

MATERIAL SAFETY DATA

SODIUM CARBONATE grade E

Release date 01.12.2010

Review: 20.01.2021

Version EN: 8.0



This MSDA is accordant to Regulation EC 1907/2006 dated 18.12.2006 – REACH and 2020/878 dated 18.06.2010.

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

1.1. Product identifier

Sodium carbonate light grade E
Sodium carbonate
Registration no. REACH: 01-2119485498-19-0013 CAS
497-19-8
Index no. 011-005-00-2
EC no.: 207-838-8

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

Uses identified: glass industry, household chemical industry, chemical industry, ferrous and non-ferrous metallurgy.

Uses advised against: Not specified.

1.3. Data of the supplier of the MSDS

Distributor:

TOMCHEM Sp. z o.o.
95-050 Konstantynów Łódzki ul.
Niesięcin 5A
tel. 42 683-11-83
tel./fax.: 42-636-43-18

E-mail address of the person responsible for the material safety data sheet: info@spin-doradztwo.pl.

1.4. Emergency phone number 112 (general emergency phone), 998 (fire department), 999 (medical emergency);

SECTION 2: Identification of hazards

2.1. Classification of the substance / mixture

Acc. to the Ordinance 1272/2008:

Eye Irrit. 2; H319

Human health hazard Irritating to eyes

Environmental hazard

No

Physical and chemical hazards

No

2.2. Label elements Pictographs:



Warnings: Note!

Hazard statement:

H319 - Eyes irritating.

Precautionary statements:

P264 - Wash hands thoroughly after use

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.

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P337+P313 - if eye irritation persists: seek for medical advice/attention.

2.3. Other hazards

Appendix XIII to the Regulation REACH - Criteria of identification of persistent, bioaccumulative and toxic substances (PBT) and very persistent and very bioaccumulative substances (vPvB) - not applicable

Substances with endocrine disrupting properties (according to the criteria of Commission Delegated Regulation (EU) 2017/2100, Commission Regulation (EU) 2018/605) - not applicable

SECTION 3 Composition/information on ingredients

3.1. Substances

Sodium carbonate

CAS: 497-19-8 WE:

207-838-8

Index no. 011-005-00-2

REACH no. 01-2119485498-19-0013

3.2. Mixtures

Not applicable.

SECTION 4: First aid measures

4.1. Description of first aid measures In case

of skin contact:

Remove all soiled clothing, wash skin with soap and water rinse thoroughly with plenty of water. In case of irritation consult a doctor.

Contact with eyes:

Flush eyes for several minutes (approx. 15 min.) with plenty of water, keep the eyelids wide open. Avoid heavy jets because of a risk of a damage to the cornea, contact the doctor.

If inhaled:

In case of dizziness or nausea remove a victim to a fresh air; contact a doctor is the symptoms persist.

If swallowed:

Provoke vomiting, then drink a large amount of water with a teaspoon of baking soda and contact a doctor. Never administer anything into the mouth if a victim is unconscious.

4.2. The most significant acute and delayed symptoms and effects of the exposure

Skin contact: possible mild irritation with frequent, repeated, prolonged, direct contact.

Eye contact: irritation, redness, pain, tearing.

Respiratory system: chemical irritation of the mucous membranes of the nose, throat and downstream parts of the respiratory system, Gastrointestinal tract: chemical irritation of the mouth, tongue, throat, downstream parts of the gastrointestinal tract.

4.3. Recommendations regarding immediate doctor's aid and detailed procedure of treatment of a victim.

Decision on how to proceed is made by a doctor after assessment of the condition of the affected person.

SECTION 5: Firefighting

5.1. Extinguishing media

Suitable extinguishing media: dry extinguishing powders, carbon dioxide (snow extinguisher), sand or earth. Apply extinguishing methods adjusted to adjacent area.

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Inappropriate extinguishing media: Heavy water stream.

5.2. Special hazards arising from the substance or mixture

In the event of fire, under the influence of high temperatures certain toxic decomposition products are released, including carbon dioxide.

5.3. Advice for firefighters

Containers in a fire area must be cooled down with a water spray. If this is possible remove the containers from the hazard zone. In case of fire in an enclosed area use protective clothing and compressed air breathing apparatus. Do not enable penetration of the ground waters and the sewage system.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: notify the relevant services of the accident. Remove everyone, who is not involved into the rescue operation, from the emergency liquidation area.

For persons providing aid. Assure required ventilation, apply the PPE. Do not inhale possible dusts of the product.

6.2. Environment protection measures

Prevent dissipation and transfer of large quantities into sewage systems and water reservoirs.

6.3. Methods and materials for preventing the spread of contamination and for disposal Prevent the spread of contamination and dispose waste by mechanical collection into properly labeled containers for disposal in accordance with applicable regulations.

6.4. References to other sections

Waste handling - see section 13 of the sheet.

Personal protective equipment - section 8 of the sheet.

SECTION 7: Handling and storage

7.1. Precautions regarding safe handling

Provide adequate ventilation. Avoid contact with eyes. Avoid contact with the skin. Avoid spillage and dust formation. Avoid inhalation of hot product vapors. Work in accordance with safety and hygiene rules: do not eat or drink, do not smoke in the workplace, wash hands after use, remove contaminated clothing and protective equipment before entering eating areas.

7.2. Conditions for safe storage, including information on any incompatibilities Store in a cool (storage temperature from 15°C to 20°C), dry, well-ventilated room in a properly labeled closed original container. Keep away from humidity.

Avoid direct sunlights and sources of heat. Avoid hot areas and open flames. Store away from substances cited in section 10 of the card.

7.3. Specific end use(s)

Uses according to section 1.2 - no additional recommendations See attached exposure scenario.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure standards for occupational hazards in accordance with Regulation of the Minister of Family, Labor and Social Policy dated 12 June 2018 on the highest permissible concentrations and intensities of factors harmful to health in the work environment (Journal of Laws item 1286 as amended).

MATERIAL SAFETY DATA

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Name and CAS number of the chemical (substance)	Maximum permissible concentration (in mg/m ³) as a function of exposure time during the work shift			Number of fibers (in cm) ³	Remarks: Notation of the substance: "skin"
	NDS	NDSch	NDSP		
Dust not classified for toxicity [-] - fraction Inhalation:	10	-	-	-	-

DNEL acute, system-wide and DNEL long-term, system-wide

It is considered that the derivation of DNEL acute, system-wide and DNEL long-term, systemic is not required. This is confirmed by the lack of observed systemic effects during toxicity studies. In contact with body fluids, sodium carbonate dissociates. Sodium is physiologically present in vertebrates (regulation of intracellular osmotic pressure). Carbonate is a component of the extracellular buffer of blood cells and interstitial fluid of vertebrates (e.g., the buffering carbon system).

