



ST ANDREW'S SECONDARY SCHOOL

NAME

CLASS

CHEMISTRY

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Chemistry Practical

Error Observed in Experiments, Possible Causes and Suggested Improvements

Experiment	Error Observed	Possible Cause	Suggested Corrections
Thermal decomposition of hydrated salts	Mass loss is too large	Loss of product	Cover the crucible with a lid; Heat the substance slowly
	Mass loss is too small	Incomplete reaction	Increase the reaction temperature or reaction time
Combustion of a reactive metal	Mass gain is too large	Absorption of H ₂ O or CO ₂ after combustion	Cool product in desiccator; Measure mass of product quickly
	Mass gain is too small	Incomplete reaction	Increase the reaction temperature or reaction time
Determining the molar mass of an unknown gas	M_r is too high	Gas leaks out	Use airtight connection or a gas syringe
	M_r is too low	Air leaks in	
Product obtained in a reaction	Yield > 100%	Moist or impure product	Dry the product; Recrystallise the product; Redistill the product
	Yield is too low	Incomplete reaction	Increase the reaction temperature or reaction time
		Loss of product	Modify or change the method
Acid–base titration with an indicator	Calculated concentration is inaccurate: either too low or too high	Incorrect choice of indicator	Change to a suitable indicator; Use a pH–meter (datalogger)
		'Old' or wrong solution used as titrant	Prepare and use fresh solution for the titrant
		Too much indicator used	Add only two drops of indicator
Heat change experiments using Styrofoam cups	ΔH determined is too low	(Excess) heat loss to the surrounding	Nest cup in empty beaker; Use a lid for the cup; Increase the volume of solutions used
	ΔH determined is inaccurate	Solutions used are too concentrated (affect the mass of solution used in calculation)	Dilute the solutions used
Rate of reaction	Mass loss is too large	Evaporation or loss of solvent used	Loosely fit a ball of cotton at the mouth of conical flask
	Volume of gas formed is too small	Gas leak or wrong collection method	Use airtight connection or a gas syringe