



Rewarding Learning

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Chemistry

Unit AS 2: Practical Manual

Sample Results and Observations



Practical 8.1

Test for unsaturation using bromine water (spec ref: 2.4.2)

Practical 9.1

Prepare a halogenoalkane using the techniques of refluxing, separating with a funnel, removing acidity, drying and distillation (spec ref: 2.5.4)

Practical 9.2

Prepare alcohols from halogenoalkanes using alkali/investigate the relative rates of hydrolysis of halogenoalkanes (spec ref: 2.5.5/2.5.7)

Halogenoalkane	Colour of precipitate	Time taken for precipitate to form / s
1-chlorobutane	White	60
1-bromobutane	Cream	35
1-iodobutane	Yellow	15

Practical 9.3

Carry out the elimination of hydrogen halides from halogenoalkanes using ethanolic potassium hydroxide (spec ref: 2.5.8)



Practical 10.1

Carry out test tube reactions of alcohols with sodium, hydrogen bromide/hydrobromic acid and phosphorous pentachloride (spec ref: 2.6.5)

Reaction	Observations
Addition of sodium	Solid disappears Fizzing Mixture warms up
Addition of phosphorous pentachloride	Solid disappears Steamy/misty fumes Mixture warms up Hissing noise

Practical 10.2

Prepare aldehydes, ketones and carboxylic acids using acidified potassium dichromate(VI) (spec ref: 2.6.6)

Reaction	Observations
Preparation of ethanal	
Smell	Sharp, irritating smell
Preparation of ethanoic acid	
Smell	Vinegary/sharp smell
Universal indicator paper	Turns red/orange
Sodium carbonate	Effervescence



Practical 11.1

Determine the enthalpy change for combustion and neutralisation using simple apparatus (spec ref: 2.8.6)

Fuel	Initial mass of burner / g	Final mass of burner / g	Mass of fuel used / g	Initial Temp / °C	Final Temp / °C	Temp change / °C	Heat Energy evolved / J	RFM of fuel	Moles of fuel used / mol	Enthalpy of Combustion / kJ mol ⁻¹
Ethanol C ₂ H ₅ OH			0.83			20				
Propan-1-ol C ₃ H ₇ OH			0.56			20				
Butan-1-ol C ₄ H ₉ OH			0.45			20				



Practical 11.2

Determine the enthalpy change for combustion and neutralisation using simple apparatus (spec ref: 2.8.6)

Concentrations of hydrochloric acid and sodium hydroxide solution are both 1 mol dm^{-3}

Initial temperature of acid / °C	
Initial temperature of alkali / °C	
Maximum temperature reached / °C	
Temperature change / °C	6.2
Heat energy evolved / J	
Moles of water produced / mol	
Enthalpy change / kJ mol ⁻¹	



Practical 12.1

React Group II metals and other metals with oxygen, water and dilute acids and determine the masses of solids and volumes of gases produced (spec ref: 2.11.3)

Mass of crucible and lid / g	15.15
Mass of crucible and lid with magnesium / g	15.30
Mass of magnesium / g	0.15
Mass of crucible and lid with magnesium after heating 1 / g	15.32
Mass of crucible and lid with magnesium after heating 2 / g	15.35
Mass of O ₂ reacting / g	
Moles of O ₂ reacting / g	
Moles of magnesium oxide / g	
Mass of magnesium oxide / g	

Observations during reaction	Fizzing Mixture warms up Metal rises and falls Metal disappears White solid produced
Gas test observation	Gives a 'pop' with a burning splint
Volume of gas collected in gas syringe / cm ³	90