national/international standard, EN143. Recommended filter tpe P2

8.3 Environmental Exposure Controls

- contain any spillage
- avoid discharges to the environment
- dispose of any rinse water in accordance with local and national regulations

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Appearance	: white powder	
Odour	: odourless	
Odour threshold	: no information available	
pH	: >11	(saturated solution, study result, OECD Guideline105)
Melting/freezing point	: 851°c	(published data)
Boiling point	: not applicable	(melting point >300°c)
Flash point	: not applicable	(inorganic substance)
Evaporation rate	: not applicable	(melting point >300°c)
Flammability	: non-flammable	(study result, EU Method A.10))
Upper flammability limit	: non-flammable	
Lower flammability limit	: non-flammable	
Vapour pressure	: not applicable	(inorganic substance, vapour pressure negligible)
Vapour Density	: not applicable	
Relative density	: 2.52 @ 20°c	(study result, EU Method A.3)
Water solubility	: 212.5 g/l @20°c	(study result, OECD Guideline 105)
Partition coefficient	: not applicable	(inorganic substance)
Auto-ignition temperature	: non-flammable	
Decomposition temperature	: not information available	
Viscosity	: not applicable	(solid)
Explosive properties	: non-explosive	(void of chemical groups associated with explosive properties)
Oxidising properties	: non-oxidising	(based on the chemical structure of the substance and the oxidation state of the constituent element)

10. STABILITY AND REACTIVITY

10.1 Reactivity

- Decomposes by reaction with strong acids to evolve carbon dioxide

10.2 Chemical Stability

- Stable under recommended storage conditions (see Section 7)

10.3 Possibility of hazardous reactions

- None

10.4 Conditions to Avoid

- Contact with acids unless under controlled conditions
- Exposure to moisture

10.5 Incompatible materials

- Finely divided aluminium

10.6 Hazardous decomposition products

- None

11. TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Toxicity endpoints	Details of the effects assessment
Acute toxicity	Oral : LD_{50} , rat 2800 mg/kg bw Dermal : LD_{50} , rabbit >2000 mg/kg bw Method: EPA 16 CFR 1500.40 Inhalation : LC_{50} , rat 2300 mg/m^3 air Method: based on OECD Guideline 403 Values exceed the cut off limit of 2000mg/kg established by EU Directive 67/548/EEC and EU Classification, Labelling and Packaging of Substances and Mixtures (CLP) Regulation (EC) No. 1272/2008 **Classification for acute toxicity: is not warranted**
Irritation/ corrosion	Eye irritation : irritating Method: OECD Guideline 405 Skin irritation : not irritating Method: OECD Guideline 404 Respiratory irritation : not irritating Based on available data **Classification for Eye irritancy : Xi, R36 (irritating to eyes) according to Directive 67/548/EEC** **: Category 2, H319 (causes serious eye irritation) according to CLP Regulation (EC) 1272/2008** **Classification for Skin irritancy : is not warranted** **Classification for Respiratory irritancy : is not warranted**
Sensitisation	No data available on the sensitisation of sodium carbonate. Sodium carbonate is considered not to have any sensitising properties, based on the physiological role of both its constituent ions and its long-term historical and wide dispersive use in industrial processes and consumer products. **Classification for sensitisation: is not warranted**
Repeated dose toxicity	Oral : 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. Furthermore, sodium carbonate is used as a food additive, which confirms that the substance has a low Repeated dose toxicity. Dermal : 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
	Inhalation : Sodium carbonate dissociates into ions that are present physiologically in relatively high levels in vertebrates. Therefore, repeated dose toxicity studies are considered (scientifically) not necessary, In accordance with column 2 of REACH Annex VIII and IX. **Classification for repeated dose toxicity: is not warranted**
Mutagenicity	In vitro – The available*in vitro*tests (SOS chromotest with sodium carbonate and Ames test with sodium bicarbonate) were negative. Furthermore sodium bicarbonate is naturally present in cells and both the structure of sodium bicarbonate and sodium carbonate do not indicate a genotoxic potential. Therefore, there is no reason to evaluate the potential genotoxicity of sodium carbonate further and no genotoxic effects are expected. **Classification for mutagenicity is not warranted**

