

Chemguide – questions

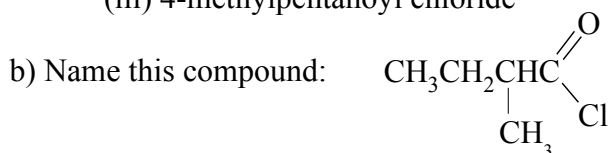
ACYL CHLORIDES: INTRODUCTION

1. Acyl chlorides are *acid derivatives* and contain an *acyl group*. Using ethanoyl chloride as an example, explain what is meant by the terms *acid derivative* and *acyl group*.
2. a) Draw structures for the following. You should show the structure in full around the acyl group, but can simplify hydrocarbon groups as, for example, $\text{CH}_3\text{CH}_2\text{-}$.

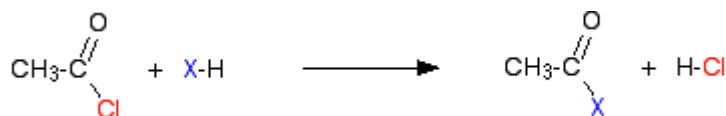
(i) propanoyl chloride

(ii) butanoyl chloride

(iii) 4-methylpentanoyl chloride



3. a) Why is it meaningless to talk about the solubility of ethanoyl chloride in water?
b) Ethanoyl chloride is a colourless fuming liquid. Why does it fume?
c) What types of intermolecular forces are there in liquid ethanoyl chloride?
4. The Chemguide page has the following equation showing the typical substitution reactions of ethanoyl chloride:



Write the formulae of the products formed when ethanoyl chloride reacts with each of the following substances. (In one case, one of the products can react with one of the other substances in the reaction mixture to give another product. Can you spot it?)

- a) water
- b) ethanol
- c) ammonia