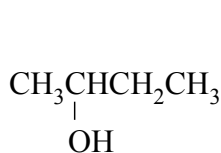


Chemguide – questions

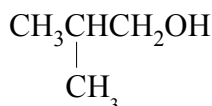
ALCOHOLS: AN INTRODUCTION

1. There are three types of alcohol – primary, secondary and tertiary.

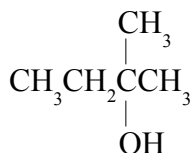
a) Decide whether each of the following alcohols is primary, secondary or tertiary.



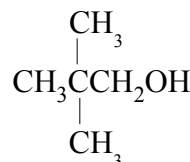
A



B



C



D

b) Name each of these alcohols.

c) Draw the structure for the smallest possible (i) secondary alcohol; (ii) tertiary alcohol.

2. There are three commonly discussed intermolecular forces – van der Waals dispersion forces and permanent dipole-dipole forces, and hydrogen bonds. (There is a fourth type of bond attraction as well – permanent dipole-induced dipole, but it is less important and we tend to ignore it.)

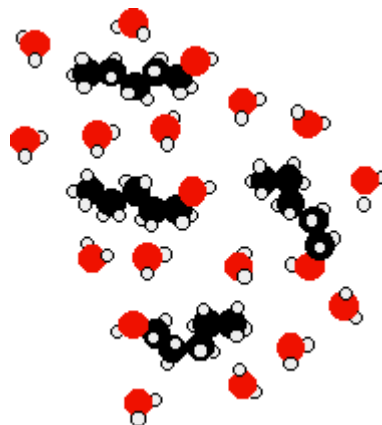
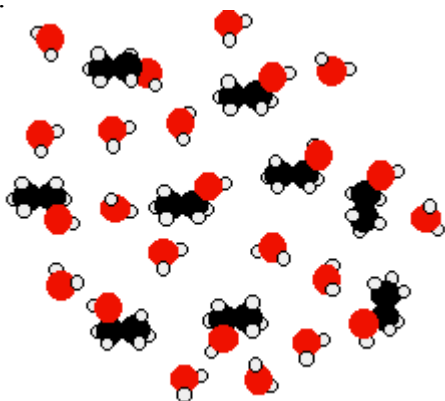
a) Which of these types of forces is/are present in an alkane like propane?

b) Which of these types of forces is/are present in an alcohol like ethanol?

c) Propane boils at -42.2°C ; ethanol boils at 78.5°C . Explain the difference, and why it is useful to make a comparison between these two compounds.

d) Why do the boiling points of the unbranched primary alcohols increase as the number of carbon atoms increases?

3. The diagrams (from the Chemguide page) show the effect of mixing ethanol and pentan-1-ol with water.



Chemguide – questions

Explain why ethanol is completely soluble on water in all proportions, but pentan-1-ol is only very sparingly soluble in water (22 g per litre according to Wikipedia).