

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

- Trade name SOLVAir® S300

1.2 Relevant identified uses of the substance or mixture and uses advised against**Uses of the Substance/Mixture**

- Purifying flue gas

1.3 Details of the supplier of the safety data sheet**Company**

SOLVAY CHEMICALS INTERNATIONAL SA
RUE DE RANSBEEK, 310
1120, BRUXELLES
BELGIUM
Tel: +32-2-2642111
Fax: +32-2-2641802

E-mail address

manager.sds@solvay.com

1.4 Emergency telephone number

+44(0)1235 239 671 [CareChem 24]

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture****GHS Classification (UN)**

- Not a hazardous product according to Globally harmonized System (GHS)

2.2 Label elements**GHS label elements (UN)**

- Not a hazardous product according to Globally harmonized System (GHS)

2.3 Other hazards which do not result in classification

- None known.

SECTION 3: Composition/information on ingredients**3.1 Substance****Information on Components and Impurities**

Chemical name	CAS-No.	GHS Classification	Concentration [%]
sodium carbonate	497-19-8	Acute toxicity, Category 5 ; H303 Eye irritation, Category 2 ; H319	<= 2

sodium hydrogencarbonate	144-55-8	Not classified	>= 98 - <= 100
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For the full text of the H-Statements mentioned in this Section, see Section 16.

3.2 Mixture

- Not applicable, this product is a substance.

SECTION 4: First aid measures

4.1 Description of first aid measures

In case of inhalation

- Move to fresh air.
- If symptoms persist, call a physician.

In case of skin contact

- Wash off with soap and water.

In case of eye contact

- Rinse thoroughly with plenty of water, also under the eyelids.
- If eye irritation persists, consult a specialist.

In case of ingestion

- Rinse mouth with water.
- If symptoms persist, call a physician or Poison Control Centre immediately.

4.2 Most important symptoms and effects, both acute and delayed

In case of inhalation

Effects

- No hazards to be specially mentioned.
- At high concentrations:
- slight irritation

In case of skin contact

Effects

- No hazards to be specially mentioned.

Repeated or prolonged exposure

- Contact with dust can cause mechanical irritation or drying of the skin.

In case of eye contact

Effects

- Dust contact with the eyes can lead to mechanical irritation.

In case of ingestion

Effects

- Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician

- When symptoms persist or in all cases of doubt seek medical advice.

SECTION 5: Firefighting measures**5.1 Extinguishing media****Suitable extinguishing media**

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

Unsuitable extinguishing media

- None

5.2 Special hazards arising from the substance or mixture

- Not combustible.

5.3 Advice for firefighters**Special protective equipment for firefighters**

- In the event of fire, wear self-contained breathing apparatus.
- Use personal protective equipment.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures****Advice for non-emergency personnel**

- Evacuate personnel to safe areas.
- Avoid dust formation.

Advice for emergency responders

- Use personal protective equipment.
- Sweep up to prevent slipping hazard.
- Prevent further leakage or spillage.

6.2 Environmental precautions

- Do not flush into surface water or sanitary sewer system.
- Prevent any mixture with an acid into the sewer/drain (gas formations).

6.3 Methods and materials for containment and cleaning up

- Pick up and transfer to properly labelled containers.
- Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

- Refer to protective measures listed in sections 7 and 8.

SECTION 7: Handling and storage**7.1 Precautions for safe handling**

- Ensure adequate ventilation.
- Minimize dust generation and accumulation.
- Avoid contact with skin and eyes.

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- Keep away from incompatible products

Hygiene measures

- When using do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions

- Store in original container.
- Keep in a dry place.
- Keep in properly labelled containers.
- Keep container closed.
- Keep away from:
- Incompatible products

Packaging material

Suitable material

- Paper.
- Polyethylene

Unsuitable material

- No data available

7.3 Specific end use(s)

- Contact your supplier for additional information

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with other occupational exposure limits

Components	Value type	Value	Basis
Sodium carbonate	TWA	10 mg/m ³	Solvay Acceptable Exposure Limit

8.2 Exposure controls

Control measures

Engineering measures

- Provide appropriate exhaust ventilation at places where dust is formed.
- Apply technical measures to comply with the occupational exposure limits.