DNEL local

Oral

For a small oral dose of sodium carbonate, neutralization occurs in the stomach due to the presence of gastric acid. Sodium carbonate is not classified for acute toxicity due to its relatively low oral toxicity (LD50 = 2800 mg/kg, rat). Therefore, it is not necessary to obtain a local DNEL for oral exposure.

Skin

Several animal and volunteer studies have been described. No irritation was observed after application of sodium carbonate to intact skin, so a local DNEL for skin exposure is not necessary.

Inhalation DNEL for workers (long-term): 10 mg/m³. This value is considered adequate for the general public, as well as for short-term exposure.

Eyes:

Sodium bicarbonate is classified as an eye irritant. On the basis of eye irritation tests with undiluted substance, it was not possible to obtain data with the determination of the quantitative dose (concentration)

- relationship with the reaction (effect) to determine the DNEL. Moreover, no quantitative data on human eye irritation are available to determine a DNEL for eye exposure.

PNEC water

Due to the natural pH of water, concentrations of bicarbonate and sodium ions (as well as their fluctuations over time) varying significantly for different aquatic ecosystems, it is not necessary to establish general water PNECs.

PNEC sediment

Toxicity data is not available. Sodium carbonate exists in the environment in the form of ions, which means, that it does not adsorb to particulate matter and it is not considered necessary to determine the PNEC of the sludge.

PNEC soil

Toxicity studies that determine the effects of sodium carbonate on terrestrial organisms are not available. The toxicity of sodium carbonate to terrestrial organisms is expected to be low because the substance occurs naturally in the soil. Therefore, it is not considered necessary to determine the PNEC.

PNEC air

Toxicity studies that determine the effects of sodium carbonate on terrestrial organisms are not available. Sodium bicarbonate has a negligible vapor pressure and is therefore not expected to be released to the atmosphere by evaporation, but could occur via dust emissions. Sodium bicarbonate can decompose (in the presence of carbon dioxide and acids) to sodium carbonate. Sodium bicarbonate has a negligible vapor pressure and is therefore not expected to be released into the atmosphere. Therefore, it is not considered necessary to determine the PNEC.

PNEC: sewage treatment plants

According to the provisions of Section 1 of Annex XI to REACH, the test does not need to be performed because sodium carbonate in the aquatic environment exists in the form of ions. Both ions occur in nature, and their concentrations in surface waters depend on many factors, such as geological parameters, atmospheric conditions and human activities. Activated sludge is adapted to different ion concentrations. When neutralizing wastewater prior to discharge to a wastewater treatment plant, sodium carbonate is dissociated to form sodium bicarbonate. Therefore, it is not considered necessary to determine the PNEC for sodium carbonate.

PNEC oral secondary poisoning

Since sodium carbonate is physiologically present in vertebrate organisms, it is not necessary to determine the PNEC of oral secondary poisoning.

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Review: 20.01.2021

Version EN: 8.0



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8.2. Exposure controls

See Appendix to the Material Safety Data Sheet: exposure scenarios for identified uses.

Appropriate technical control measures: it is necessary to use general ventilation in the room.

Personal protective equipment - individual protective equipment:



Eyes / face protection:

Use protective goggles or a face shield (according to standard EN 166).

Skin protection:

Hands protection:

In industrial conditions, use protective clothing made of natural materials (cotton) or synthetic fibers, gloves made of nitrile rubber, butyl rubber, fluorocarbon rubber, natural rubber, natural latex, nitrile latex, polychloroprene or PVC (thickness 0.5 mm, puncture time 480 min).

Material of the gloves:

Selection of adjusted gloves depends on the material but also on a brand and quality assured by a manufacturer. Resistance of the material the gloves are made from may be determined after tests. Accurate gloves destroying time must be determined by a manufacturer.

Other:

Use protective work clothing (according to EN 344) - wash regularly.

Airways protection:

Avoid inhalation of product dust. In case of high dust concentration, use respiratory protection with particle filter marked with white color and P symbol.

Thermal hazards:

Not applicable.

Environment exposure control

Do not enable spreading in the environment and penetration of the sewage and water courses.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

a)	State:	Solid
b)	Color	White or colorless
c)	Smell	Sensed
d)	Melting / solidification temperature (not applicable to gases)	851°C
e)	Preliminary boiling temperature and range of boiling temperatures:	According to Annex VII of REACH (section 7.3), the test does not need to be performed because the melting point of sodium carbonate is higher than + 300 °C.
f)	Flammability of materials (applies to gases, liquids, solids)	The substance is non-flammable (test results in accordance with GLP guidelines).
g)	Lower and upper explosive limits (not applicable to solids)	The substance does not pose an explosive hazard, as there are no chemical groups in the structure associated with explosive properties

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h)	Flash point <i>(not applicable to gases, aerosols and solids)</i>	According to Annex VII of REACH (section 7.9) the test does not need to be performed because sodium carbonate is an inorganic substance
i)	Self-ignition temperature <i>(applies to gases and liquids only)</i>	Acc. to clause 2 of Annex XI to REACH, the test does not need to be conducted, since the properties of the substance and its chemical structure are known. It can be concluded that sodium carbonate is a stable inorganic molecule. Do not expect auto-ignition temperatures below 400 °C,
j)	Decomposition temperature <i>(applies only to self-reactive substances and mixtures, organic peroxides and other substances and mixtures that can decompose)</i>	Above 400°C, CO ₂ begins to be released.
k)	pH <i>(not applicable to gases)</i>	11,5 (5% solution)
l)	Kinematic viscosity <i>(applies to liquids only)</i>	Not applicable
m)	Solubility	In water: 212.5g/l at 20°C. Solubility in other solvents: dissolves in glycerin, does not dissolve in alcohols, ethers and acetone
n)	Partition coefficient n-octanol/water (log ratio value)	Pursuant to Annex VII (clause 7.8) to REACH the test does not need to be performed because sodium carbonate is an inorganic substance.
o)	Vapor pressure	Pursuant to Annex VII (clause 7.8) to the REACH, the test does not need to be performed because the melting point of sodium carbonate is higher than 300° C. Sodium carbonate is an inorganic salt, so the vapor pressure value can be considered negligible.
p)	Density or relative density <i>(applies to liquids and solids only)</i>	2.52 – 2.53g/cm ³ (20°C)
q)	Relative vapor density <i>(applies to gases and liquids only)</i>	Not applicable (sodium bicarbonate is an inorganic salt).
r)	Particle characteristics <i>(applies to solids only)</i>	Fine crystalline powder

9.2. Other information

No additional results of tests

SECTION 10: Stability and reactivity

10.1. Reactivity

In aqueous solutions, it has a strong corrosive effect on most metals.

