

UPDAAN



2025

Bharat Mata Ki Jai ♡

ACIDS, BASES AND SALTS

Salts and Their Types – Part IV and
MCQ Practice → (PYQ + NDA)

CHEMISTRY

Lecture – 09

BY: SUNIL BHAIIYA



Topics

to be covered

- 1 Washing Soda: Preparation and Uses
- 2 Plaster of Paris: Preparation and Uses
- 3 MCQ Practice





SUNIL BHAIYA

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CBSE QUESTION & CONCEPT BANK

Chapter-wise & Topic-wise

Includes Point-wise Answers with Step-wise Marking

CLASS 10th SCIENCE

- Chapter-wise
CONCEPT MAPS
- CBSE 2024-25 & NEP 2020
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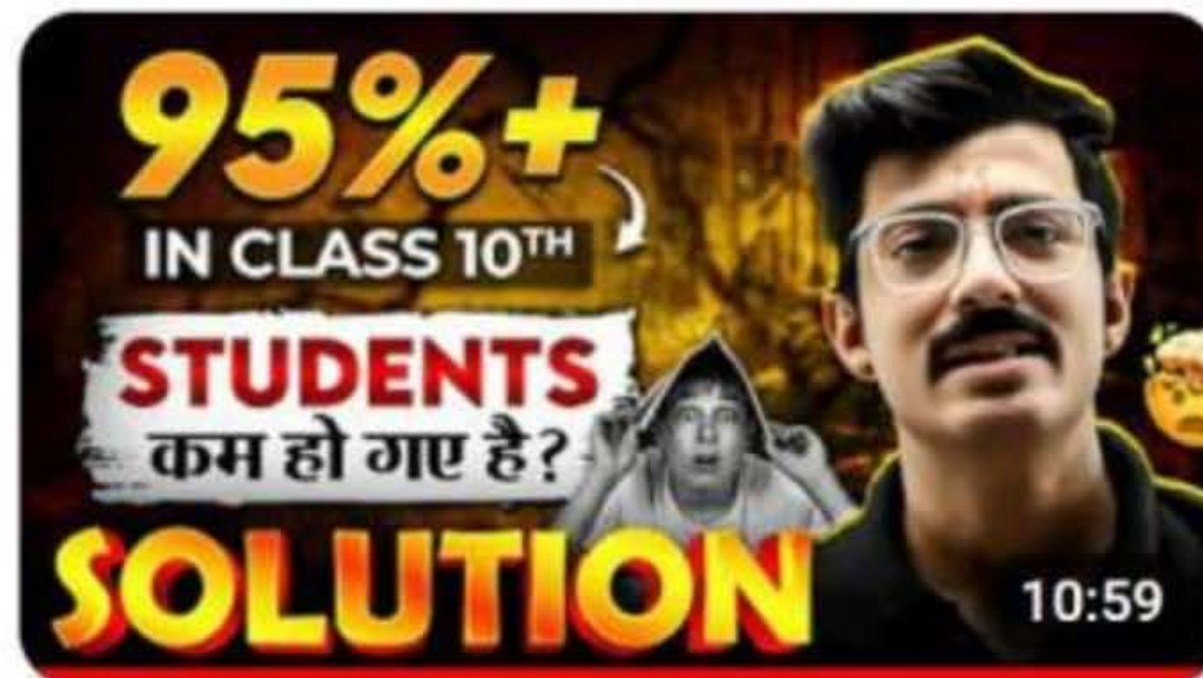
2025
EXAMINATION

✦ Rakshak Dua
✦ Samridhi Sharma
✦ Sunil Vijay Hingorani



Detailed Review and Importance of
the Book in One Video.

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Class 10th में 95%+ लाने वाले बच्चे घटे ?

🧐 Reason and Solution

Knowledge Ride On



Washing Soda: Preparation and Uses

Knowledge Ride On



Plaster of Paris: Preparation and Uses

Knowledge Ride On



MCQ Practice

Knowledge Ride On



Insaniyat Ka Gyaan ✓



Hasmukhlal: ~~Bhai~~ ^khelne chalega?

Simaila: Reply was similar to the word formed by the chemical symbols of sodium, bromine and oxygen.



