

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

Product Identifier:

Product Name: SODIUM CARBONATE
Chemical Name: Sodium carbonate
Alternative Name: Disodium carbonate, soda ash
Chemical Formula: Na₂CO₃
CAS Number: 497-19-8
EC Number: 207-838-8
Index Number: 011-005-00-2

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.

Uses advised against: None identified.

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2. HAZARDS IDENTIFICATION

Classification of the substance:

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

Classification: Eye Irritant

Classification according to Directive 67/548/EEC:

Classification: Irritating to eyes.

Labelling:

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

Hazard Pictograms:



Signal Word: Warning.

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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.

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.

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

Substance:

Main constituent	Formula	Purity %w/w (typical)	CAS Number	EC Number
Sodium carbonate	Na ₂ CO ₃	>99.0	497-19-8	207-838-8

IMPURITIES: No impurities relevant for classification and labelling.

4. FIRST AID MEASURES

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.

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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

Extinguishing Media:

Suitable extinguishing media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media: None.

Special hazards arising from the substance or mixture: None.

Advice for firefighters: No special precautions required.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:

For non-emergency personnel: Keep dust levels to a minimum.
Wear suitable protective equipment (see Section 8).

Environmental Precautions: Prevent uncontrolled discharges into the environment (rivers, water courses, sewers etc.).
Avoid any mixture with an acid into sewer/drains (CO₂ gas formation).

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).

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

Precautions for Safe Handling:

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

Advice on general occupational hygiene: Good personal and housekeeping practices to be used.
No drinking, eating or smoking at the workplace.

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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

Control Parameters:

Occupational Exposure Standards: Not listed by H&SE (Guidance Note EH40) or ACGIH.

Recommended Limits: WEL 10mg/m³ (total dust) (8hr TWA)

4mg/m³ (respirable dust) (8hr TWA)

DNEL's/PNEC:

Exposure route of relevance

DNELs (local effects)

Workers

General population

Long term

Acute

Long term

Acute

Inhalation

10 mg/m³

PNEC:

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 Environmental Classification is not warranted.

Exposure Controls:

Appropriate engineering controls: Provide appropriate exhaust ventilation at places where dust is formed.

Apply technical measures to comply with the occupational exposure limits.

Personal protection:

Eye/face protection:

Wear eye/face protection rated to protect eyes against dust (EN166) e.g., safety eye shields with dust protection, goggles or face visor.

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.

Skin/body protection:

Dust impervious protective suit rubber or plastic safety boots.

Respiratory protection:

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

Environmental Exposure Controls: Contain any spillage.

Avoid discharges to the environment.

Dispose of any rinse water in accordance with local and national regulations.

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9. PHYSICAL AND CHEMICAL PROPERTIES

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

Reactivity:	Decomposes by reaction with strong acids to evolve carbon dioxide.
Chemical Stability:	Stable under recommended storage conditions (see Section 7).
Possibility of hazardous reactions:	None.
Conditions to Avoid:	Contact with acids unless under controlled conditions. Exposure to moisture.
Incompatible materials:	Finely divided aluminium.
Hazardous decomposition products:	None.

11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects:

Toxicity endpoints:	Details of the effects assessment:			
Acute toxicity	Oral:	LD50	Rat	2800 mg/kg bw
	Dermal:	LD50	Rabbit	>2000 mg/kg bw Method: EPA 16 CFR 1500.40
	Inhalation:	LC50	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

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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 chromo test 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.

Carcinogenicity: 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.

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Reproductive toxicity: Fertility: 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

Toxicity:

Acute/short term toxicity to fish: LC50 (96h) for freshwater fish : 300 mg/l.

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.

Acute/short term toxicity to aquatic invertebrates: EC50 (48h) for freshwater invertebrates : 200-227 mg/l.

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.

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.

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.

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.

Persistence and degradability: In water: Not applicable (quickly dissociates).
In soil: Not applicable (inorganic substance).
In sediment: Not applicable (inorganic substance).

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

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.

Results of PBT and vPvB Assessment: According to Annex XIII of REACH Regulation inorganic substances do not require assessment.

Other Adverse Effects: No other adverse effects are identified.

13. DISPOSAL CONSIDERATIONS

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.

UN Number: Not regulated.

UN proper shipping name: Not regulated.

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

Safety, health and environmental regulations:

Water hazard class: WGK 1, VwVwS (Germany)

TSCA Inventory: Listed.

Chemical safety assessment: A Chemical Safety Assessment/Report (CSA/CSR) has been undertaken on sodium carbonate.

Note: The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

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16. OTHER INFORMATION

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.

Legal disclaimer:

The information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation. This advice is given by Nexchem Ltd who accept no legal liability for it except otherwise provided by law. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.