

Chemguide – answers

ACYL CHLORIDES: REACTION WITH BENZENE

- Acylation means substituting an acyl group, $\text{RC}=\text{O}$, into another molecule. R is a hydrocarbon group.
 - Ethanoyl chloride is added carefully to a mixture of benzene and solid aluminium chloride in the cold. When all the ethanoyl chloride has been added, the mixture is heated under reflux at a temperature of 60°C for about 30 minutes to complete the reaction.
 - Hydrogen chloride (The question says *name* – you wouldn't necessarily get the mark for writing HCl.)
- Heat with amalgamated zinc (a mixture of zinc and mercury) and concentrated hydrochloric acid for a long time.
 - Attaching an ethyl group to a benzene ring makes the ring more reactive than it was before. That means that the ethylbenzene formed will undergo further substitution – you would get a mixture of products with various numbers of ethyl groups attached to the ring.

Attaching an acyl group (in this case, $\text{CH}_3\text{C}=\text{O}$) makes the ring less reactive, and you don't get any further substitution.