



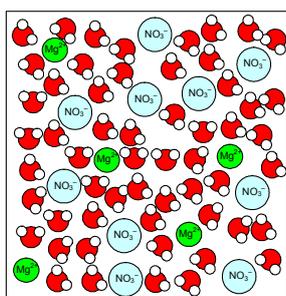
GROUP 2 – SULFATES & HYDROXIDES

PART 1 – Testing solubilities

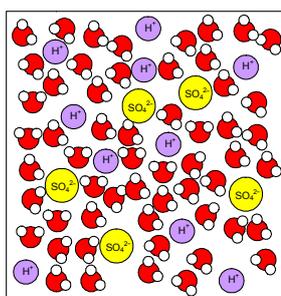
Test the solubility of the Group 2 sulfates and hydroxides. To test the solubility of the hydroxides, add solutions containing each Group 2 ion to a solution containing hydroxide ions. To test sulfate solubility, do something similar with a solution containing sulfate ions.

Solubility trend	Hydroxide	Soluble	Slightly soluble	Insoluble	Ionic equation for formation of any precipitate
	Mg(OH) ₂				
	Ca(OH) ₂				
	Sr(OH) ₂				
	Ba(OH) ₂				

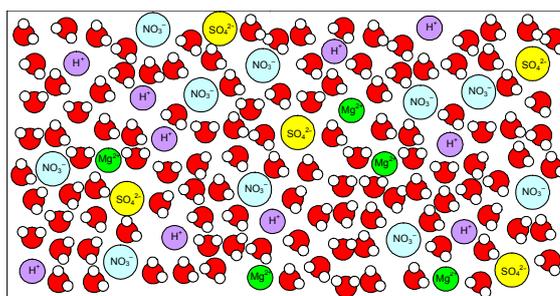
Solubility trend	Sulfate	Soluble	Slightly soluble	Insoluble	Ionic equation for formation of any precipitate
	MgSO ₄				
	CaSO ₄				
	SrSO ₄				
	BaSO ₄				



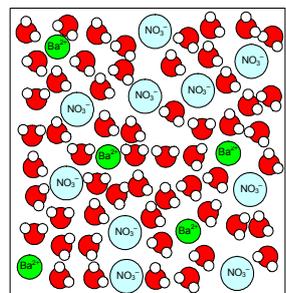
Mg(NO₃)₂(aq)



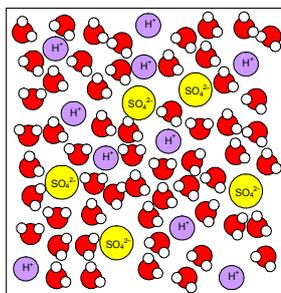
H₂SO₄(aq)



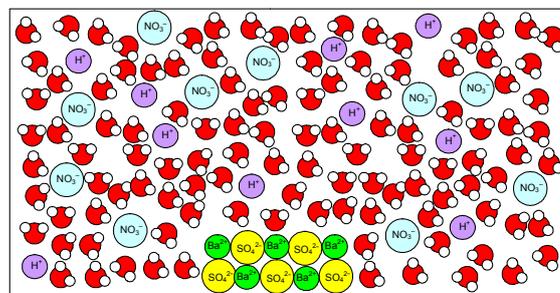
No reaction



Ba(NO₃)₂(aq)



H₂SO₄(aq)



Reaction takes place: Ba²⁺(aq) + SO₄²⁻(aq) → BaSO₄(s)

Some uses of these compounds

Compound	Mg(OH) ₂	Ca(OH) ₂	BaSO ₄
Use			

PART 2 – Testing for sulfate ions

Action	Reason
1) Add hydrochloric acid (aq) to the solution being tested.	This removes any other ions that could give a precipitate with barium chloride (aq), e.g. carbonate ions: $\text{CO}_3^{2-} + 2 \text{H}^+ \rightarrow \text{CO}_2 + \text{H}_2\text{O}$
2) Add barium chloride (aq) to the solution being tested.	This produces a white precipitate with SO_4^{2-} ions. $\text{Ba}^{2+}(\text{aq}) + \text{SO}_4^{2-}(\text{aq}) \rightarrow \text{BaSO}_4(\text{s})$

Sample	O	P	Q
Addition of BaCl ₂ (aq)			
SO ₄ ²⁻ ion contained (✓ or ✗)			

	Calcium compounds Magnesium compounds Strontium compounds		Barium compounds
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