

116 EXPERIMENT NO. 7

AIM: To study the effect of heat on given substances (hydrated salts)

APPARATUS: Test tube, delivery tube, glass rod, Bunsen's burner, test tube holder.

CHEMICALS: Given substances, litmus papers, anhydrous copper sulphate, cobalt chloride paper, lime water, acidified potassium permanganate solution.

PROCEDURE:

1. A small portion of the given substance is taken in a clean and dry test tube and heated.
2. Observations are recorded, products are identified with the help of chemical tests and deductions are made where possible.

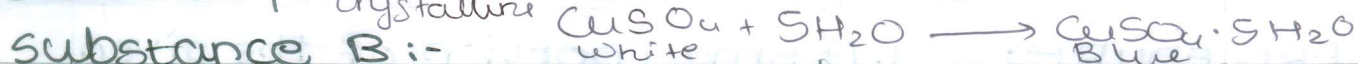
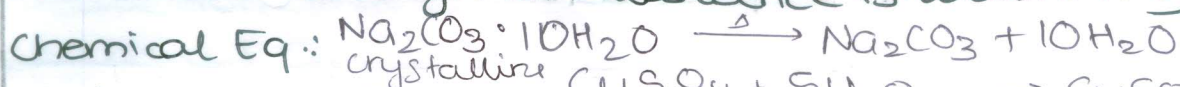
conclusion: 1] Washing soda, on heating, decomposes to give anhydrous washing soda and H_2O (gas).

2] Hydrated $CuSO_4$, on heating, decomposes to give anhydrous $CuSO_4 + H_2O$ (gas).

Substance A:-

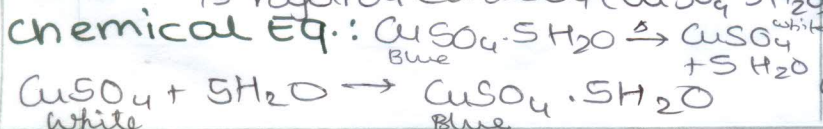
S.No	Test	Observation	Inference
1.	Take a small portion of the given substance in a perfectly dry test tube & heat it.	Original colour: <u>white</u> Gas evolved: colour of gas: <u>colourless</u> odour of gas: <u>odourless</u> Residue colour: <u>white</u>	The salt decomposed to evolve a gas.
2.	Pass the vapour over anhydrous copper sulphate taken in another test tube.	white, anhydrous copper sulphate turns blue	The gas evolved is water vapour.
3.	Bring cobalt chloride paper near the mouth of the test tube.	Blue cobalt chloride paper turns pink.	Gas evolved is water vapour.
4.	Bring moist blue and red litmus papers one by one in contact with the gas.	No change in colour of moist blue & red litmus	Gas evolved is neutral in nature.

Deduction: The given substance is washing soda. (Hydrated)



1.	Take a small portion of the given substance in a perfectly dry test tube and heat it.	Original colour: <u>Blue</u> Gas evolved: <u>—</u> Colour of gas: <u>colourless</u> odour of gas: <u>odourless</u> Residue colour: <u>white</u>	The salt decomposed to evolve a gas.
2.	Bring moist blue and red litmus papers 1 by one in contact with the gas	Litmus papers don't change color	Gas is neutral
3.	Pass the vapour over anhydrous copper sulphate in test tube	white anhy. CuSO_4 turns blue	Gas evolved is water vapour
4.	On strong heating:	lime water turns milky	Gas evolved is SO_2
5.	Pass the gas through lime water. Pass excess gas through lime water	Gas evolved: SO_2 colour of gas: <u>colourless</u> odour of gas: <u>pungent</u> Residue colour: <u>Black</u>	Gas evolved is SO_2
6.	Pass the gas through acidified potassium permanganate soln.		

Deduction: The given substance is hydrated CuSO_4 ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$)



The pink colour of the solution disappears

Gas evolved is SO_2