10.2. Chemical stability

The product is stable under normal conditions of handling, storage and transport. At temperatures above 400 °C, CO₂ begins to be released.

10.3. Hazardous reactions

Unknown

10.4. Conditions to be avoided

Avoid elevated temperatures, direct sunlight, hot surfaces and open flames. Keep away from humidity.

10.5. Incompatible materials

It reacts violently with sulfuric acid (carbon dioxide is given off), phosphorus pentoxide, fluorine, lithium, 2,4,6-trinitrotoluene, trichloroethylene and aluminum.

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10.6. Hazardous products of decomposition

At high temperatures, toxic decomposition products - carbon monoxide and other toxic vapors - are released. At 100° C, sodium bicarbonate (NaHCO₃) is formed

SECTION 11: Toxicological Information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

a)	Acute toxicity	<p>On the basis of the available data the criteria of classification are not satisfied</p> <p>Oral: LD50 - oral rat 2800 mg/kg (Na₂CO₃x1H₂O) Inhalation: LC50 - inhalation rat 2300 mg/m³ (male - Sprague-Dawley and Wistar strains 2h exposure to sodium combustion products - mainly sodium carbonate) LC50 - inhalation mouse 1200 mg/m³ (male - Swiss- Webster strain 2h exposure to sodium combustion products - mainly sodium carbonate) LC50 - inhalation guinea pig 800 mg/m³ (male - Hartley-albinos strain 2h exposure to sodium combustion products - mainly sodium carbonate) Skin: LD50 - skin rabbit > 2000 mg/kg (Na₂CO₃x1H₂O). The study was conducted in accordance with EPA 16 CFR 1500.40. The low toxicity of sodium carbonate is confirmed by human experience. Although sodium carbonate has long been widely used and no cases of acute have been found in the literature for a long time. Low toxicity after oral administration of sodium carbonate can be neutralized in the stomach.</p>
b)	Caustic / skin irritation	<p>On the basis of the available data the criteria of classification are not satisfied</p> <p>Skin irritation studies have been conducted for solid sodium carbonate and 50% sodium carbonate solution on animals and humans. No erythema or swelling was observed after application to intact skin and therefore sodium carbonate has no or low irritation potential.</p>
c)	Serious damage to eyes/eye irritation:	<p>Eyes irritating.</p> <p>From the available data, it appears that different results of eye irritation were obtained. Tests with 0.1 ml of sodium carbonate monohydrate led to classification as irritant. Tests with anhydrous sodium carbonate led to a classification as highly irritating. Based on the test results, sodium carbonate was considered an eye irritant. The methods used in the tests were comparable to the OECD 405 guidelines.</p>
d)	Skin / airways sensitizing:	<p>On the basis of the available data the criteria of classification are not satisfied</p>
e)	Mutagenic for reproductive cells:	<p>On the basis of the available data the criteria of classification are not satisfied</p>
f)	Carcinogenicity:	<p>On the basis of the available data the criteria of classification are not satisfied</p>
g)	Reproductive toxicity	<p>On the basis of the available data the criteria of classification are not satisfied</p> <p>Studies of the reproductive toxicity of sodium carbonate are not available. However, (based on the physiological role of ions), the substance does not usually reach the fetus or male and female</p>

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		reproductive organs after oral, dermal or inhalation exposure. This is confirmed by the results of developmental studies in 3 species (mice, rabbits, rats) after oral administration of maximum 179 mg/kg sodium carbonate
h)	Specific target organ toxicity - single exposure	On the basis of the available data the criteria of classification are not satisfied
i)	Specific target organ toxicity - repeated	<p>On the basis of the available data the criteria of classification are not satisfied</p> <p>A repeat dose toxicity study after inhalation exposure, which has not been reported in sufficient detail, revealed local effects on the lungs that could be expected based on the alkaline reaction of the substance. Reliable repeated dose toxicity studies after inhalation, oral and dermal exposure are not available. However, the long-term risk to humans from sodium ions is well known and is based on use in the prevention and control of blood pressure. It is recommended to consume 2 - 3g of sodium (diet) or 3.1 - 6g (for healthy individuals). Carbonate is neutralized in the stomach, thanks to the low pH of gastric acid. In addition, sodium carbonate should not be present in the body due to neutralization by stomach acid or in the bloodstream. Therefore, additional toxicity testing of a repeat dose is considered unnecessary.</p> <p>In addition, sodium carbonate is used as a food additive, which confirms that the substance does not show toxicity for a repeated dose. The Joint FAO/WHO Expert Committee on Food Additives concluded that it is not necessary to set an acceptable daily intake (ADI) for sodium carbonate (JECFA, 1965).</p>
j)	Hazards arising from aspiration	On the basis of the available data the criteria of classification are not satisfied

11.2. Information on other hazards

Information on exposure hazards:

Inhalation: It may cause slight irritation of respiratory track, mucosal membrane of a nose and mouth.

Contact with eyes: Eyes irritating. May cause redness, tearing, pain and impaired vision.

Contact with skin: Skin contamination may cause mild irritation, redness, pain, itching. Swallowing: In case of swallowing of large quantities there may occur vomiting, stomach pains and diarrhea.

Delayed direct and chronic effects of short-term and long-term exposure:

No data

Effects of interaction:

No data

SECTION 12: Ecological information

12.1. Toxicity

The substance is not classified as hazardous to the environment. Do not allow the product to enter drains or ground waters, sewage system and watercourses.

Acute toxicity to fish:

LC50 - fish (*Lepomis macrochirus*) 300 mg/l (96h) (Cairns and Scheier (1959). Chronic toxicity to fish:

According to Section 1 of Annex XI to REACH, the test does not need to be performed because sodium carbonate exists in dissociated form in the aquatic environment. Both sodium and carbonate ions occur in nature, and their concentrations in surface waters depend on many factors: geological parameters, atmospheric conditions and human activities.

Acute toxicity to invertebrates:

LC50 - invertebrates (*Ceriodaphnia* sp.) 200 - 227 mg/l (48h) (Warne et al, 1999)

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Chronic toxicity to invertebrates:

According to Section 1 of Annex XI to REACH, the test does not need to be performed because sodium carbonate is dissociated in the aquatic environment. Both sodium and carbonate ions occur in nature, and their concentrations in surface waters depend on many factors: geological parameters, atmospheric conditions and human activities.