(Sodium hypobromite)



Hasmukhlal: Bhai khelne chalega?

Simaila: Reply was similar to the word formed by the chemical symbols of sodium, bromine and oxygen.

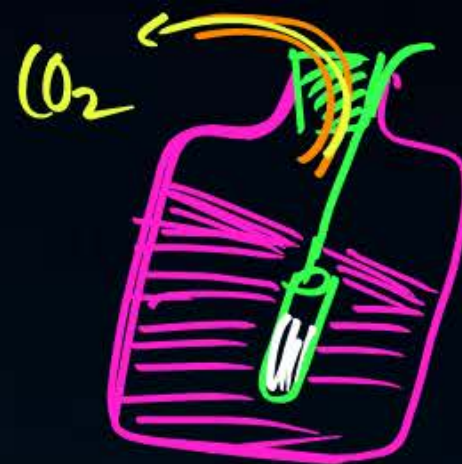
*Simaila Gang Rocked and
Hasmukhlalians Be Like:*



Concept Polish (गृहकार्य) – Homework Discussion



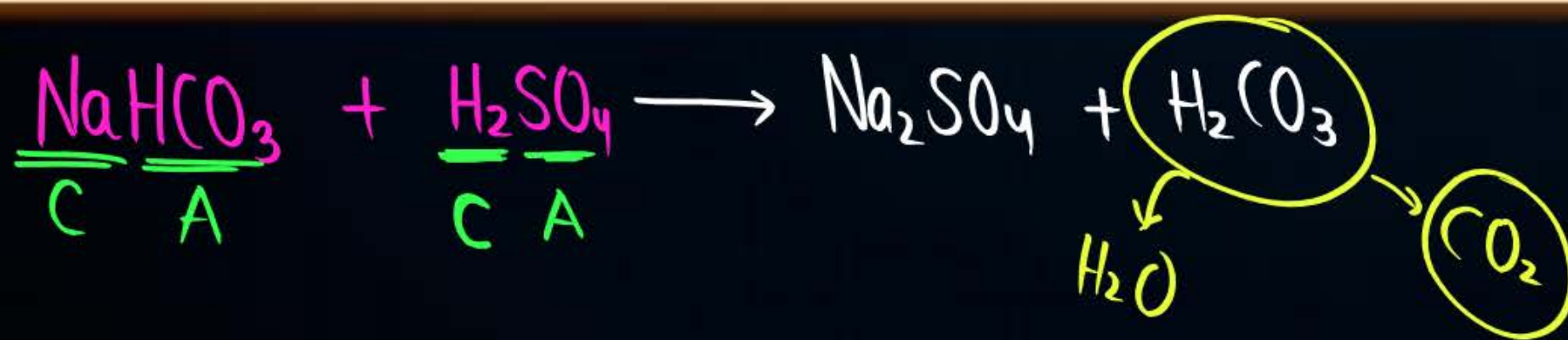
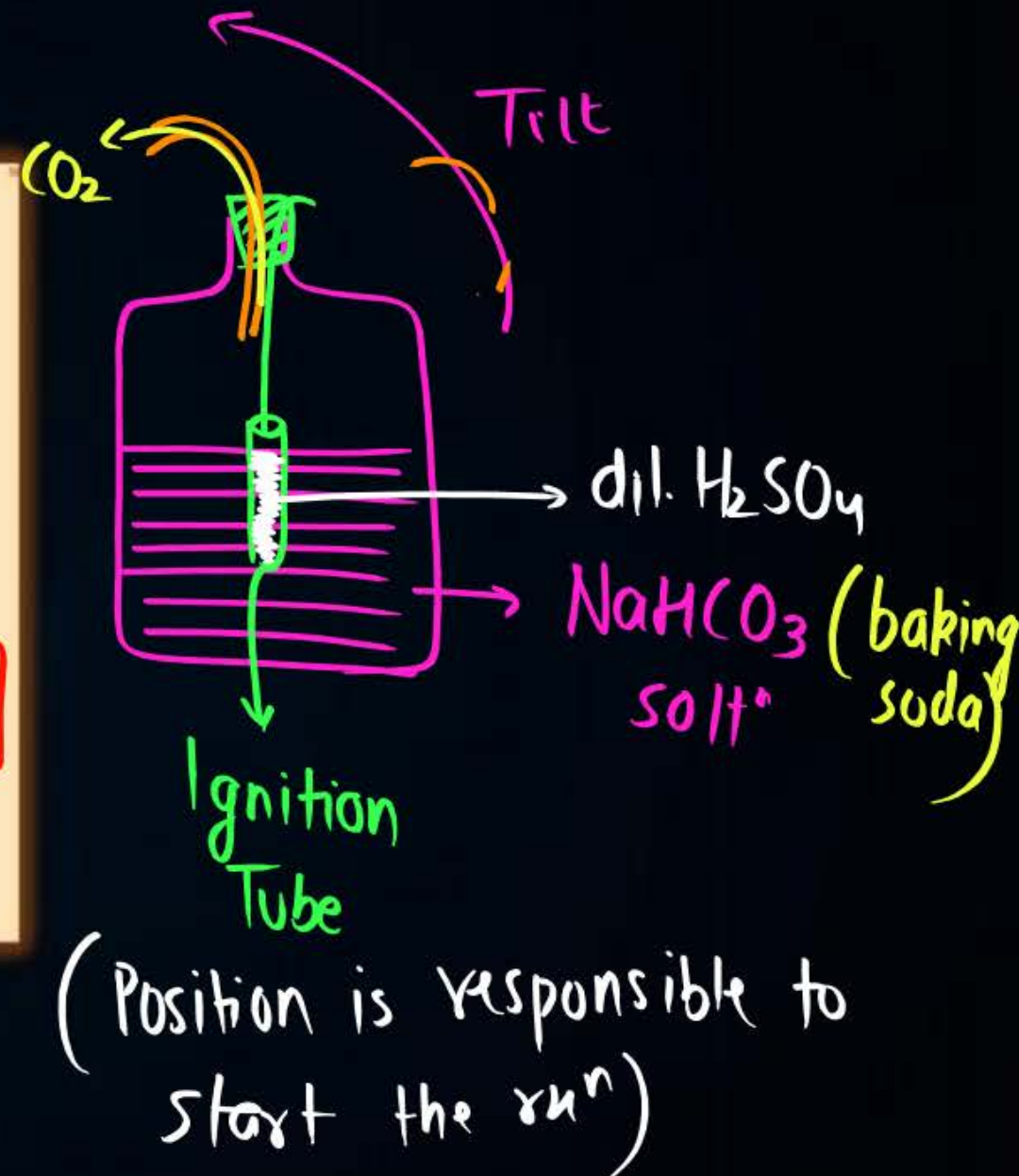
Decode This Activity!



