OCR Chemistry A-Level

PAG 07 - Qualitative analysis of organic functional groups

(A level only)

Flashcards

What reagent is used to test for the presence of an alkene?

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Bromine water

What is observed when bromine water is added to an alkene?

What is observed when bromine water is added to an alkene?

The solution will change from orange to colourless

What is observed when bromine water is added to a saturated hydrocarbon?

What is observed when bromine water is added to a saturated hydrocarbon?

The solution remains orange

Briefly describe how to test for haloalkanes

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1. Heat the sample with a solution of sodium hydroxide under reflux to releases any halide ions
2. Add some dilute nitric acid
3. Add silver nitrate solution and observe the colour of any precipitate formed

What colour precipitate forms when silver nitrate solution reacts with chloride ions?

What colour precipitate forms when silver nitrate solution reacts with chloride ions?

White

What colour precipitate forms when silver nitrate solution reacts with bromide ions?

What colour precipitate forms when silver nitrate solution reacts with bromide ions?

Cream

What colour precipitate forms when silver nitrate solution reacts with iodide ions?

What colour precipitate forms when silver nitrate solution reacts with iodide ions?

Yellow

Describe the solubilities of the silver halide precipitates in dilute and concentrated ammonia

Describe the solubilities of the silver halide precipitates in dilute and concentrated ammonia

AgCl - soluble in dilute and concentrated ammonia

AgBr - soluble in concentrated ammonia

AgI - insoluble in ammonia

Briefly describe how to test for carboxylic acids

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Add some sodium carbonate solution to the sample. If a carboxylic acid is present, there will be effervescence and CO_2 will be produced.

To test the gas, bubble it through limewater. CO_2 will cause the limewater to turn cloudy.

What reagent can be used to test for the presence of an alcohol?

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Acidified potassium dichromate solution

What is observed when a primary or secondary alcohol is heated under reflux with acidified potassium dichromate solution?

What is observed when a primary or secondary alcohol is heated under reflux with acidified potassium dichromate solution?

There is a colour change from **orange** to **green**

What is observed when a tertiary alcohol is heated under reflux with acidified potassium dichromate solution?

What is observed when a tertiary alcohol is heated under reflux with acidified potassium dichromate solution?

No colour change - solution remains **orange**

What 2 reagents can be used to distinguish between an aldehyde and a ketone?

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1. Fehling's solution
2. Tollens' solution

What is observed when Fehling's reagent is heated with:

a) An aldehyde?

b) A ketone?

What is observed when Fehling's reagent is heated with:

a) An aldehyde?
b) A ketone?

a) Brick red precipitate forms
b) No precipitate forms, solution remains a deep blue colour

What is observed when Tollens' solution is heated with:

a) An aldehyde?

b) A ketone?

What is observed when Tollens' solution is heated with:

a) An aldehyde?
b) A ketone?

a) Silver mirror forms on the surface of the test tube

b) No change observed

What is Brady's reagent used to identify? Describe the positive result for this test

What is Brady's reagent used to identify? Describe the positive result for this test

Used to identify carbonyls (aldehydes or ketones).

A yellow-orange precipitate forms in the presence of a carbonyl.

Briefly describe the test for phenol and the positive result for this test

Briefly describe the test for phenol and the positive result for this test

Add bromine water.

If phenol is present, the solution will change from orange to colourless and a white precipitate will form.

When would a water bath or electric heater be used instead of a Bunsen burner to heat a sample?

When would a water bath or electric heater be used instead of a Bunsen burner to heat a sample?

- When the temperature needs to be controlled more
- When the chemicals being heated are highly flammable