Algae and other aquatic plants:

According to Section 1 of Annex XI to REACH, the test does not need to be performed because sodium carbonate is dissociated in the aquatic environment. Both sodium and carbonate ions occur in nature, and their concentrations in surface waters depend on many factors: geological parameters, atmospheric conditions and human activities.

Toxicity to birds:

According to Section 1 of Annex XI to REACH, the test does not need to be performed because sodium carbonate dissociates into ions that are physiologically present in relatively large quantities in vertebrates.

12.2. Persistence and decomposition

Sodium carbonate is an inorganic substance that cannot be oxidized or biodegraded by microorganisms.

Sodium carbonate in water dissociates. Ions in aqueous solution coexist in chemical equilibrium: $\text{HCO}_3^- \rightleftharpoons \text{CO}_3^{2-} + \text{H}^+$ $pK_a = 10.33$

$\text{CO}_2 + \text{H}_2\text{O} \rightleftharpoons \text{HCO}_3^- + \text{H}^+$ $pK_a = 6.35$

Only a small part of the dissolved CO_2 is present as HCO_3^- , the main part is present as CO_2 . The amount of CO_2 in water is in equilibrium with the partial pressure of CO_2 in the atmosphere. The balance between CO_2 / HCO_3^- / CO_3^{2-} buffers the pH of drinking water.

Layout**Hydrolysis:**

According to Section 1 of Annex XI to REACH, the test does not need to be performed because sodium carbonate dissociates in water.

Biodegradation:

Acc. to clause 2 of Annex XI to REACH, biodegradation tests in water, simulation tests for total degradation in surface water, simulation tests in sediment and soils need not be carried out if the substance is inorganic.

12.3. Bio-accumulation

According to Section 1 of Annex XI to REACH, the test does not need to be performed because sodium carbonate in the environment exists in dissociated form, which means it will not accumulate in living tissues.

Distribution ratio: octanol/water (Kow): Not applicable (sodium carbonate is an inorganic salt). Bio concentration ratio (BCF): Not applicable (sodium carbonate is an inorganic salt).

12.4. Mobility in a soil

According to Section 1 of Annex XI to REACH, the test does not need to be performed because sodium carbonate exists in the environment in the form of ions, which means it will not be subject to adsorption.

12.5. Results of assessment of the PBT and the vPvB properties

The criteria described in Annex XIII (PBT and vPvB properties) do not apply to inorganic substances.

12.6. Endocrine disrupting properties

A substance that does not disrupt the endocrine system.

12.7. Other harmful effects

No data

SECTION 13: Wastes disposal**13.1. Methods of wastes utilization**

Disposal of waste and disposable packaging should be handled by specialized companies. Store the residues in the original containers. Dispose acc. to regulations in force. Empty, cleaned packaging should be disposed of (including recycling) in accordance with applicable regulations.

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Determine waste codes at the place of production in accordance with the Ordinance of the Minister of Climate dated 2 January 2020 on the waste catalog (Journal of Laws, item 10):

Community regulations:

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.

SECTION 14: Transport information

ADR/RID/IMDG/IATA:

14.1. UN number or ID number

Not applicable. The product is not classified as the hazardous one during the transport.

14.2. Correct UN transport name

Not applicable. The product is not classified as the hazardous one during the transport.

14.3. Transport hazard class

Not applicable. The product is not classified as the hazardous one during the transport.

14.4. Packages group

Not applicable. The product is not classified as the hazardous one during the transport.

14.5. Hazards for the environment

Not applicable. The product is not classified as the hazardous one during the transport.

14.6. Special precautions for users

Not applicable. The product is not classified as the hazardous one during the transport.

14.7. Sea transport in bulk according to IMO instruments

Not applicable. The product is not classified as the hazardous one during the transport.

SECTION 15: Regulatory information

15.1. Specific legal regulations regarding the safety, the health and the environment protection for a substance or a mixture.

1. Regulation (EC) No. 1907/2006 dated 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), as amended.
2. Commission Regulation (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No. 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)
3. Regulation (EC) No. 1272/2008 of the European Parliament and of the Council dated 16 December 2008 (CLP) as amended.
4. Law dated 25 February 2011 on chemical substances and their mixtures (i.e. Journal of Laws 2019, item 1225).
5. Law dated 28 May 2020 on amendments to the Law on chemical substances and their mixtures and some other laws (Journal of Laws 2020, item 1337).
6. Law of 14 December 2012 on waste (i.e. Journal of Laws 2019, item 701). (Journal of (Laws, No. 2019, item 701).
7. Law dated 13 June 2013 on package and waste management (i.e. Journal of Laws of Laws 2019, item 542).
8. Regulation of the Minister of Climate of 2 January 2020 on the waste catalog (Journal of Laws 2020, item 10).
9. Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.
10. Announcement of the Speaker of the Sejm of the Republic of Poland dated 20 December 2019 on the announcement of the consolidated text of the Law on Transportation of Hazardous Goods (Journal of Laws 2020, item 154).
11. ADR Agreement 2019 - Government Statement of 18 February 2019 on the entry into force of the amendments to Annexes A and B to the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), done at Geneva on 30 September 1957 (Journal Laws, item 769).

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12. Ordinance of the Minister of Labor and Social Policy dated 12 June 2018 on permissible concentrations and strengths of compounds / substances harmful for health in the work environment (Journal of Laws, item 1286 as amended).
13. Ordinance of the Minister of Health dated 30 December 2004 on safety and hygiene of work related to existence of chemical agents at the work environment (i.e. (Journal of (Laws, No. 2016, item 1488).
14. Ordinance of the Minister of Health dated 9 December 2003 on substances which pose serious hazard for the environment (Journal of Laws No. 217, item 2172).

15.2. Assessment of the chemical safety

A chemical safety assessment was conducted for the substance.

Appendix XIV to the Regulation REACH – List of substances subject of the permit procedure: not applicable

SVHC - Substance of very high concern waiting for permit: Not applicable

Appendix XVII to the Regulation REACH – Restrictions concerning production, entering into the market and application of some of hazardous substances: not applicable

SECTION 16: Other Information

H statements:

H319 - Eyes irritating

Description of applied abbreviations, acronyms and symbols:

Eye Irrit. 2- Eye irritation cat. 2

NDS – The Highest Permissible Concentration

NDSP – The Highest Upper Limit Concentration

NDSch – The Highest Temporary Concentration

DNEL - derived dose level (concentration) at which no harmful changes are observed.

