

SAI International School
Lesson Notes
Subject - Chemistry
Ch-Acids, Bases & Salts
Topic- Study Of Salts – 3. Baking Soda

Module -16

Dt_ 29 /05/2020

Suggested Videos-

1. <https://youtu.be/UHRIptTczTI> Baking Soda

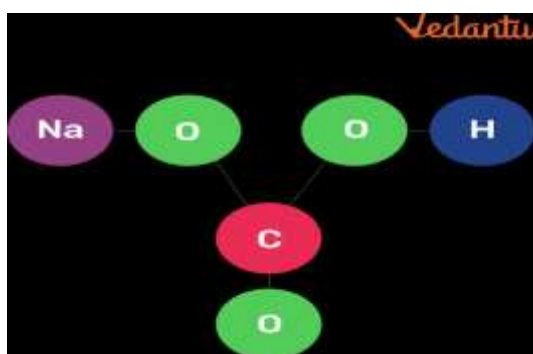
To be done in CW Copy-

- **STUDY OF SALTS-**

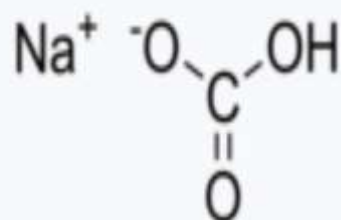
- 3. Baking Soda (Common Name)

OR

- * Chemical Name – Sodium Hydrogen Carbonate
 - * Chemical Formula – NaHCO_3



Sodium bicarbonate



- * **Preparation of Baking Soda-**

- Baking Soda is prepared by **Solvay's Process-**

In this process –

- i. carbon dioxide,
- ii. water,
- iii. ammonia and
- iv. brine solution in its concentrated form,

are used as raw materials.

- The important chemical reaction that takes place is:



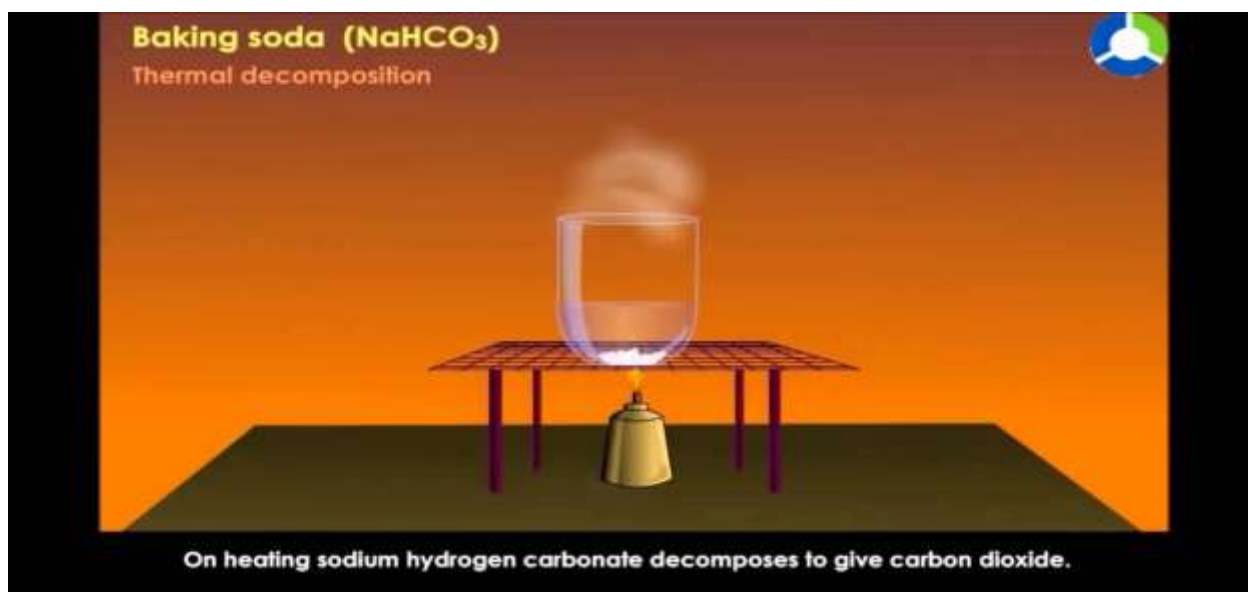
*** Properties of Baking Soda-**

1. It is a white crystalline solid



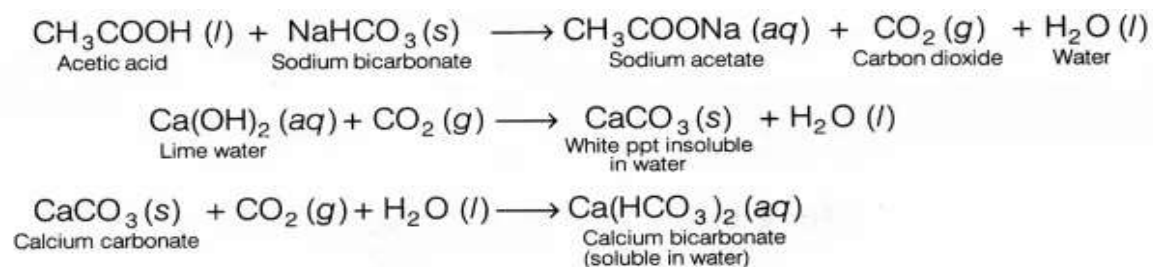
Baking Soda

2. It is **sparingly soluble** in water.
3. It is a **mild, non-corrosive base**.
4. **When sodium hydrogen carbonate is heated, it decomposes to give sodium carbonate with evolution of carbon dioxide gas.**



5. When sodium hydrogen carbonate reacts with an acid it produces the corresponding salt and water with evolution of carbon dioxide gas.