(II) Preparing a soda-acid fire extinguisher

The reaction of acids with metal hydrogencarbonates is used in the fire extinguishers which produce carbon dioxide.

- Take 20 mL of sodium hydrogencarbonate (NaHCO_3) solution in a wash-bottle.
- Suspend an ignition tube containing dilute sulphuric acid in the wash-bottle (Fig. 2.10).
- Close the mouth of the wash-bottle.
- Tilt the wash-bottle so that the acid from the ignition tube mixes with the sodium hydrogencarbonate solution below.
- You will notice discharge coming out of the nozzle.
- Direct this discharge on a burning candle. What happens?





④ CO_2 gas extinguishes fire \rightarrow (Smothering)

⑤ CO_2 is heavier than $\text{O}_2 \rightarrow$ displaces O_2 from fire \downarrow
(FIRE EXTINGUISHES)

QUESTION

 Ritik Cook +  'Boogie-Woogie' 'pookie'



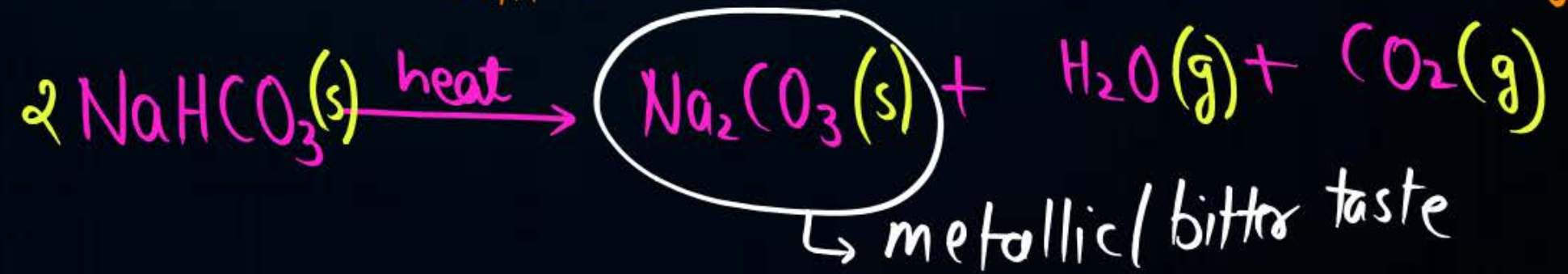
Difference between baking soda and baking powder in detail?

Baking soda (NaHCO_3) \rightarrow LEAVENING AGENT \rightarrow (Releases CO_2 gas that makes cake fluffier)

What Ritik was suppose to do?

$\begin{matrix} \text{Metal bicarbonate} \\ \downarrow \end{matrix}$ Baking Soda + $\begin{matrix} \text{Acid} \\ \downarrow \end{matrix}$ Vinegar/Lemon Juice \longrightarrow Salt + Water + Carbon dioxide gas

Ritik bhai did a miscalculation \rightarrow Some amount of baking soda still remain unreacted because it was in large amount



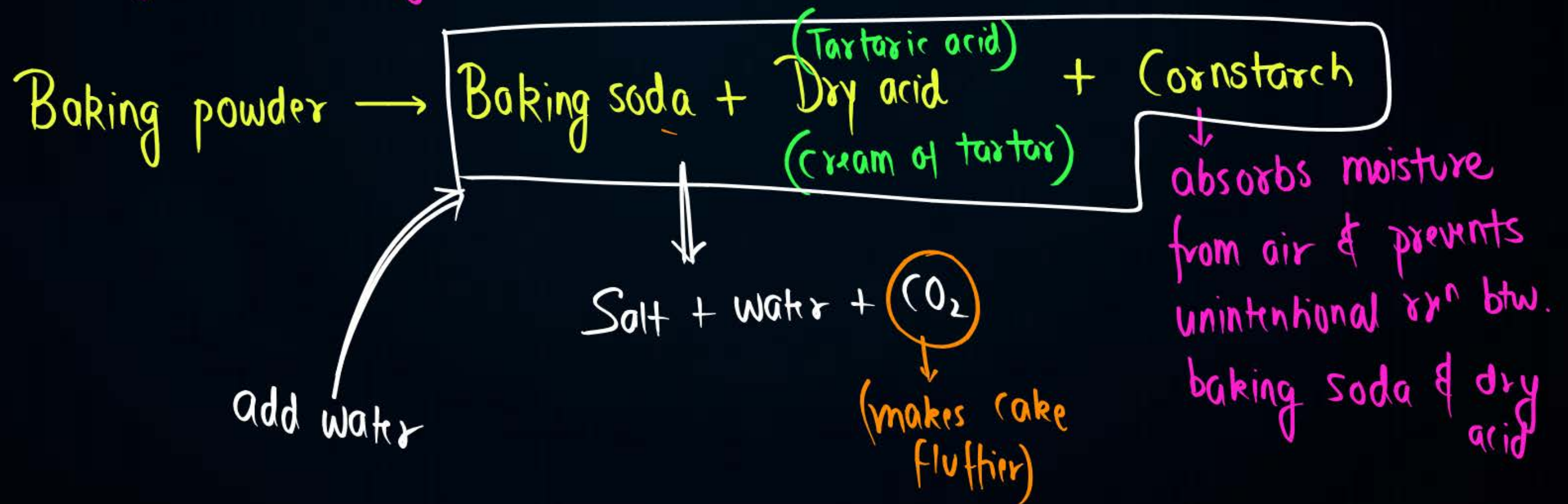
QUESTION



Difference between baking soda and baking powder in detail?

