

4.5 Exercise 3 – acylation

1. Write equations for the following reactions and name any organic products:
 - a) propanoyl chloride with ammonia
 - b) butanoic anhydride with propan-2-ol
 - c) methanoyl chloride with ethylamine
 - d) ethanoic anhydride with 2-aminopropane
 - e) 2-methylpropanoyl chloride with water

2. Draw the structures for two possible starting materials for the following products:
 - a) ethyl ethanoate
 - b) N-methyl propanamide
 - c) methylethyl propanoate
 - d) N-ethyl methanamide
 - e) aspirin

3.
 - a) Give the mechanism for the reaction between ethanoyl chloride and aminomethane.
 - b) Name the type of mechanism.
 - c) Explain why most commercial acylation processes use the acid anhydride rather than the acyl chloride.