Individual protection measures

Respiratory protection

- Use only respiratory protection that conforms to international/ national standards.
- Respirator with a dust filter
- Recommended Filter type: P2 filter

Hand protection

- Impervious gloves

Eye protection

- Safety goggles

Skin and body protection

- Dust impervious protective suit

Hygiene measures

- When using do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls

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

SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties**

<u>Appearance</u>	Form: crystalline, powder Physical state: solid Colour: white
<u>Odour</u>	odourless
<u>Odour Threshold</u>	No data available
<u>Molecular weight</u>	84.01 g/mol
<u>pH</u>	8.4 (ca. 8.4 g/l) (25 °C) Water 8.6 (ca. 52 g/l) pKa: 6.3
<u>Melting point/freezing point</u>	Melting point/range: Decomposition: yes
<u>Initial boiling point and boiling range</u>	Boiling point/boiling range: Thermal decomposition: yes
<u>Flash point</u>	Not applicable, inorganic
<u>Evaporation rate (Butylacetate = 1)</u>	No data available
<u>Flammability (solid, gas)</u>	The product is not flammable.
<u>Flammability/Explosive limit</u>	Explosiveness: Not expected
<u>Auto-ignition temperature</u>	Not applicable
<u>Vapour pressure</u>	Thermal decomposition
<u>Vapour density</u>	Not applicable
<u>Density</u>	2.21 kg/dm ³ Bulk density: 0.5 - 1.3 kg/dm ³
<u>Relative density</u>	2.21 - 2.23 (20 °C)

<u>Solubility</u>	<u>Water solubility:</u> 69 g/l (0 °C) 93 g/l (20 °C) 165 g/l (60 °C)
	<u>Solubility in other solvents:</u> Alcohol : insoluble
<u>Partition coefficient: n-octanol/water</u>	Not applicable, inorganic
<u>Decomposition temperature</u>	> 50 °C
<u>Viscosity</u>	<u>Viscosity, dynamic :</u> Not applicable
<u>Explosive properties</u>	No data available
<u>Oxidizing properties</u>	Not expected

9.2 Other information

No data available

SECTION 10: Stability and reactivity**10.1 Reactivity**

- Incompatible with acids.
- Decomposes slowly on exposure to water.

10.2 Chemical stability

- Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

- none

10.4 Conditions to avoid

- Exposure to moisture
- To avoid thermal decomposition, do not overheat.

10.5 Incompatible materials

- Acids

10.6 Hazardous decomposition products

- none

SECTION 11: Toxicological information**11.1 Information on toxicological effects****Acute toxicity****Acute oral toxicity**

sodium carbonate

LD50 : 2,800 mg/kg - Rat , male and female
The product has a low acute toxicity
Unpublished reports

sodium hydrogencarbonate

LD50 : > 4,000 mg/kg - Rat , male and female

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	Method: according to a standardised method The product has a low acute toxicity Unpublished reports
Acute inhalation toxicity	
sodium carbonate	No data available
sodium hydrogencarbonate	LC50 - 4.5 h (dust/mist) : > 4.74 mg/l - Rat , male and female Method: according to a standardised method Not classified as hazardous for acute inhalation toxicity according to GHS. Unpublished reports Dust
Acute dermal toxicity	
sodium carbonate	LD50 : > 2,000 mg/kg - Rabbit Method: according to a standardised method Not classified as hazardous for acute dermal toxicity according to GHS. No mortality observed at this concentration. Unpublished reports
sodium hydrogencarbonate	No data available
Acute toxicity (other routes of administration)	No data available
<u>Skin corrosion/irritation</u>	
sodium carbonate	Rabbit Not classified as irritating to skin Method: OECD Test Guideline 404 Unpublished reports
sodium hydrogencarbonate	Rabbit slight irritation Method: OECD Test Guideline 404 Unpublished reports
<u>Serious eye damage/eye irritation</u>	
sodium carbonate	Rabbit Irritating to eyes. Method: according to a standardised method Unpublished reports
sodium hydrogencarbonate	Rabbit slight irritation Method: OECD Test Guideline 405 Unpublished reports
<u>Respiratory or skin sensitisation</u>	No data available