Boogie-Woogie/Pookie ko manana cake phirse khilana है

Industries produce a leavening agent in a proper calculated amount of baking soda & dry acid → **BAKING POWDER** → no metallic / bitter taste



Uses of Baking Soda

(i) Used in soda-acid fire extinguisher.

(ii) Used to make baking powder.

(iii) Used to make antacid (ASA antacid)

anhydrous citric acid

aspirin

Sodium bicarbonate

(Mild non-corrosive basic salt)



Washing Soda: Preparation and Uses

aye bhaiya



Washing Soda

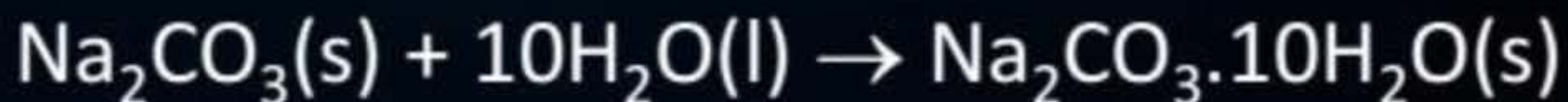
(Common Name)

form of Na_2CO_3

Chemical Formula: $\rightarrow \text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$

Chemical Name: \rightarrow Sodium carbonate decahydrate

Prepared by: \rightarrow We have observed that, on heating, sodium hydrogen carbonate (NaHCO_3) decomposes to give sodium carbonate (Na_2CO_3); (recrystallisation of Na_2CO_3 gives washing soda) It is also a basic salt.



Recrystallisation of Soda Ash

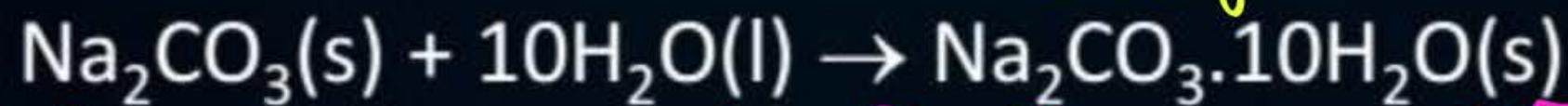


crystal-like structure → fixed geometrical shape

- A crystalline solid contains impurities is dissolved in a particular solvent and then changing conditions so as to allow crystals of pure compound to re-form leaving the impurities into the solution.

(जिसमें दूध है)

(Solvent here is water)



Washing soda

add more Na_2CO_3

More temp. of water more will be solubility of Na_2CO_3 (↑)

keep it at room temp. → Temp. starts to decrease, solubility of Na_2CO_3 (↓) but impurities remain dissolved
→ Na_2CO_3 will come out in form of crystals again.

Na_2CO_3
(crystalline solid with impurities)



Water of Crystallisation



(Water that provides crystal-like structure)

→ वो पानी के molecule जो किसी salt को एक fixed geometrical shape (crystal-like) structure देते हैं।

- The fixed number of water molecules that are attached to one formula unit salt and makes the salt crystalline is called **water of crystallisation**.

- It provides **crystal-like structure** to the salt and in some cases colour to the salt.

Anhydrous (without water of crystallisation)
Salt



Can a salt be crystalline (having fixed geometrical shape) without water of crystallisation?



- ☒ A Yes
☐ B No

ex:

NaCl

KNO₃ etc.

crystalline salts without water of crystallisation.

