

# TECHNICAL BULLETIN



19 Motivation Dve Wangara, WA, 6065 AUSTRALIA  
T +61 8 9302 4000 | FREE 1800 999 196 | F +61 8 9302 5000

## SODA ASH

### SODIUM CARBONATE

#### SODA ASH DENSE GRANULAR

Contains >99% Sodium Carbonate  
CAS 497-19-8  
EC No 207-838-8  
Na<sub>2</sub>CO<sub>3</sub> MW 106

#### WARNING

**Causes serious eye irritation.**

Wash skin thoroughly after handling.

Wear protective gloves/ protective clothing/ eye protection/face protection.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.



**CONTENTS 25kg nett**

BATCH NO.



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#### MATERIAL & FUNCTION

**SODIUM CARBONATE** (also known as washing soda, soda crystals or **SODA ASH**), Na<sub>2</sub>CO<sub>3</sub>, is the disodium salt of carbonic acid. It naturally occurs as a crystalline monohydrate, heptahydrate, and dodecahydrate. **SODA ASH** usually (but not always) refers

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to the anhydrous, powdered or granular material containing more than 99% **SODIUM CARBONATE**.

## PROPERTIES

CAS number: 497-19-8 (anhydrous), 5968-11-6 (monohydrate), 6132-02-1 (decahydrate)

Molecular formula:  $\text{Na}_2\text{CO}_3$

Molar mass: 105.99 g (anhydrous); 124.00 g (monohydrate); 286.14 g (decahydrate)

Appearance: white solid, hygroscopic

Density: 2.54 g/cm<sup>3</sup> (anhydrous); 2.25 g/cm<sup>3</sup> (monohydrate); 1.46 g/cm<sup>3</sup> (decahydrate)

Melting point: 851 °C (anhydrous); 100 °C (decomp, monohydrate); 34 °C (decomp, decahydrate)

Boiling point: 1600 °C (anhydrous)

Solubility in water: 22 g/100 ml (20 °C); 7 g/100 g (0 °C); 21.6 g/100 g (20 °C); 45 g/100 g (100 °C)

Solubility: insoluble in alcohol, ethanol

Basicity (pK<sub>b</sub>): 3.67

Refractive index (n<sub>D</sub>): 1.495 (anhydrous); 1.420 (monohydrate)

## APPLICATIONS

The manufacture of glass is the most important use of **SODIUM CARBONATE**. When it is combined with sand ( $\text{SiO}_2$ ) and calcium carbonate ( $\text{CaCO}_3$ ) and heated to very high temperatures, then cooled very rapidly, glass is produced. This type of glass is known as soda lime glass.

**SODIUM CARBONATE** is used as a pH regulator to maintain stable alkaline conditions

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necessary for the action of the majority of developing agents. It is a common additive in municipal pools used to neutralize the acidic effects of chlorine and raise pH.

In chemistry, it is often used as an electrolyte. This is because electrolytes are usually salt-based, and **SODIUM CARBONATE** acts as a very good conductor in the process of electrolysis. Additionally, unlike chloride ions which form chlorine gas, carbonate ions are not corrosive to the anodes. It is also used as a primary standard for acid-base titrations because it is solid and air-stable, making it easy to weigh accurately.

In domestic use, it is used as a water softener during laundry detergent formulations. It competes with the ions magnesium and calcium in hard water and prevents them from bonding with the detergent being used. Called Washing Soda, Soda crystals or Sal Soda[3] in the detergent section of stores, it effectively removes oil, grease, and alcohol stains. **SODIUM CARBONATE** is also used as a descaling agent in boilers such as found in coffee pots, espresso machines. In dyeing with fiber-reactive dyes, **SODIUM CARBONATE** (often under a name such as **SODA ASH** fixative or **SODA ASH** activator) is used to ensure proper chemical bonding of the dye with the fibers.

**SODIUM CARBONATE** is a food additive (E500) used as an acidity regulator, anti-caking agent, raising agent and stabilizer. **SODIUM CARBONATE** is used by the brick industry as a wetting agent to reduce the amount of water needed to extrude the clay.

**SODIUM CARBONATE** is used in toothpastes, where it acts as a foaming agent, an abrasive, and to temporarily increase mouth pH.

## CAUTION

*Avoid contact with skin and eyes and avoid breathing dust.* **SODA ASH** is not classified as highly toxic, but can injure the eyes and irritate the skin upon contact and be harmful if ingested

## PACKAGING

Packaging: Light and dense **SODA ASH** are normally packaged in plastic or polyethylene-

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lined, multi-wall paper bags holding 25 kg. Product is also packaged in 1000 kg bulk bags or supersacks. Available as dense, light and granular.

Storage: **SODA ASH** cakes when exposed to moisture or the atmosphere for a long time.

## **IMPORTANT NOTICE TO CUSTOMER**

*Since the use of this product is beyond the control of either seller or manufacturer, their only obligation shall be to replace any quantity of product which is proven defective. They cannot assume any risk or liability in excess of the purchase price of the product itself, which does not include labour or any consequential damages resulting from the use of this product. Determining the suitability of this product for any intended use shall be solely the responsibility of the user. **ALWAYS TEST FIRST.***