

Science

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(Chapter - 1) (Chemical Reactions and Equations) (Intext)
(Class 10)

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Question 1:

A solution of a substance 'X' is used for white washing.

(i) Name the substance 'X' and write its formula.

(ii) Write the reaction of the substance 'X' named in (i) above with water.

Answer 1:

(i) The substance 'X' is calcium oxide. Its chemical formula is CaO.

(ii) Calcium oxide reacts vigorously with water to form calcium hydroxide (slaked lime)



Question 2:

Why is the amount of gas collected in one of the test tubes in Activity 1.7 double of the amount collected in the other? Name this gas.

Answer 2:

During the Electrolysis of water, hydrogen and oxygen is get separated by the electricity. Water (H₂O) contains two parts hydrogen and one part oxygen. Since hydrogen goes to one test tube and oxygen goes to another, the amount of gas collected in one of the test tubes is double of the amount collected in the other.

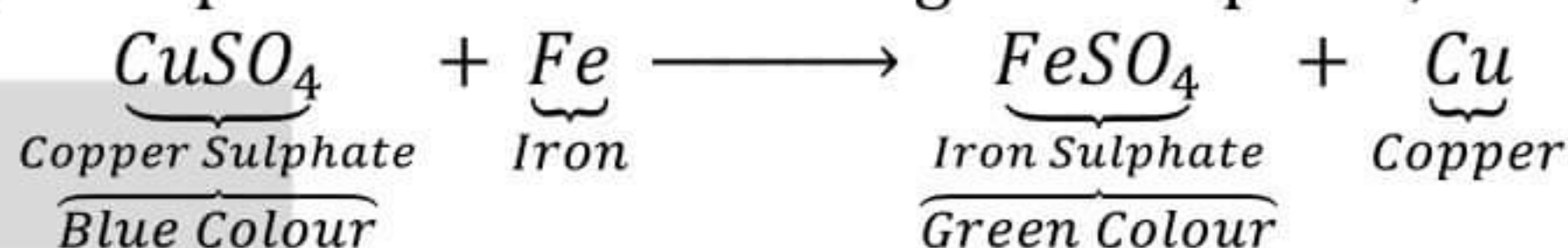
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Question 1:

Why does the colour of copper sulphate solution change when an iron nail is dipped in it?

Answer 1:

When an iron nail is dipped in a copper sulphate solution, iron (which is more reactive than copper) displaces copper from copper sulphate solution forming iron sulphate, which is green in colour.



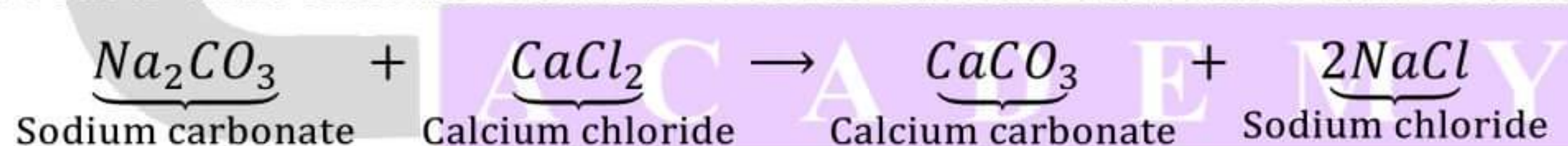
Therefore, the blue colour of copper sulphate solution fades and green colour appears.

Question 2:

Give an example of a double displacement reaction other than the one given in Activity 1.10.

Answer 2:

Sodium carbonate reacts with calcium chloride to form calcium carbonate and sodium chloride.



In this reaction, sodium carbonate and calcium chloride exchange ions to form two new compounds. Hence, it is a double displacement reaction.

Question 3:

Identify the substances that are oxidised and the substances that are reduced in the following reactions.

(i) $4\text{Na(s)} + \text{O}_2\text{(g)} \rightarrow 2\text{Na}_2\text{O(s)}$

(ii) $\text{CuO(s)} + \text{H}_2\text{(g)} \rightarrow \text{Cu(s)} + \text{H}_2\text{O(l)}$

Answer 3:

(i) Sodium (Na) is oxidised as it gains oxygen and oxygen gets reduced.

(ii) Copper oxide (CuO) is reduced to copper (Cu) while hydrogen (H₂) gets oxidised to water (H₂O).