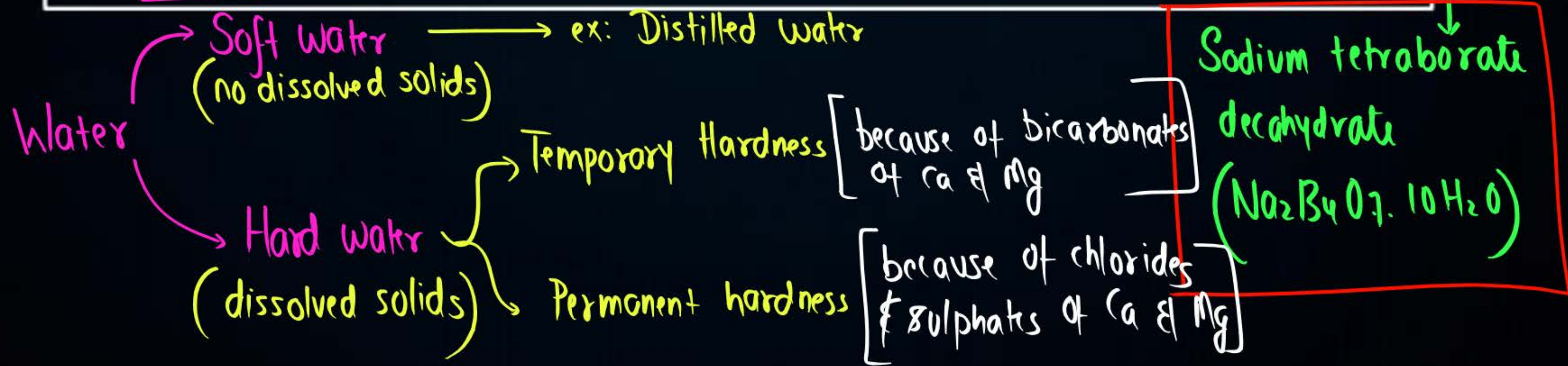


Uses of Washing Soda



- (a) It is used in glass, soap and paper industries.
- (b) It is used to remove permanent hardness of water.
- (c) It is used to manufacture sodium compounds such as borax.
- (d) It is used as a cleaning agent to remove stubborn stains from clothes.

(CaSO_4 , MgSO_4 , CaCl_2 , MgCl_2)



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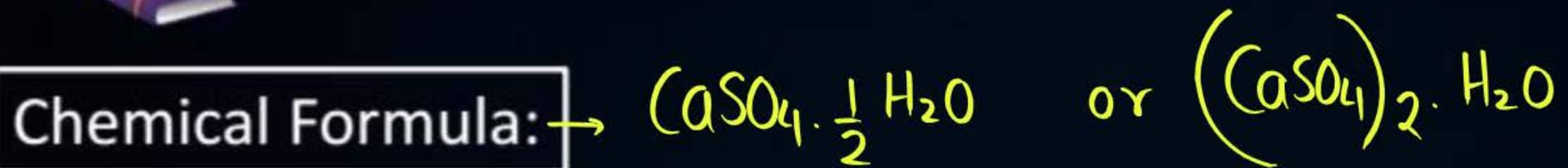
Plaster of Paris: Preparation and Uses

Plaster of Paris

(first introduced in Paris)



Chemical Formula:

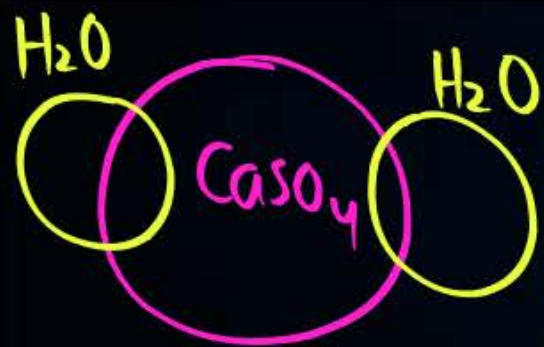


Chemical Name:

