

Chemguide – answers

ACID ANHYDRIDES: INTRODUCTION

- van der Waals dispersion forces and dipole-dipole interactions.
 - It reacts with moisture in the air or your nose to produce ethanoic acid.
 - Ethanoic anhydride reacts with water and doesn't simply dissolve in it.
- Ethanoyl chloride reacts with molecules containing a hydrogen atom attached to the electronegative atoms oxygen and nitrogen – for example water, alcohols and ammonia. We can summarise these as H-X. In each case the chlorine (in red in the diagram) is replaced and combines with the hydrogen to form HCl in the first instance. The rest of the molecule (the X) attaches to the carbonyl group.

In ethanoic anhydride, the more complicated group in red behaves just like the chlorine in the ethanoyl chloride. It is replaced by the same X as in ethanoyl chloride reactions, but this time instead of HCl being produced, ethanoic acid, CH₃COOH is produced in the first instance.

By looking at this similarity, if you know about ethanoyl chloride reactions, you can easily work out what happens with ethanoic anhydride.