

Exercise III

1) Peroxide and superoxide are, respectively:

diamagnetic and diamagnetic
paramagnetic and paramagnetic
diamagnetic and paramagnetic
paramagnetic and diamagnetic

Nr. 3

2) Sodium-potassium alloys are used as:

an oxidizing agent
a reducing agent
a drying agent
a source of Na^+

Nr. 2

3) The Downs process is used to produce:

NaCl and Cl_2
 NaOH and Cl_2
 Na and Cl_2
 NaCl and NaOH

Nr. 3

4) You can dissolve 370 g of NaCl in one liter of water. Calculate the solubility product of NaCl .

$$K_{\text{SB}} = [\text{Na}^+][\text{Cl}^-] \text{ (at saturation)} = [370 \text{ g l}^{-1} / (22.99 + 35.45) \text{ g mol}^{-1}]^2 = 40.09 \text{ mol}^2 \text{ l}^{-2}$$

5) Which of the following statements is true:

Li^+ has a lower hydration enthalpy than Na^+
 LiF is more soluble than NaCl
Fluoride has a higher solvation enthalpy than chloride.
 Li^+ is larger than Na^+

Nr. 3

6) Which of the following salts should you better not eat: KCl, NaCl, LiCl, MgCl₂, BeCl₂, CaCl₂ ??

LiCl and BeCl₂

7) Which of the following compounds reacts with water: Ca(OH)₂, CaH₂, CaBr₂ or Ca(NO₃)₂?

CaH₂, the other just dissolve