PNEC: Predicted No Effect Concentration

LC50 - (lethal concentration) - median lethal concentration, a statistically determined concentration of a substance, after exposure to which 50 percent of the organisms (exposed to the substance) can be expected to die during the exposure or during a specified contractual post-exposure period.

LD50 - (lethal dose) - medial lethal dose, the statistically determined size of a single dose of a substance, after administration of which 50% of exposed test organisms can be expected to die.

BCF - Bio-concentration factor

vPvB - very persistent and very bio-accumulative substance

PBT - persistent, bioaccumulative and toxic substances

ADR – European agreement on the road transport of hazardous goods.

RID – Regulations Concerning the International Carriage of Dangerous Goods by Rail

IMDG – International Maritime Dangerous Goods Code

IATA – Regulation on the transport of dangerous goods issued by the International Air Transport Association

Changes to the previous version:

Section:	Description:
Section 2	Change of an entry in accordance with Reg. 2020/878
Section 9	Change of an entry in accordance with Reg. 2020/878
Section 11	Change of an entry in accordance with Reg. 2020/878
Section 12	Change of an entry in accordance with Reg. 2020/878
Section 14	Change of an entry in accordance with Reg. 2020/878
Section 15	Regulatory change

MATERIAL SAFETY DATA

SODIUM CARBONATE grade E

Release date 01.12.2010

Review: 20.01.2021

Version EN: 8.0



This MSDA is accordant to Regulation EC 1907/2006 dated 18.12.2006 – REACH and 2020/878 dated 18.06.2010.

Trainings:

Before commence of work with the product, an employee must take part in an obligatory OHS training since chemical agents are involved. Perform, document and familiarize employees with the results of risk assessment in the workplace with reference to the presence of chemical agents.

RESOURCES

Annex to Regulation (EU) 2020/878 dated 18 June 2020. Legal regulations referred to in section 15 of the MSDS.

Information of the Office for Chemical Substances.

Information contained in the MSDS concern exclusively the product named in the title. The data contained in the data sheet should be considered only as an aid to the safe use of the product: **SODIUM CARBONATE E**. Since conditions of storage and transport are beyond our control, we cannot give legal guarantees. Each time follow statutory regulations as well as regulations stipulated by potential third parties. The MSDS does not comprise an assessment of hazard at job. The product should not be used for purposes other than those laid down in the Section 1 without prior consultation with **TOMCHEM F.H.U.**

Developed at SPIN-DORADTWO www.spin-doradztwo.pl for **TOMCHEM F.H.U.**

MATERIAL SAFETY DATA**SODIUM CARBONATE grade E**

Release date 01.12.2010

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SN1

1. Title	Production of the sodium carbonate
Application sector [SU]:	SU3: industrial use SU8: large-scale production of bulk chemicals
Process categories [PROC]:	PROC01: Use in a closed process, no likelihood of leakage or exposure PROC02: Use in a closed, continuous process with occasional, controlled exposure (e.g., sampling). PROC03: Use in a closed, repetitive manufacturing process (synthesis or blending). PROC04: Use in repetitive manufacturing and other processes (synthesis) where the probability of exposure increases PROC08a: Transfer of substance or preparation (loading/unloading) from/to tanks/large containers in non-designated areas. PROC08b: Transfer of substances or preparations (loading/unloading) from/to tanks/large containers in dedicated areas. PROC09: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). PROC22: Potentially closed processing operations on minerals/metals at elevated temp.
Category of the product [AC]	Not applicable
Environmental Release Category [ERC]:	ERC1
Processes, tasks, activities	Production, maintenance, loading, packaging, sampling, monitoring
2. Operating conditions and risk management measures	
2.0 Fixed product parameters	
Characteristics of the substance	Solid
Volatility	Not applicable
Dusting	Medium (PROC 1,2,3,4,8a,8b,9) Low (PROC22)
2.1 Environmental exposure controls - ERC1	
Quantities used	Annual tonnage at the plant (tons/year): up to 1,500,000
Frequency and duration of use/exposure	Continuous
Environmental factors that do not affect risk management	No data
Other operational conditions of exposure for the environment	Not applicable
Technical conditions and organization measures	See section 8 of the MSDS
Conditions and measures related to the municipal wastewater treatment plant	Wastewater from sodium carbonate production contain inorganic substances, and therefore are not treated in a wastewater treatment plant.
Conditions and measures related to external waste handling	In Chapter 2.3.5 of the Reference Document on Best Available Technologies for Large-Scale Chemicals Manufacturing - Solids and Other Industries (EC 2007) two types of solid waste generated during the production of sodium carbonate are discussed. Both types

MATERIAL SAFETY DATA**SODIUM CARBONATE E**

Release date 01.12.2010

Review: 20.01.2021

Version EN: 8.0



This MSDA is accordant to Regulation EC 1907/2006 dated 18.12.2006 – REACH and 2020/878 dated 18.06.2010.

		of waste come from raw materials, and the concentration of sodium carbonate in solid waste is at an insignificant level. Therefore, it is not necessary to introduce special measures concerning waste.
2.2 Control of worker exposure		
Valid for PROC 1,2,3,4,8a,8b,9,22		
Quantities used	The parameter does not affect the exposure assessment for this SN	
Frequency and duration of use/exposure	Continuous, 8h/day	
Technical conditions and organization measures	See section 8 of the MSDS Ensure that workers are trained to minimize exposure.	
3. Estimation of exposure and relation to its source		
3.1 Environmental exposure assessment and references to its source		
The table below gives a summary of the environmental exposure assessment made in the Chemical Safety Report, referring to the Reference Document on Best Available Technologies for Large-Scale Production of Chemicals-Industry Solids and Other Industries.		
A compound	Measured release(kg/day)	Explanation / source of measured data
Water	Irrelevant	The Best Available Technology Reference Document (in 2007).
Air (direct)	22-118	-
Soil (direct only)	Irrelevant	The Best Available Technology Reference Document (in 2007).
3.2 Worker exposure assessment and references to its source		
ECETOC TRA tools were used to assess workplace exposure, except where otherwise stated.		
Sodium carbonate production: concentration at long-term worker exposure.		
Exposure way	Estimated exposure at the exposure (mg/m)³	Explanation / source of measured data (Characteristics, Duration, Frequency, Operating Conditions and Risk Management Measures identified above)
Data for the exposure model		
Skin exposure	Irrelevant	No assessment for dermal exposure, as no local effects on the skin and no penetration into the body after contact with skin
Respiratory track 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 8a
	5	ECETOC TRA V2. PROC 9

MATERIAL SAFETY DATA

SODIUM CARBONATE E

Release date 01.12.2010

Review: 20.01.2021

Version EN: 8.0



This MSDA is accordant to Regulation EC 1907/2006 dated 18.12.2006 – REACH and 2020/878 dated 18.06.2010.