Calcium sulphate hemihydrate

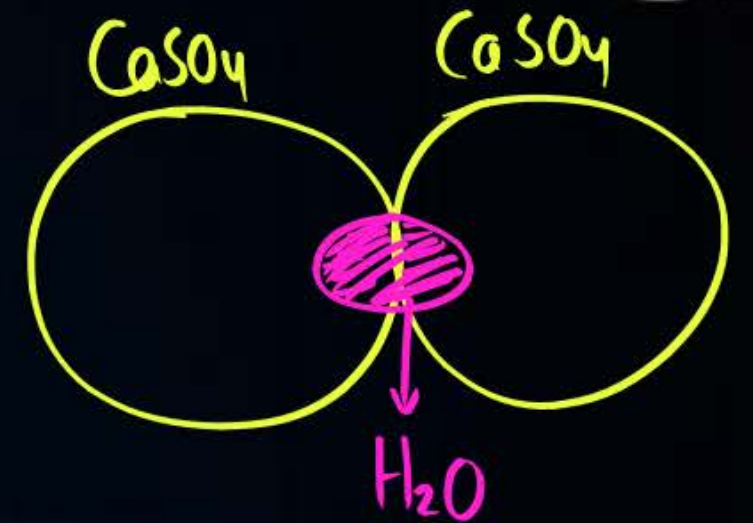
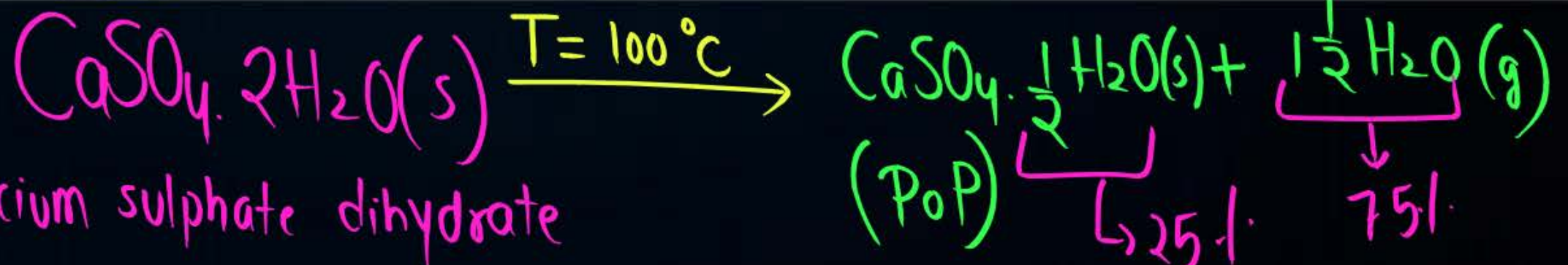
Prepared by:

When gypsum ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) is heated in a kiln at 100 °C or 373 K, it loses three-fourth of its water of crystallisation forming the plaster of Paris.



(Gypsum)

Calcium sulphate dihydrate





Plaster of Paris



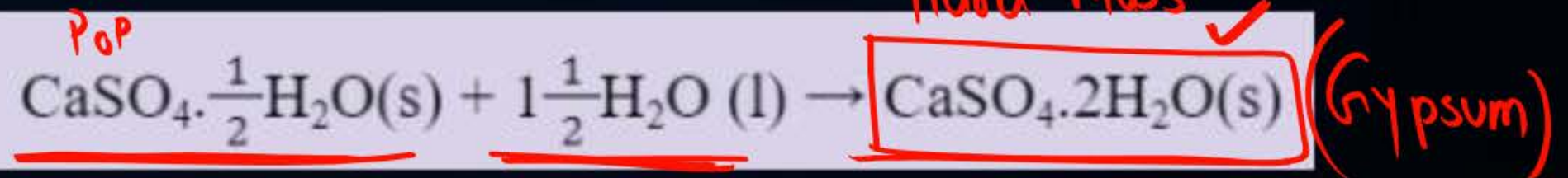
Dead Burnt Plaster:



anhydrous calcium sulphate

✓ Setting of PoP:

When plaster of Paris is mixed with water and left for half an hour to one hour, it rehydrates to form a hard mass, i.e. gypsum.



As PoP reacts with moisture present in air (H_2O) and converts to gypsum.
Therefore, to cut-off the supply of air it is stored in moisture-proof container.



Uses of Plaster of Paris



- ✓ (a) It is used for setting fractured bones in the right position.
- ✓ (b) It is used for making toys, decorative items, statues and more.
- ✓ (c) It is used to make the surface of walls and ceilings smooth.

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MCQ Practice



PW Ka **ChemStar!**

Select a pair of natural indicator from the following.

- ☐ A Litmus and methyl orange
 - ☒ B Turmeric and litmus
 - ☐ C Phenolphthalein and methyl orange
 - ☐ D Methyl orange and turmeric
- Handwritten notes:*
- ✓ above Litmus, ✗ above methyl orange
 - ✓ above Turmeric, ✓ above litmus
 - ✗ above Phenolphthalein, ✗ above methyl orange
 - ✗ above Methyl orange, ✓ above turmeric
 - Two arrows pointing to 'methyl orange' in options A and C, labeled 'synthetic indicator'.

A chemical compound used in glass, soap and paper industries.

