

Chapter 9 Group 2 The Alkaline Earth Metals – GCSE Assumed Knowledge

Learning Objectives	Keypoints
Describe tests to detect sulfates, carbonates and halides	<p>To detect sulfates: Add a few drops of dilute HCl. Add a few drops of barium chloride. A white precipitate of barium sulfate is a positive result. $\text{Ba}^{2+}_{(\text{aq})} + \text{SO}_4^{2-}_{(\text{aq})} \rightarrow \text{BaSO}_4(\text{s})$</p> <p>To detect carbonate ions: Add a few drops of dilute hydrochloric acid. Bubbles of a gas (carbon dioxide) are a positive result. $2\text{H}^{+}_{(\text{aq})} + \text{CO}_3^{2-}_{(\text{aq})} \rightarrow \text{CO}_2(\text{g}) + \text{H}_2\text{O}(\text{l})$</p> <p>To detect halide ions: Add a few drops of nitric acid. Add a few drops of silver nitrate solution. Record the colour of the precipitate Chloride = white precipitate, bromide = cream precipitate, iodide = yellow precipitate $\text{AgNO}_3(\text{aq}) + \text{X}^{-}_{(\text{aq})} \rightarrow \text{AgX}(\text{s}) + \text{NO}_3^{-}$ (where X = Cl, Br or I)</p>