

Chemguide – questions

CARBOXYLIC ACIDS: AN INTRODUCTION

1. a) Draw the structures for the following carboxylic acids or salts of carboxylic acids. In the case of the salts, show clearly the bonding between the metal and the rest of the compound.

(i) methanoic acid

(ii) butanoic acid

(iii) sodium propanoate

(iv) potassium 3-methylbutanoate

- b) Name the following compounds.

(i) CH_3COONa

(ii) $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{COOH}$

(iii) $\text{CH}_3\text{CH}_2\text{CH}_2\text{COO}^- \text{Li}^+$

(iv)
$$\begin{array}{c} \text{Cl} \\ | \\ \text{CH}_3\text{CHCHCOOH} \\ | \\ \text{CH}_3 \end{array}$$

2. a) In the pure liquid, ethanoic acid exists as a dimer. With the help of a diagram, explain what this means, and why it happens.

b) Explain how this affects the boiling point of ethanoic acid.

c) Ethanoic acid is soluble in water in all proportions. What would you expect about the solubility of hexanoic acid, $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{COOH}$, in water? Explain your answer.