

# OCR Chemistry A-Level

## PAG 07 - Qualitative analysis of organic functional groups

### **(A level only)**

Flashcards

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



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

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





## Briefly describe how to test for haloalkanes

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



## Briefly describe how to test for carboxylic acids

Add some sodium carbonate solution to the sample. If a carboxylic acid is present, there will be effervescence and  $\text{CO}_2$  will be produced.

To test the gas, bubble it through limewater.  $\text{CO}_2$  will cause the limewater to turn cloudy.



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



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

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?



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

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

