

Exercise 0.73 – Physical properties – solubility

Q073-01 What kind of ions have, in general, the strongest interaction with water molecules in aqueous solution?

- A. ions with large electric charge and large radius
 - B. ions with small electric charge and small radius
 - C. ions with large electric charge and small radius
 - D. ions with small electric charge and large radius
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Q073-02 Which substance is most soluble in water?

- A. C_6H_6
 - B. CH_3OH
 - C. CO_2
 - D. CH_4
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Q073-03 A white solid has these properties:

1. The solid is soluble in water.
2. The pure solid does not conduct electricity.
3. An aqueous solution of the solid conducts electricity.
4. When the solid is melted, the resulting liquid conducts electricity.

Based upon this information, this solid would most likely be classified as

- A. ionic.
 - B. metallic.
 - C. polar covalent.
 - D. covalent network.
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Q073-04 Identify which of the compounds butane, chloroethane, propanone and propan-1-ol are:

- a) Insoluble in water and give your reasoning
 - b) Are water soluble and give your reasoning
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Q073-05 $C_{20}H_{41}OH$ is the formula of the alcohol dodecanol. State and explain whether the alcohol is a solid, liquid or gas at room temperature. Dodecanol is only slightly soluble in water. Explain this property.

Q073-06 Write the structure of the ester isomer of propanoic acid and explain why it is less soluble in water than propanoic acid
