

Chemguide – questions

PERIOD 3: PHYSICAL PROPERTIES OF THE OXIDES

- This question is about the way the structures of the oxides change across the period and its effect on their physical properties. For this question, we are just thinking about the oxides of each element as a whole - not about specific oxides. For example, we are thinking about sulphur oxides in general, not individually as sulphur dioxide and sulphur trioxide.

 - Types of structure include ionic, giant covalent, metallic and molecular. Assign the oxides of each element to one of these structure types.
 - Explain why the type of structure formed is different on the left- and right-hand ends of the period.
 - The oxides of the elements from sodium to silicon are high melting point solids. The oxides of the rest of the period are low melting point solids, liquids or gases. Explain the reasons for this.
 - How does the electrical conductivity of the oxides vary across the period. Explain the reason for this.
- Draw diagrams to show the structure (including, as far as possible, the shape) of each of the following oxides.

 - SiO_2
 - P_4O_6 and P_4O_{10}
 - SO_2 and SO_3 (just show the structure of a simple SO_3 molecule)
 - Cl_2O and Cl_2O_7