

Revised May 2008



AP WORKED ANSWERS

2008B, 5

Points Guesstimate 2, 2, 2, 2, 2

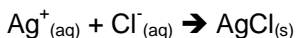
(a) Transition metal ions are often colored. Cu^{2+} is blue, Ni^{2+} is green.

$\text{Al}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}$	$\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$	CaCO_3	$\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$
NaCl	BaSO_4	$\text{Ni}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$	

(b) Calcium carbonate and barium sulfate are insoluble in water.

$\text{Al}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}$	$\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$	CaCO_3	$\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$
NaCl	BaSO_4	$\text{Ni}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$	

(c) The formation of a white ppt. on the addition of $\text{Ag}^+_{(\text{aq})}$ indicates the presence of $\text{Cl}^-_{(\text{aq})}$ ions.



$\text{Al}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}$	$\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$	CaCO_3	$\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$
NaCl	BaSO_4	$\text{Ni}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$	

(d) Heating hydrated salts causes the water in them to evaporate and as a result, they lose mass.

$\text{Al}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}$	$\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$	CaCO_3	$\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$
NaCl	BaSO_4	$\text{Ni}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$	

(e) Adding an aqueous solution of hydrated copper(II) sulfate to an aqueous solution of hydrated barium chloride will cause a white precipitate of BaSO_4 to be formed.