Mutagenicity**Genotoxicity in vitro**

sodium carbonate

By analogy

Ames test
with metabolic activation
Product is not considered to be genotoxic
Published data

Strain: Escherichia coli
without metabolic activation

negative
Product is not considered to be genotoxic
Published data

sodium hydrogencarbonate

Strain: Escherichia coli
with and without metabolic activation

negative
Method: according to a standardised method
Published data

Ames test
with metabolic activation

negative
Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay)
Published data

Genotoxicity in vivo

No data available

Carcinogenicity

No data available

Toxicity for reproduction and development**Toxicity to reproduction/Fertility**

No data available

Developmental Toxicity/Teratogenicity

sodium carbonate

Mouse, female, Oral
General Toxicity Maternal NOAEL: \geq 580 mg/kg
Teratogenicity NOAEL: \geq 580mg/kg
Method: according to a standardised method
no embryotoxic or teratogenic effects have been observed, Unpublished reports

sodium hydrogencarbonate

Rat, female, Oral
Teratogenicity NOAEL: $>$ 340mg/kg
Method: according to a standardised method
Highest dose tested, The product is not considered to be embryotoxic/foetotoxic.,
Unpublished reports

Rabbit, female, Oral
Teratogenicity NOAEL: $>$ 330mg/kg
Method: according to a standardised method
Highest dose tested, The product is not considered to be embryotoxic/foetotoxic.,
Unpublished reports

STOT**STOT - single exposure**

sodium carbonate

The substance or mixture is not classified as specific target organ toxicant, single exposure according to GHS criteria.
internal evaluation

sodium hydrogencarbonate

Exposure routes: Oral, Inhalation
The substance or mixture is not classified as specific target organ toxicant, single exposure according to GHS criteria.
internal evaluation

STOT - repeated exposure

sodium carbonate

The substance or mixture is not classified as specific target organ toxicant, repeated exposure according to GHS criteria.
internal evaluation

Experience with human exposure

No data available

Aspiration toxicity

No data available

SECTION 12: Ecological information**12.1 Toxicity****Aquatic Compartment****Acute toxicity to fish**

sodium carbonate

LC50 - 96 h : 300 mg/l - Lepomis macrochirus (Bluegill sunfish)
static test
Analytical monitoring: no

Method: according to a standardised method
Not harmful to fish (LC/LL50 > 100 mg/L)
Published data

sodium hydrogencarbonate

LC50 - 96 h : 7,100 mg/l - Lepomis macrochirus (Bluegill sunfish)
flow-through test
Analytical monitoring: yes

Method: according to a standardised method
Unpublished internal reports
Not harmful to fish (LC/LL50 > 100 mg/L)

Acute toxicity to daphnia and other aquatic invertebrates

sodium carbonate	EC50 - 48 h : 200 - 227 mg/l - Ceriodaphnia dubia (water flea) semi-static test Method: according to a standardised method Not harmful to aquatic invertebrates. (EC/EL50 > 100 mg/L) Published data
sodium hydrogencarbonate	EC50 - 48 h : 4,100 mg/l - Daphnia magna (Water flea) flow-through test Analytical monitoring: yes Method: according to a standardised method Unpublished internal reports Not harmful to aquatic invertebrates. (EC/EL50 > 100 mg/L)

Toxicity to aquatic plants No data available

Toxicity to microorganisms No data available

Chronic toxicity to fish No data available

Chronic toxicity to daphnia and other aquatic invertebrates

sodium hydrogencarbonate	NOEC: > 576 mg/l - 21 Days - Daphnia magna (Water flea) semi-static test Analytical monitoring: no Method: OECD Test Guideline 211 Highest concentration tested Published data No adverse chronic effect observed up to and including the threshold of 1 mg/L.
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12.2 Persistence and degradability**Abiotic degradation****Stability in water**

sodium hydrogencarbonate Product dissociates rapidly to corresponding ions on contact with water.,