Toxicity endpoints	Details of the effects assessment
Carcinogenicty	No data available for carcinogenicity of sodium carbonate. Although the substance has a wide and varied use, there are no indications that it can induce hyperplasia, pre-neoplastic lesions or is mutagenic. Therefore, a carcinogenicity study is considered unnecessary **Classification for carcinogenicity is not warranted**
Reproductive toxicity	Fertlity : No data available Developmental toxicity : In accordance with Section 1 of REACH Annex XI, testing does not appear scientifically necessary, as the substance will usually not reach the foetus or the male and female reproductive organs when exposed orally, dermally or by inhalation, as it does not become available systemically. As such, it is considered not useful to perform a reproduction study **Classification for reproductive toxicity according to Regulation (EC) 1272/2008 is not required**

12. ECOLOGICAL INFORMATION

12.1 Toxicity

12.1.1 Acute/short term toxicity to fish

- LC_{50} (96h) for freshwater fish : 300 mg/l

12.1.2 Chronic/long term toxicity to fish

- Study scientifically unjustified, sodium carbonate dissociates readily into sodium and carbonate ions in an aquatic environment. Both ions originally exist in nature, and their concentrations in surface water are dependent on various factors, such as geological parameters, weathering and human activities. Therefore, there is a continuous source of both ions into the environment and have been measured extensively in aquatic ecosystems

12.1.3 Acute/short term toxicity to aquatic invertebrates

- EC_{50} (48h) for freshwater invertebrates : 200-227 mg/l

12.1.4 Chronic/long term toxicity to aquatic invertebrates

- Study scientifically unjustified, sodium carbonate dissociates readily into sodium and carbonate ions in an aquatic environment. Both ions originally exist in nature, and their concentrations in surface water are dependent on various factors, such as geological parameters, weathering and human activities. Therefore, there is a continuous source of both ions into the environment and have been measured extensively in aquatic ecosystems

12.1.5 Acute toxicity to algae and aquatic plants

- Study scientifically unjustified, sodium carbonate dissociates readily into sodium and carbonate ions in an aquatic environment. Both ions originally exist in nature, and their concentrations in surface water are dependent on various factors, such as geological parameters, weathering and human activities. Therefore, there is a continuous source of both ions into the environment and have been measured extensively in aquatic ecosystems

12.1.6 Toxicity to soil macro-organisms

- In accordance with REACH Annex XI a study is not required as in water sodium carbonate is dissociated into sodium and carbonate ions, both of which will not adsorb on particulate matter. Furthermore, exposure of the soil compartment is unlikely

12.1.7 Toxicity to terrestrial plants

- In accordance with REACH Annex XI a study is not required as in water sodium carbonate is dissociated into sodium and carbonate ions, both of which will not adsorb on particulate matter. Furthermore, exposure of the soil compartment is unlikely

12.2 Persistence and degradeability

- In water : Not applicable (quickly dissociates)
- In soil : Not applicable (inorganic substance)
- In sediment : Not applicable (inorganic substance)

12.3 Bioaccumulative Potential

- Not bioaccumulative (inorganic substance that in water dissociates into sodium and carbonate ions, which do not accumulate in living tissues)

12.4 Mobility in Soil

- If sodium carbonate is emitted to soil it can escape to atmosphere as carbon dioxide, precipitate as a metal carbonate, form complexes or stay in solution

12.5 Results of PBT and vPvB Assessment

- According to Annex XIII of REACH Regulation inorganic substances do not require assessment

12.6 Other Adverse Effects

- No other adverse effects are identified

13. DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

- If recycling or re-use is not practicable, dispose of in compliance with local or national regulations
- Neutralise with acid under controlled conditions
- Dilute with plenty of water

Packaging:

- Where possible, recycling is preferred to disposal or incineration
- Clean container with water, dispose of rinse water in accordance with local or national regulations
- Must be incinerated in a registered incineration plant with permit from the local authorities

14.TRANSPORT INFORMATION

Sodium carbonate is not classified as hazardous for transport

14.1 UN Number

- Not regulated

14.2 UN proper shipping name

- Not regulated

14.3 Transport hazard class

- Land Transport	: ADR/RID	Not restricted
- Inland Waterway Transport	: ADN	Not regulated
- Sea Transport	: IMO/IMDG	Not regulated
- Air Transport	: ICAO-TI/IATA-DGR	Not regulated

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations

- Water hazard class : WGK 1, VwVwS (Germany)
- TSCA Inventory : Listed

15.2 Chemical safety assessment

- A Chemical Safety Assessment/Report (CSA/CSR) has been undertaken on sodium carbonate

