



TOPIC 10 EXERCISE 2 – IONIC COMPOUNDS IN SOLUTION

1. Calculate the enthalpy of solution of sodium chloride given the following data (all in kJmol^{-1}):
enthalpy of hydration of Na^+ : -405
enthalpy of hydration of Cl^- : -364
lattice enthalpy of NaCl: -780
2. Calculate the enthalpy of solution of the hydroxides of barium, calcium and magnesium given the following data (all in kJmol^{-1}):
lattice enthalpy of $\text{Ba}(\text{OH})_2$: -2235
lattice enthalpy of $\text{Ca}(\text{OH})_2$: -2650
lattice enthalpy of $\text{Mg}(\text{OH})_2$: -2995
hydration energies: Ba^{2+} : -1360, Ca^{2+} : -1650, Mg^{2+} : -1920, OH^- : -460

Use your answers to explain the trend in solubility of the group (II) hydroxides.

3. Calculate the enthalpy of solution of silver chloride given the following data:
Lattice enthalpy of silver chloride: -905
Enthalpy of hydration of Ag^+ : -464
Enthalpy of hydration of Cl^- : -364

Explain why AgCl is much less soluble than NaCl.

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