OCR (A) Chemistry A-level

Topic 4.2.3- Organic synthesis practical skills

Flashcards

Describe how a Quickfit apparatus is connected

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Grease the joints using some petroleum jelly on the inside of the joints before connecting the pieces together.

In a distillation setup, why is it necessary to have a continuous water flow around the condenser?

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So that the water remains cool in order for the mixture to be distilled

Describe a method that can be used to separate immiscible liquids

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- Pour the mixture into a separating funnel and some distilled water
- Add the stopper and invert the flask to mix the mixture
- Equalise the pressure by opening the stopper as required
- Continue shaking until there is no ‘whistle’ sound
- To collect the water in the lower layer, open the stopper and place a beaker under the spout
- Use another beaker to collect the desired organic layer
- Shake the liquid with some drying agent

Name two drying agents

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Magnesium sulphate

Calcium chloride

How to use drying agents

How to use drying agents

- Add a selected drying agent to the organic product
- If the drying agent forms clumps add some more until they are moving freely
- Use gravity filtration to collect the dry product.
- Filtrate is the product

What does re-distillation mean?

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When a liquid is purified by using multiple distillations

How can unsaturated hydrocarbon be tested? What are the observations?

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Use bromine water

Add few drops of bromine water to the sample and mix well

Positive test - bromine water turns colourless

What are the reagents used to test haloalkanes and what are the observations?

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Reagents - silver nitrate, ethanol and water

Observations - chloro- : white precipitate

Bromo- : cream precipitate iodo- : yellow precipitate

What are the 3 reagents that can be used to test carbonyls?

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Acidified potassium dichromate

Fehling's solution

Tollens' reagent

What are the observations when acidified potassium dichromate reacts with ketones and aldehydes?

What are the observations when acidified potassium dichromate is reacts with ketones and aldehydes?

Ketones - no change

Aldehyde - turns from orange to green colour

What are the observations when Fehling's solution is reacted with ketones and aldehydes?

What are the observations when Fehling's solution is reacted with ketones and aldehydes?

Ketones - no change

Aldehyde - dark red precipitate

What are the observations when Tollens' reagent is reacted with ketones and aldehydes?

What are the observations when Tollens' reagent is reacted with ketones and aldehydes?

Ketones - no silver mirror

Aldehydes - silver mirror

What are the reagents that can be used to test carboxylic acid? What are the corresponding observations?

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Universal indicator - pH of weak acid

Reactive metal - hydrogen effervescence

Metal carbonate - carbon dioxide effervescence