16. OTHER INFORMATION

16.1 Indication of changes

Section 1 – change of company name, logo and contact details

16.2 Abbreviations and acronyms

WEL	:	Workplace exposure limit
ACGIH	:	American Conference of Industrial Hygiene
TWA	:	Time Weighted Average
DNEL	:	Derived no effect level
NOEC	:	No Observed Effect Concentration
PBT	:	Persistent, Bioaccumulative, Toxic
vPvB	:	very Persistent, very Bioaccumulative
PNEC	:	Predicted No Effect Concentration
ADR	:	European Agreement Concerning the International Carriage of Dangerous Goods by Road
RID	:	International Rule for Transport of Dangerous Substances by Rail
ADN	:	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterway
IMO/IMDG	:	International Maritime Organization/International Maritime Dangerous Goods Code
ICAO/IATA	:	International Civil Aviation Organization/International Air Transport Association
OECD	:	Organisation of Economic Co-operation and Development
SIDS	:	Screening Information Data Set

16.3 Key literature references and sources of data

Data is taken from the Chemical safety report (CSR) and/or OECD SIDS report for sodium carbonate

16.4 Further Information

16.4.1 The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products or in the case of processing, the information on this safety data sheet is not necessarily valid.

To our best present knowledge the information given is correct and complete as of the date of this document and is given in good faith but without warranty, either expressed or implied, nor do we accept any liability in relation to this information or its use. This version of the SDS supercedes all previous versions.

16.4.2 Any tradenames referenced in this document are registered trademarks of Tata Chemicals Europe Limited

ANNEX TO EXTENDED SAFETY DATA SHEET (eSDS):

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

0. General information

ES identifier	ES 1
Version no	01
Revision date	28.10.2010
EC #	207-838-8
CAS #	497-19-8

1. Use descriptors

Manufacturing of sodium carbonate

Market sector: SU 3 (Industrial uses)
Sector of use: SU 8 (Manufacture of bulk, large scale chemicals)

Environment: (Environmental Release Category) Manufacture of substances	ERC 1
Worker (Process Category -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	PROC 22

Processes, tasks, activities covered

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

2. Conditions of use affecting exposure

2.0 Default Product Characteristics

Physical form of product/article	Solid
Volatility	Not relevant
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 (tonnes/year): up to 1 500 000.
Frequency and duration of use
Continuous
Other given operational conditions affecting environmental exposure
Not applicable.
Technical and organizational 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
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 workers exposure

Valid for PROCs 1, 2, 3, 4, 8a, 8b, 9, 22.

Amounts used, frequency and duration of use	
Amounts used	Not Relevant Parameter does not influence exposure estimations for this ES
Frequency and duration of use	Daily 8h/day
Technical and organizational conditions and measures	
See section 8 of Safety Data Sheet. Ensure workers are trained to minimize 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

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.

Compartments	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

Routes of exposure	**Exposure concentrations (mg/m^3)**	**Explanation / source of measured data** (Characteristics, Duration, Frequency, OC and RMM described above)
Modeled 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.

PALATINE PAINTS

Product	**: SODIUM CARBONATE**
REACH Registration Number	**: 01-2119485498-19-0018**
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Supercedes	**: Issue No. 02, dated 10-01-2011**
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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 no	01
Revision date	28.10.2010
EC #	207-838-8
CAS #	497-19-8

1. Use descriptors

Glass Production

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

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

Worker (Process Category -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	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 Default Product Characteristics

Physical form of product/article	Solid
Volatility	Not relevant

Dustiness	Medium (PROCs 1, 2, 3, 4, 8a, 8b, 26) High (PROCs 22 and 23)

Mixture Article Concentration

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 intermediate: industrial use resulting in manufacture of another substance.

Amounts used

Up to 200 000 tonnes/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 organizational 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

No specific waste related measures are to be defined.

Additional good practice advice beyond the REACH CSA

See sections 6 and 13 of Safety Data Sheet

2.2. Control of workers exposure

Valid for PROCs 1, 2, 3, 4, 8a, 8b, 9, 22, 26.

Amounts used, frequency and duration of use

Amounts used	Not Relevant Parameter does not influence exposure estimations for this ES
Frequency and duration of use	Daily 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, referring to Document on Best Available Techniques in the Glass Manufacturing Industry (EC, 2001).