Photodegradation

sodium carbonate hydrolyses
Test substance: Water
carbonic acid/bicarbonate/carbonate
acid/base equilibrium as a function of pH

Physical- and photo-chemical elimination

No data available

Biodegradation**Biodegradability**

sodium carbonate Not applicable (inorganic substance)

sodium hydrogencarbonate Not applicable (inorganic substance)

Degradability assessment

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sodium carbonate

The product is not considered to be rapidly degradable in the environment

12.3 Bioaccumulative potential**Partition coefficient: n-octanol/water**

sodium hydrogencarbonate

Not applicable (inorganic substance)

Bioconcentration factor (BCF)

sodium carbonate

Not applicable (inorganic substance)

sodium hydrogencarbonate

According to the available data on the constituents
Not potentially bioaccumulable
Expert judgement**12.4 Mobility in soil****Adsorption potential (Koc)**

sodium carbonate

Air
Not applicableSolubility(ies)
WaterMobility
WaterSoil/sediments
not significant

sodium hydrogencarbonate

According to the available data on the constituents
non-significant adsorption
internal evaluation**Known distribution to environmental compartments**

No data available

12.5 Results of PBT and vPvB assessment

Not applicable

12.6 Other adverse effects

Ecotoxicity assessment

Short-term (acute) aquatic hazard

sodium carbonate Not harmful to aquatic life (LC/LL50, EC/EL50 > 100 mg/L)

sodium hydrogencarbonate Not harmful to aquatic life (LC/LL50, EC/EL50 > 100 mg/L)

Long-term (chronic) aquatic hazard

sodium carbonate Not classified due to data which are conclusive although insufficient for classification.

sodium hydrogencarbonate No adverse chronic effect observed up to and including the threshold of 1 mg/L.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product Disposal

- Contact waste disposal services.
- If recycling is not practicable, dispose of in compliance with local regulations.
- Dilute with plenty of water.
- Neutralise with acid.
- In accordance with local and national regulations.

Advice on cleaning and disposal of packaging

- Where possible recycling is preferred to disposal or incineration.
- Clean container with water.
- Dispose of rinse water in accordance with local and national regulations.
- Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities.

SECTION 14: Transport information

ADR

not regulated

RID

not regulated

IMDG

not regulated

IATA

not regulated

Note: The above regulatory prescriptions are those valid on the date of publication of this sheet. Given the possible evolution of transport regulations for hazardous materials, it would be advisable to check their validity with your sales office.

SECTION 15: Regulatory information

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

Local regulations

No data available

Notification status

Inventory Information	Status
United States TSCA Inventory	- Listed on Inventory
Canadian Domestic Substances List (DSL)	- Listed on Inventory
Australia Inventory of Chemical Substances (AICS)	- Listed on Inventory
Japan. CSCL - Inventory of Existing and New Chemical Substances	- Listed on Inventory
Korea. Korean Existing Chemicals Inventory (KECI)	- Listed on Inventory
China. Inventory of Existing Chemical Substances in China (IECSC)	- Listed on Inventory
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	- Listed on Inventory
Taiwan Chemical Substance Inventory (TCSI)	- Listed on Inventory
New Zealand. Inventory of Chemical Substances	- On the inventory, or in compliance with the inventory
EU. European Registration, Evaluation, Authorisation and Restriction of Chemical (REACH)	- When purchased from a European Solvay legal entity, this product is compliant with the registration provisions of the REACH Regulation (EC) No. 1907/2006 as all its components are either excluded, exempt, and/or registered. When purchased from a legal entity outside of Europe, please contact your local representative for additional information.

SECTION 16: Other information**Full text of H-Statements**

- H303 May be harmful if swallowed.
- H319 Causes serious eye irritation.

Further information

- Distribute new edition to clients

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. It should be used in conjunction with technical sheets but do not replace them. Thus, the information only relates to the designated specific product and may not be applicable if such product is used in combination with other materials or in any other manufacturing process, unless otherwise specifically indicated. It does not release the user from ensuring he is in conformity with all regulations linked to its activity.