- ☒ A Washing soda
- ☐ B Baking soda
- ☐ C Bleaching powder
- ☐ D Common salt

Consider the following compounds.

FeSO_4 , CuSO_4 , CaSO_4 , Na_2CO_3

The compound having maximum number of water of crystallization in its crystalline form in one molecule is:

- ☐ A $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$
- ☐ B $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$
- ☐ C $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$
- ☒ D $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$

Which one of the following is the chemical name for baking soda?



- ☒ **A** Sodium bicarbonate (sodium hydrogen carbonate)
- ☐ **B** Sodium carbonate
- ☐ **C** Potassium bicarbonate (potassium hydrogen carbonate)
- ☐ **D** Potassium carbonate

$(\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O})$ → form of Sodium carbonate

Washing soda is the common name for:

- ☐ A calcium carbonate
- ☐ B magnesium carbonate
- ☒ C sodium carbonate
- ☐ D potassium carbonate

The solution of which among the following will have a pH lesser than 7?

- A** NaOH
- B** KCl
- C** FeCl_3
- D** NaCl

H.W.

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Concept Polish (गृहकार्य)



Insaniyat Ka Gyaan

***Insaniyat Ka Gyaan
Jo Banae Behtar Insan***





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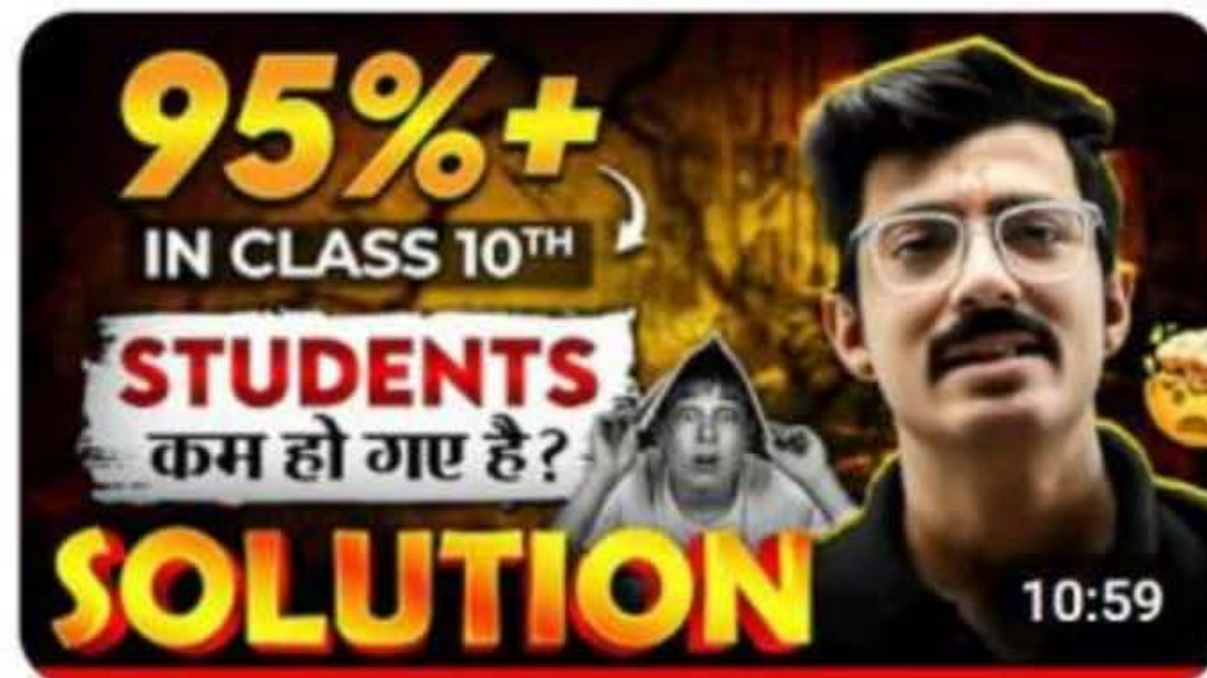
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SUNIL BHAIYA IS ALWAYS THERE FOR YOU.

#sbsathhai ✓
#pwsathhai ✓



**THANK
YOU**

