

if you mix water+sodium carbonate+calcium carbonate, it becomes hot. what is the chemical you called and what are the uses of it?

**Solution:** No chemical reaction occurs. The heat is released because of the dissolution of the salts (the process of solvation with water molecules of  $\text{Na}^+$ ,  $\text{Ca}^{2+}$ ,  $\text{CO}_3^{2-}$  ions is exothermic).

$\text{CaCO}_3$  – It is commonly used medicinally as a calcium supplement or as an antacid, but excessive consumption can be hazardous.

$\text{Na}_2\text{CO}_3$  - The manufacture of glass is one of the most important uses of sodium carbonate. Sodium carbonate acts as a flux for silica, lowering the melting point of the mixture to something achievable without special materials. This "soda glass" is mildly water soluble, so some calcium carbonate is added to the pre-melt mixture to make the glass produced insoluble. This type of glass is known as soda lime glass: "soda" for the sodium carbonate and "lime" for the calcium carbonate. Soda lime glass has been the most common form of glass for centuries.

Sodium carbonate is also used as a relatively strong base in various settings. For example, sodium carbonate is used as a pH regulator to maintain stable alkaline conditions necessary for the action of the majority of photographic film developing agents.

It is a common additive in municipal pools used to neutralize the corrosive effects of chlorine and raise pH.

In cooking, it is sometimes used in place of sodium hydroxide for lyeing, especially with German pretzels and lye rolls. These dishes are treated with a solution of an alkaline substance to change the pH of the surface of the food and improve browning.

In taxidermy, sodium carbonate added to boiling water will remove flesh from the skull or bones of trophies to create the "European skull mount" or for educational display in biological and historical studies.

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. In addition, 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.