Exposure measurement data		
Respiratory track exposure:	7.9	Comprehensive set (total: 698 observations) of worker exposure data from 4 sodium carbonate plants. The measurements are representative for working day of 8 hours.
4. Guidance to the Direct User (BU) to assess whether it is working within the scope delineated for the SN		
4.1 Environment		
Not applicable		
4.2 Health		
Not applicable		

MATERIAL SAFETY DATA**SODIUM CARBONATE E**

Release date 01.12.2010

Review: 20.01.2021

Version EN: 8.0



This MSDA is accordant to Regulation EC 1907/2006 dated 18.12.2006 – REACH and 2020/878 dated 18.06.2010.

SN2

1. Title	Formation of mixtures
	Formulation
Application sector [SU]:	SU3: industrial use SU10: Formulation [mixing] and/or repackaging of mixtures (excluding alloys)
Process categories [PROC]:	PROC01: Use in a closed process, no likelihood of leakage or exposure PROC02: Use in a closed, continuous process with occasional, controlled exposure (e.g., sampling). PROC03: Use in a closed, repetitive manufacturing process (synthesis or blending). PROC05: Mixing in batch formulation processes of formulations or industrial products (multi-stage and/or significant contact). PROC08a: Transfer of substance or preparation (loading/unloading) from/to tanks/large containers in non-designated areas. PROC08b: Transfer of substances or preparations (loading/unloading) from/to tanks/large containers in dedicated areas. PROC09: Transfer of substance or preparation into small containers (dedicated filling line, including weighing), PROC14: Manufacture of preparations or products by tableting, pressing, extruding and granulating. PROC15: Use as laboratory reagents
Category of the product [AC]	Not applicable
Environmental Release Category [ERC]:	ERC2
Processes, tasks, activities	Production, material handling, mixing, maintenance, sampling and related laboratory activities
2. Conditions of use affecting exposure	
2.0 Fixed product parameters	
Characteristics of the substance	Solid
Volatility	Not applicable
Dusting	Medium
Concentration of substances	Irrelevant
2.1 Environmental exposure controls - ERC2	
Quantities used	up to 5000 tons/year
Frequency and duration of use/exposure	Continuous
Environmental factors that do not affect risk management	No data
Other operational conditions of exposure for the environment	Not applicable
Technical conditions and organization measures	If dust is formed, use filters to reduce air emissions into the atmosphere
Conditions and measures related to the municipal wastewater treatment plant	Supervise the pH of liquid wastewater if it is directed to a wastewater treatment plant
Conditions and measures related to external waste handling	Non-necessity to specify special waste-related measures

MATERIAL SAFETY DATA**SODIUM CARBONATE E**

Release date 01.12.2010

Review: 20.01.2021

Version EN: 8.0



This MSDA is accordant to Regulation EC 1907/2006 dated 18.12.2006 – REACH and 2020/878 dated 18.06.2010.

2.2 Control of worker exposure		
Valid for PROC 1,2,3,4,8a,8b,9,14,15		
Quantities used	The parameter does not affect the exposure assessment for this SN	
Frequency and duration of use/exposure	Continuous,8h/day	
Technical conditions and organization measures	See section 8 of the MSDS Ensure that workers are trained to minimize exposure.	
3. Estimation of exposure and relation to its source		
3.1 Environmental exposure assessment and references to its source		
The table below gives a summary of the environmental exposure assessment made in the Chemical Safety Report and the Special Categories of Environmental Release (SPERC) (AISE, 2010)		
A compound	Measured release(kg/day)	Explanation / source of measured data
Water	Irrelevant	-
Air (direct)	2.7	Special categories of release into the Environment (SPERC)(AISE,2010)
Soil (direct only)	Irrelevant	Special categories of release into the Environment (SPERC)(AISE,2010)
3.2 Worker exposure assessment and references to its source		
ECETOC TRA tools were used to assess workplace exposure, except where otherwise stated.		
Formulation: concentration at long-term worker exposure.		
Exposure way	Estimated exposure at the exposure (mg/m³)	Explanation / Source of Measured Data (Characteristics, Duration, Frequency, Operational Conditions and Risk Management Measures specified above)
Skin exposure	Irrelevant	No assessment for dermal exposure, as no local effects on the skin and no penetration into the body after contact with skin
Respiratory track 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 8a
	5	ECETOC TRA V2. PROC 9
	1	ECETOC TRA V2. PROC 14
	0.5	ECETOC TRA V2. PROC 15
4. Guidance to the Direct User (BU) to assess whether it is working in the scope established for SN		
4.1 Environment		
Expected exposure should not exceed the DNEL if the Risk Management Measures/Operating Conditions specified in Part 2 are implemented.		
4.2 Health		
Expected exposure should not exceed DNEL if		

MATERIAL SAFETY DATA

SODIUM CARBONATE E

Release date 01.12.2010

Review: 20.01.2021

Version EN: 8.0



This MSDA is accordant to Regulation EC 1907/2006 dated 18.12.2006 – REACH and 2020/878 dated 18.06.2010.

Risk Management/Operating Conditions Measure specified in Part 2 are implemented.

MATERIAL SAFETY DATA**SODIUM CARBONATE E**

Release date 01.12.2010

Review: 20.01.2021

Version EN: 8.0



This MSDA is accordant to Regulation EC 1907/2006 dated 18.12.2006 – REACH and 2020/878 dated 18.06.2010.

