

Answers to Homework: Unit 1, Lesson 13: Classifying Solids

1. Read pages 196 to 199, and page 204
2. Answer questions 3 and 5 on page 208

Page 208, question 3:

- a) P_4 is a molecular non-polar (pure) covalent molecule. Only London dispersion forces can act between its molecules
- b) Na_3PO_4 is an ionic solid. It will form a crystal lattice.
- c) Os is a metal, so it will have metallic bonding between its atoms.
- d) SiO_2 is a network solid. It has bonds between all molecules in three dimensions.

Page 208, question 5:

A solid is soluble in water and has a melting point of $140^\circ C$. In order to classify this solid as ionic, molecular (polar or non-polar), metallic or network, what additional tests should be carried out?

- from its solubility in water and low melting point, it is probably a polar covalent compound
 - check to see if the solution conducts electricity. If it does, it is probably ionic. If it does not, it is probably polar covalent.
3. Complete the chart “Summary: Characteristics of Crystalline Solids” to compare the properties of the different types of crystalline solids (solids that have a regular crystal structure)
 - answers will be posted in class