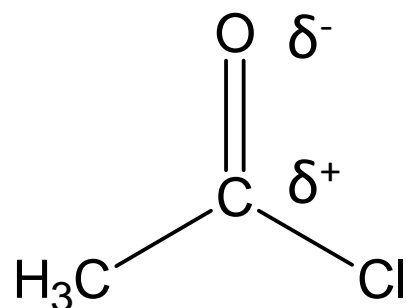


Acid Chlorides

What intermolecular forces do you think acid chlorides have?

How will these intermolecular forces affect their:

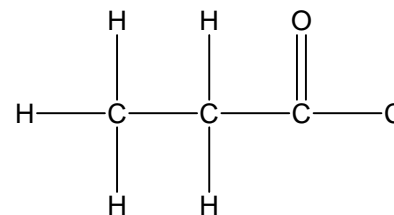
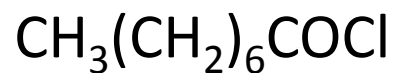
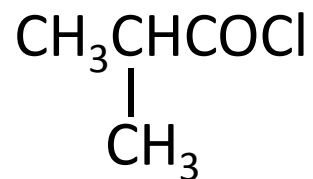
- Melting and boiling points compared to alkanes
- Solubility in water



Dipole-dipole intermolecular forces but not hydrogen bonding.

Naming acid chlorides

Acid chlorides are named with the suffix –anoyl chloride. Name and draw the following carboxylic acids:



butanoyl chloride

Physical properties of acid chlorides

Generally not soluble in water (can not hydrogen bond)

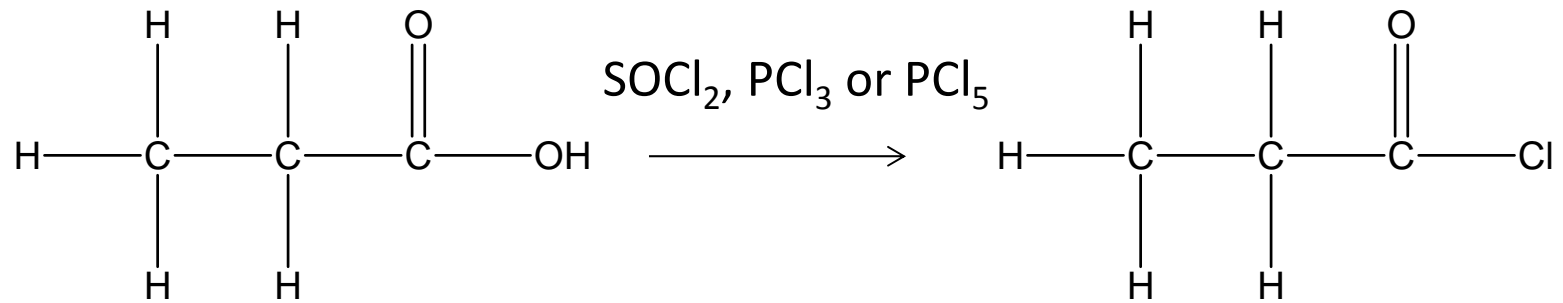
Higher boiling points than comparative alkanes because of dipole-dipole interactions.

Acid chlorides have pungent, irritating odours. Small chain acid chlorides react with water producing HCl gas, which is seen as white fumes.

Making acid chlorides

Acid chlorides can be made by ...

The reaction of carboxylic acids with SOCl_2 , PCl_3 or PCl_5 .



Reactions of acid chlorides

Acid chlorides are a more reactive version of carboxylic acids. They undergo all the same reactions that carboxylic acids do. They are a key functional group for making other functional groups.

Draw reactions for propanoyl chloride with the following

1. With water Carboxylic acids are produced
2. With alcohols Esters are produced (no need for conc. H_2SO_4).
3. With ammonia Amides are produced.
4. With amines Amides are produced.