SN3

1. Title	Other industrial and specialized applications
Application sector [SU]:	SU3: industrial application SU0-20,23,24
Process categories [PROC]:	<p>PROC01: Use in a closed process, no likelihood of leakage or exposure</p> <p>PROC02: Use in a closed, continuous process with occasional, controlled exposure (e.g., sampling).</p> <p>PROC03: Use in a closed, repetitive manufacturing process (synthesis or blending).</p> <p>PROC04: Use in batch and other processes (synthesis) where the possibility of exposure arises.</p> <p>PROC08a: Transfer of substance or preparation (loading/unloading) from/to tanks/large containers in non-designated areas.</p> <p>PROC08b: Transfer of substances or preparations (loading/unloading) from/to tanks/large containers in dedicated areas.</p> <p>PROC09: Transfer of substance or preparation into small containers (dedicated filling line, including weighing),</p> <p>PROC10: Application by brush or roller Treatment of industrial products by soaking or flooding</p> <p>PROC15: Use as a laboratory reagent</p> <p>PROC17: Use of slip agents in high-energy conditions and partially open processes</p> <p>PROC18: Lubrication under high-energy conditions</p> <p>PROC19: Hand-mixing with close contact and only personal protective equipment available</p> <p>PROC22: Potentially closed processing operations with minerals/metals at elevated temperatures</p> <p>PROC23: Open processing and handling operations with minerals/metals at elevated temperatures</p> <p>PROC26: Storage of solid inorganic substances at ambient temperature.</p>
Category of the product [AC]	Not applicable
Environmental Release Category [ERC]:	<p>ERC4: Establishing of formulations</p> <p>ERC 5: Industrial use resulting in incorporation into or onto the matrix</p> <p>ERC6a: Industrial use resulting in other substances (use of intermediates).</p> <p>ERC 6b: Industrial use of reactive excipients.</p> <p>ERC 6d: Industrial use of excipients.</p>

MATERIAL SAFETY DATA

SODIUM CARBONATE E

Release date 01.12.2010

Review: 20.01.2021

Version EN: 8.0



This MSDA is accordant to Regulation EC 1907/2006 dated 18.12.2006 – REACH and 2020/878 dated 18.06.2010.

	ERC7: Industrial use of substance in closed systems.
1.1 Specialized applications	
Application sector [SU] Market sector	SU22 (Specialized use)
Environmental Release Category [ERC]:	ERC8a: Widely dispersed use, indoors, of excipients in open systems ERC8b: Widely dispersed use, indoors, of reactive excipients in open systems ERC8c: Widely dispersed use, indoors, the consequence of which is inclusion in or on the matrix ERC8d: Widely dispersed use, outdoors, of excipients in open systems ERC8e: Widely dispersed use, indoors, of reactive excipients in open systems ERC8f: Widely dispersed use, indoor use followed by inclusion in or on the matrix. ERC9a: Widely dispersed use, indoors, of reactive excipients in open systems ERC9b: Widely dispersed use, outdoors, of reactive excipients in closed systems
Process categories [PROC]:	PROC01: Use in a closed process, no likelihood of leakage or exposure PROC02: Use in a closed, continuous process with occasional, controlled exposure (e.g., sampling). PROC03: Use in a closed, repetitive manufacturing process (synthesis or blending). PROC04: Use in batch and other processes (synthesis) where the possibility of exposure arises. PROC08a: Transfer of substance or preparation (loading/unloading) from/to tanks/large containers in non-designated areas. PROC08b: Transfer of substances or preparations (loading/unloading) from/to tanks/large containers in dedicated areas. PROC09: Transfer of substance or preparation into small containers (dedicated filling line, including weighing), PROC10: Application by brush or roller PROC11: Non-industrial spray application PROC13: Treatment of industrial products by soaking or flooding PROC15: Use as a laboratory reagent PROC19: Hand-mixing with close contact with the substance and availability of personal protective equipment only

MATERIAL SAFETY DATA

SODIUM CARBONATE E

Release date 01.12.2010

Review: 20.01.2021

Version EN: 8.0



This MSDA is accordant to Regulation EC 1907/2006 dated 18.12.2006 – REACH and 2020/878 dated 18.06.2010.

Processes, tasks, activities		Production, material handling, mixing, maintenance, sampling and monitoring	
2. Conditions of use affecting exposure			
2.0 Fixed product parameters			
Characteristics of the substance		Solid	
Volatility		Not applicable	
Dusting		Medium (PROC 1, 2, 3, 4, 8a,8b,9,15,19) Low (PRC 22,23).	
Concentration of substances		Irrelevant	
2.1 Environmental exposure control - Industrial application: ERC4,ERC5,ERC6a/6b/6d,ERC7 Professional use: ERC8a/8b/8c/8d/8e/8f/ ERC 9a/9b			
Quantities used		Industrial use: up to 1000 tons/year Specialized use much lower	
Frequency and duration of use/exposure		Continuous	
Environmental factors that do not affect risk management		No data	
Other operational conditions of exposure for the environment		Not applicable	
Technical conditions and organization measures		If dust is formed, use filters to reduce air emissions into the atmosphere	
Conditions and measures related to the municipal wastewater treatment plant		The pH of liquid effluents should be monitored if they are directed to the sewage treatment plant	
Conditions and measures related to external waste handling		Non-necessity to specify special waste-related measures	
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			
Quantities used		The parameter does not affect the exposure assessment for this SN	
Frequency and length of use			
Operational conditions related to length of the exposure	Process category	Industry	Professional
Length of exposure per day at the workplace for 1 worker	PROC1	-	Less than 15 min/day
	PROC2	-	Below 15 min/day
	PROC3	> 4 hr / day (liquid mixture)	-
	PROC4	-	> 4 hr / day
	PROC7	> 4 hr / day (liquid mixture)	-
	PROC8a	-	15 min/day to 1 hr / day
	PROC8b	-	15 min/day to 1 hr / day
	PROC9	> 4 hr / day (liquid mixture)	-
	PROC10	-	> 4 hr / day
	PROC11	-	> 4 hr / day
	PROC13	-	15 min/day to 1 hr / day
	PROC15	-	15 min/day to 1 hr / day

MATERIAL SAFETY DATA

SODIUM CARBONATE E

Release date 01.12.2010

Review: 20.01.2021

Version EN: 8.0



This MSDA is accordant to Regulation EC 1907/2006 dated 18.12.2006 – REACH and 2020/878 dated 18.06.2010.

	PROC17	>4 hours/day (liquid mixture)	-
	PROC18	>4 hours/day (liquid mixture)	-
	PROC19	-	15 min/day to 1 hr / day

PROC26 is not provided for in the WCETOC TRA, but it covers the activity described by PROC 8a and 8b. Thus, calculations in PROC 8a and 8b include PROC 26.

3. Estimation of exposure and relation to its source

3.1 Environmental exposure assessment and references to its source

The table below provides a summary of the environmental exposure assessment made in the Chemical Safety Report

A compound	Measured release(kg/day)	Explanation / source of measured data
Water	Irrelevant	-
Air (direct)	Possible minor release	Special categories of release into the Environment (SPERC)(AISE,2010)
Soil (direct only)	Irrelevant in all cases except for agricultural uses. Maximum use is based on share of soda as an ingredient in crop protection products: Specialized agricultural 0.0125 kg/ha (level 1, default use level 1 kg/ha).	Special Categories of Environmental Release (SPERC)(AISE,2010)

3.2 Worker exposure assessment and references to its source

ECETOC TRA tools were used to assess workplace exposure, except where otherwise stated.

