

Chemguide – questions

GROUP 4: CHLORIDES

1.
 - a) CCl_4 and SiCl_4 are both colourless liquids at room temperature. Describe briefly the bonding in the two compounds. You are not expected to draw any diagrams.
 - b) Unlike SiCl_4 , CCl_4 has no reaction at all with water, and doesn't fume in moist air.
 - (i) Why does SiCl_4 fume in moist air?
 - (ii) The reaction of SiCl_4 with moist air is simply a reaction with water. Write an equation for the reaction involved.
 - (iii) Explain why SiCl_4 reacts with water, but CCl_4 doesn't.
2. Lead forms two chlorides, PbCl_4 and PbCl_2 .
 - a) Describe briefly the bonding in these two compounds. You are not expected to draw diagrams.
 - b) Which of these two compounds is the most energetically stable? Give your evidence for this.
 - c) Suppose you added a little of each of these compounds to a small amount of water. Describe what you would see, and write the equation(s) for any reaction(s) you mention.