* **Uses Of Baking Soda-**

1. **Baking soda** is used for **cleaning sinks and basins** because of its cleaning properties.
(alkaline in nature).
2. It helps in **tackling acidity**
(Mild Base).
3. It is also used in **fire extinguishers**, because it manages to **produce a foam** which **helps in dousing flames**.
(Sodium hydrogen carbonate reacts with the acid {H₂SO₄} to produce carbon dioxide gas which helps in extinguishing fire) .
4. It is used to **raise the dough for baking purposes**.
(Sodium hydrogen carbonate liberates carbon dioxide gas on being heated, which helps in raising the dough.)
5. Used to prepare **Baking Powder**.
(Sodium hydrogen carbonate is mixed with a mild edible acid like Tartaric Acid to make Baking powder).
 - a. When **Baking soda** is heated, **sodium carbonate** is produced which is a **strong base and bitter in taste**.
Tartaric acid reacts with **sodium carbonate** to form **sodium tartrate** which is **neutral and the bitterness is reduced**.
 - b. Presence of **Tartaric acid** helps in the **release of carbon dioxide gas** which helps in raising the dough.



Preparation of baking powder

<https://youtu.be/1otK-sN5Gc>

Difference between baking soda & baking powder.

Assessment

MCQs

Q.1	Chemical formula of baking soda is- (a) MgSO_4 (b) Na_2CO_3 (c) NaHCO_3 (d) MgCO_3
Q.2	Acetic acid was added to a solid X kept in a test tube. A colourless and odourless gas was evolved. The gas was passed through lime water which turned milky. It was concluded that. (a) Solid X is sodium hydroxide and the gas evolved is CO_2 (b) Solid X is sodium bicarbonate and the gas evolved is CO_2 (c) Solid X is sodium acetate and the gas evolved is CO_2 (d) Solid X is sodium chloride and the gas evolved is CO_2
Q.3	An acid (A) with sodium hydrogen carbonate is used in making the cakes fluffy and spongy. It is due to the release of (B) gas in the reaction. Here, X and Y are (a) A : Oxalic acid : B : CO_2 (b) A : Tartaric acid : B : O_2 (c) A : Succinic acid : B : H_2 (d) A : Tartaric acid : B : CO_2
<p>➤ For Assertion & Reason question follow the following directions.</p> <p>DIRECTION: Each of these questions contains an Assertion followed by Reason. Read them carefully and answer the question on the basis of following options. You have to select the one that best describes the two statements.</p> <p>(a) If both Assertion and Reason are correct and Reason is the correct explanation of Assertion.</p> <p>(b) If both Assertion and Reason are correct, but Reason is not the correct explanation of Assertion.</p> <p>(c) If Assertion is correct but Reason is incorrect.</p> <p>(d) If Assertion is incorrect but Reason is correct.</p> <p>(e) If Assertion & Reason both are incorrect.</p>	
Q.4	Assertion: Baking soda creates acidity in the stomach. Reason: Baking soda is alkaline.
Q.5	Assertion: Gas bubbles are observed when sodium carbonate is added to dilute hydrochloric acid.

	Reason: Carbon dioxide is given off in the reaction.
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Home assignment

S.L No.	Questions	Mark	Skill
Q.1	Write the chemical name and chemical formula of washing soda. [CBSE 2014]	1	R
Q.2	Name the chemicals used in acid fire extinguisher and the gas evolved from it when it is used? [CBSE 2012, 2011]	1	u
Q.3	A substance 'X' is used as antacid reacts with hydrochloric acid to produce a gas W which is used in fire extinguishers: a. Name the substance X and 'Y'. b. Write a balanced equation of the reaction between X and hydrochloric acid. [CBSE 2013]	3	R+A
Q.4	"Sodium hydrogen carbonate is a basic salt." Justify the statement. How is it converted into washing soda? Explain. [CBSE 2012]	3	U+A
Q.5	a. A metal compound 'X' reacts with dilute H_2SO_4 to produce effervescence. The gas evolved extinguishes a burning candle. If one of the compounds formed is calcium sulphate, then what is 'X' and the gas evolved? Also write a balanced chemical equation for the reaction which has occurred. b. (i) Name one antacid. How does it help to relieve indigestion in stomach? (ii) A farmer treats the soil with quicklime or calcium carbonate. What is the nature of the soil? Why does the farmer treat the soil with quicklime? [CBSE 2012]	5	HOT