Formulation: concentration at long-term worker exposure.

Exposure way	Explanation /source of measured data (Characteristics, Duration, Frequency, Operational Conditions and Risk Management Measures specified above.	Estimated exposure at the exposure (mg/m) ³	Estimated exposure at the exposure (mg/m) ³
Skin exposure	No local effects on the skin and it does not penetrate the body after contact.	Irrelevant	Irrelevant
Respiratory track exposure:	PROC1	0.01	0.0044 (liquid) 0.001 (solid)
	PROC2	0.5 (solid)	0.044 (liquid) 0.1 (solid)

MATERIAL SAFETY DATA**SODIUM CARBONATE E**

Release date 01.12.2010

Review: 20.01.2021

Version EN: 8.0



This MSDA is accordant to Regulation EC 1907/2006 dated 18.12.2006 – REACH and 2020/878 dated 18.06.2010.

	PROC3	1 (solid)	0.044 (liquid)
	PROC4	5	0.044 (liquid) 5 (solid)
	PROC7	0.022	-
	PROC8a	5	0.088 (liquid) 1 (solid)
	PROC8b	5 (solid)	0.088 (liquid)
	PROC9	5 (solid)	0.044 (liquid)
	PROC10	-	0.44 (only liquid mixture)
	PROC11	-	0.44 (only liquid mixture)
	PROC13	-	0.088 (only liquid mixture)
	PROC15	5 (solid)	0.088 (only liquid mixture)
	PROC17	0.022 (liquid mixture only)	-
	PROC18	0.022 (only liquid mixture)	-
	PROC19	5	1 (solid) 0.088 (liquid)
	PROC22	1	
	PROC23	1	
	Specialized mixture with solid form, outdoor, no personal protective equipment (ECPA OWB Level 1: default usage level)		0.142 (solid)
4. Guidance to the Direct User (BU) to assess whether it is working in the scope established for SN			
4.1 Environment			
Expected exposure should not exceed the DNEL if the Risk Management Measures/Operating Conditions specified in Part 2 are implemented.			
4.2 Health			
Expected exposure should not exceed the DNEL if the Risk Management Measures/Operating Conditions specified in Part 2 are implemented.			

MATERIAL SAFETY DATA**SODIUM CARBONATE E**

Release date 01.12.2010

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Version EN: 8.0



This MSDA is accordant to Regulation EC 1907/2006 dated 18.12.2006 – REACH and 2020/878 dated 18.06.2010.

SN4

1. Title	Consumer applications	
Application sector [SU]:	SU21: Consumer applications: households	
Market sector		
Process categories [PROC]:	Not applicable	
Category of the product [PC]	No restrictions (from PC0 to PC 40)	
Environmental Release Category [ERC]:	ERC 8 a/b/c/d/e/f ERC9 a/b	
1.1 Specialized applications		
Application sector [SU]	Not applicable	
Market sector		
Environmental Release Category [ERC]:	Not applicable	
Process categories [PROC]:	Not applicable	
Processes, tasks, activities	Cleaning activities	
2. Conditions of use affecting exposure		
2.0 Fixed product parameters		
Characteristics of the substance	Solid or dissolved in water	
Volatility	Not applicable	
Dusting	Medium for detergent powder Low for baking soda	
Concentration of products in the mixture	Laundry and surface cleaning detergents: 30% Dishwasher tablets: 45% Baking soda (pure sodium decahydrate): 37% sodium carbonate content Surface cleaning sprays: 10% Surface cleaning products: 5% (PC3) Furniture, floor and leather cleaning: 10% (PC31)	
2.1 Environmental exposure control - Consumer applications: ERC 8 a/b/c/d/e/f ERC9 a/b		
Quantities used	Irrelevant	
Frequency and duration of use/exposure	Irrelevant	
2.2 Environmental exposure controls		
Quantities used	Baking soda: 37 g/l (worst case)	
Frequency and length of use	Baking soda: once a week (frequency) for 5 minutes (length) (worst case)	
Technical conditions and organizational		
Keep out of reach of children and avoid contact with eyes. In case of eye contact, rinse immediately with plenty of water and visit a doctor.		
3. Estimation of exposure and relation to its source		
3.1 Environmental exposure assessment and references to its source		
The table below gives a summary of the environmental exposure assessment made in the Chemical Safety Report, referring to HERA (2005a) and the Special Categories of Environmental Release (SPERC) (AISE,2010)		
A compound	Measured release(kg/day)	Explanation / source of measured data
Water	Irrelevant	HERA (2005)
Air (direct)	Irrelevant	Special Categories of Release to the Environment (SPERC)(AISE,2010)
Soil (direct only)	Irrelevant	Special categories of release into the Environment (SPERC)(AISE,2010)
3.2 Consumer exposure assessment and references to its source		
The REACT tools (REACH Assessment Tool for the Assessment of		

MATERIAL SAFETY DATA

SODIUM CARBONATE E

Release date 01.12.2010

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Version EN: 8.0



This MSDA is accordant to Regulation EC 1907/2006 dated 18.12.2006 – REACH and 2020/878 dated 18.06.2010.

the Consumer Exposure)		
Long-term dermal exposures in consumers		
Category of the product	Weight share of the component	Estimated intake (mg/kg body weight per day)
Ordinary wash (AISE C1, PC35), Powder	0.3	1, 56 E-02
Ordinary wash (AISE C1, PC35), Liquid	0.3	2, 29 E-02
Thickened for washing (AISE C2, PC35), Powder	0.3	1,60 E-02
Concentrated for washing (AISE C2, PC35), Liquid/gel	0.3	2, 29 E-02
Laundry additives (AISE C4, PC35), Liquid bleach	0.3	2, 21 E-02
Handwashing (AISE C5, PC35)	0.3	3, 12 E-02
Surface cleaning (AISE C5, PC35), gel	0.3	4,29 E-02

Insignificant levels of inhalation were confirmed for the washing scenario reported by HERA (2005a)

4. Guidance to the Direct User (BU) to assess whether it is working within the scope delineated for the SN

4.1 Environment

Expected exposure should not exceed the DNEL if the Risk Management Measures/Operating Conditions specified in Part 2 are implemented.

4.2 Health

Expected exposure should not exceed the DNEL if the Risk Management Measures/Operating Conditions specified in Part 2 are implemented.