Compartments	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

Routes of exposure	Estimated 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 DNEL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

4.2 Health.

Predicted exposures are not expected to exceed the DNEL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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 no	01
Revision date	28.10.2010
EC #	207-838-8
CAS #	497-19-8

1. Use descriptors

Formulation

Market sector: SU 3 (Industrial uses)
Sector of use: SU 10 (Formulation [mixing] of preparations and/or re-packaging (excluding alloys))

Environment: (Environmental Release Category) Formulation of preparations	ERC 2
Worker (Process Category -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 tabletting, 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 Default Product Characteristics

Physical form of product/article	Solid
Volatility	Not relevant
Dustiness	Medium

Mixture Article Concentration
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 organizational 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	
No specific waste related measures are to be defined.	
Additional good practice advice beyond the REACH CSA	
See sections 6 and 13 of Safety Data Sheet	
2.2. Control of workers exposure	
Valid for PROCs 1, 2, 3, 5, 4, 8a, 8b, 9, 14, 15.	
Amounts used, frequency and duration of use	
Amounts used	Not Relevant Parameter does not influence exposure estimations for this ES
Frequency and duration of use	Daily 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):

Compartments	Measured release (kg/d)	Explanation / source of 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 worker

Routes of exposure	**Estimated 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 DNEL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

4.2 Health.

Predicted exposures are not expected to exceed the DNEL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

PALATINE PAINTS

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 no	01
Revision date	28.10.2010
EC #	207-838-8
CAS #	497-19-8

1. Use descriptors

1.1 Industrial end uses

Market sector: SU 3 (Industrial uses)
Sector of use: No restriction (SUs 0-20, 23, 24)

Environment: (Environmental Release Category)

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 sub-stances in closed systems	ERC 7

Worker (Process Category -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
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. 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, mixing, maintenance, loading, packaging, sampling and monitoring.

1.2 Professional end uses

Market sector: SU 22 (Professional uses)
Sector of use: SU 22 (Professional uses)

Environment: (Environmental Release Category)

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
Wide dispersive outdoor use of substances in closed systems	ERC 9b

Worker (Process Category -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, mixing, maintenance, loading, packaging, sampling and monitoring.

2. Conditions of use affecting exposure

2.0 Default Product Characteristics

Physical form of product/article	Solid
Volatility	Not relevant
Dustiness	Medium (PROCs 1, 2, 3, 4, 8a, 8b, 9, 15, 19) High (PROCs 22 and 23)

2.1. Control of environmental exposure:

Industrial end uses: ERC4, ERC5, ERC 6a/6b/6d, ERC 7.
Professional end uses: ERC 8a/8b/8c/8d/8e/8f; ERC 9a/9b.

Amounts used

Industrial use up to 100 000 tonnes/year.
Professional use much lower

Frequency and duration of use

Up to continuous.

Other given operational conditions affecting environmental exposure

See sections 8 and 13 of Safety Data Sheet

Technical and organizational 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

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 workers exposure

Valid for PROC 1-4, 7, 8a, 8b, 9, 10, 11, 13, 15, 17, 18, 19, 22, 23, 26.

Amounts used, frequency and duration of use

Amounts used	Not Relevant Parameter does not influence exposure estimations for this ES

Frequency and duration of use (Exposure Frequency Duration)

Operational conditions related to the duration of use	Process Category	Industrial (Data Field)	Professional (Data Field)
Duration of exposure per day at workplace [for one worker]	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)	
	PROC 19		15 min/day to 1 hour/day

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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:

Compartments	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.

Routes of exposure	Explanation / source of measured data (Characteristics, Duration Frequency, OC and RMM described above)	Industrial estimated exposure concentrations (mg/m^3)	Professional estimated 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 (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)

PROC 26 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 DNEL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
4.2 Health.
Predicted exposures are not expected to exceed the DNEL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

PALATINE PAINTS

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 no	01
Revision date	28.10.2010
EC #	207-838-8
CAS #	497-19-8

1. Use descriptor

Consumer use

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

Environment:
Environmental Release Category: 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: Not applicable

Processes, tasks, activities covered
Cleaning activities

2. Conditions of use affecting exposure

2.0 Default Product Characteristics

Physical form of product/article	Solid or dissolved in water
Volatility	Not relevant
Dustiness	Medium for powdered detergents, low for household soda

Mixture Article Concentration
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 as the exposure is estimated to be negligible

Frequency and duration of use

Not relevant as the exposure is estimated to be negligible

Other given operational conditions affecting environmental exposure

See sections 8 and 13 of Safety Data Sheet
Technical and organizational 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
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 consumers exposure

Amounts used, frequency and duration of use	
Amounts used	Household soda: 37 g/l (worst case)
Frequency and duration of use	Household soda: one time per week (frequency) and 5 min (duration) (worst case)

Technical and organisational conditions and measures
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.
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).

Compartments	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)

Long-term dermal exposure to consumers:

Product category	Ingredient fraction by weight	Estimated uptake value (mg/kg bw per day)
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 cleaners (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 DNEL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

4.2 Health.

Predicted exposures are not expected to exceed the DNEL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.