

## PROPERTIES AND USES OF SODA ASH

<b>Property</b>	
<b>Chemical Name</b>	Sodium Carbonate
<b>Molecular Weight</b>	105.989
<b>Melting Point</b>	851°C/1564°F
<b>Specific Gravity, 20°/4°C</b>	2.533
<b>Specific Heat</b>	
25°C	0.249 cal/gm/°C
77°C	0.249 Btu/lb/°F
45°C	0.256 cal/gm/°C
<b>Heat of Fusion, 854°C</b>	75.5 cal/gm 135.9 Btu/lb
<b>Heat of Formation, 25°C</b>	-2550 cal/gm -4590 Btu/lb
<b>Heat of Hydration</b>	
Monohydrate, Na <sub>2</sub> CO <sub>3</sub> · H <sub>2</sub> O	30.0 cal/gm Na <sub>2</sub> CO <sub>3</sub> 54.0 Btu/lb Na <sub>2</sub> CO <sub>3</sub>
Heptahydrate, Na <sub>2</sub> CO <sub>3</sub> · 7H <sub>2</sub> O	156.4 cal/gm Na <sub>2</sub> CO <sub>3</sub> 281.5 Btu/lb Na <sub>2</sub> CO <sub>3</sub>
Decahydrate, Na <sub>2</sub> CO <sub>3</sub> · 10H <sub>2</sub> O	208.8 cal/gm Na <sub>2</sub> CO <sub>3</sub> 375.8 Btu/lb Na <sub>2</sub> CO <sub>3</sub>
<b>Solubility</b>	
0°C	7 gms Na <sub>2</sub> CO <sub>3</sub> in 100 gms H <sub>2</sub> O
100°C	44.7 gms Na <sub>2</sub> CO <sub>3</sub> in 100 gms H <sub>2</sub> O
35.37°C (max.)	49.5 gms Na <sub>2</sub> CO <sub>3</sub> in 100 gms H <sub>2</sub> O
<b>Alkali Equivalent</b>	100% Na <sub>2</sub> CO <sub>3</sub> = 58.48% Na <sub>2</sub> O
<b>Acid Equivalent</b>	1lb. Na <sub>2</sub> CO <sub>3</sub> = 0.6881 lb. HCl

## **Uses of Soda ash**

Soda ash is used for production of following materials.

### **Glass Manufacture**

Soda Ash is essential to the production of glass. This market is comprised of manufacturers of glass packaging (bottles and other containers), commercial, residential and automobile windows, mirrors, fibreglass, television tubes, lighting ware, tableware, glassware and laboratory glass.

### **Sodium-Based Products**

Soda Ash is used as a source of sodium ions throughout the chemical industry. It is used in the production of sodium bicarbonate, sodium phosphates, sodium silicates and chrome chemicals.

### **Detergents**

Dry laundry detergents typically contain anywhere from 20% to 80% Soda Ash. Soda Ash also often is the prime alkali used to make phosphates and silicates for detergent applications.

### **Water Treatment**

Soda Ash can be used to control pH (acidity) levels in water and also provides the sodium ion needed for water softening.

### **Pulp & Paper**

Soda Ash supplies the sodium ion required in the pulping of wood fiber.

## **Some more uses of soda ash**

1. Mineral processing in mining
2. Soaps and detergents
3. Metal refining
4. Textile processing
5. Glass fibre manufacture
6. Cleaning preparations
7. Petroleum refining