



Chemistry ATP Analysis by Vasumitra Gajbhiye

▼ How to check if a liquid is water?

Check boiling point = 100 or melting point = 0

▼ Why it is important to immediately put a bung in the conical flask in an experiment where gas is produced?

minimize gas loss/ escape before bung is replaced

▼ State the advantage of measuring the volume of gas collected every 10 seconds rather than every 20 seconds

- more points / data so
- better / smoother graph / curve / line

▼ Why condensers are used?

To cool the vapour. So that the gas condense into a liquid

▼ Which flask is used in distillation?

Distillation/ round bottom flask

▼ How to keep the temperature of a apparatus constant?

Use water bath

▼ How to prevent escape of gas when magnesium is added to sulfuric acid?

partitioned container, suspend magnesium on thread,

▼ If colour of litmus paper is red what is the pH?

1

▼ Why the flask is rinsed with distilled water?

clean it.

remove residue and impurities from previous experiments

▼ What are some errors and improvements in titration experiment?

errors

any two from:

- using measuring cylinder
- missing endpoint / misjudging colour change
- not repeating

improvements

any two from:

- use pipette (in place of measuring cylinder)
- add more slowly
- repeat (and find mean)

▼ Why would carrying out the experiment in a polystyrene cup rather than a boiling tube

improve the accuracy of the results?

Better insulator so reduce heat loss even more

▼ What is advantage of measuring cylinder?

convenient / easy / quick to use;

▼ What is disadvantage of measuring cylinder?

Inaccurate measurement.

▼ Why should we warm solution containing sodium hydroxide carefully?

- sodium hydroxide is hazardous / irritant / caustic;
- boiling causes mixture to spit / blow-out;

▼ What will happen if a gas continues to enter a closed conical flask with a liquid inside it?

Liquid will be pushed out of flask.

▼ Suggest why the experiments were done in a polystyrene cup rather than a glass beaker.

Polystyrene cup is a insulator, so reduce heat loss.

▼ In a reaction where gas is produced, how does the results show that the reaction is over?

Gas volume constant/ stay at {final volume of gas}

▼ If universal indicator turn blue what is the pH of solution?

11-14

▼ How to carry out chromatography to see if known substance A(food colouring tartrazine) is present in substance B(yellow sweet).

- dissolve sweet in solvent/water
- carry out chromatography
- place spot of sweet solution on chromatography paper
- place spot of tartrazine on same level/baseline
- place/stand paper in solvent/water
- let solvent rise to near top of paper
- compare height of spot from sweet and tartrazine, if the same sweet contains tartrazine

OR

- compare Rf value of spot from sweet with Rf for tartrazine, if the same then sweet contains tartrazine

▼ What is the pH if universal indicator colour is red?

1

▼ Suggest a way of ensuring that all of the water has been evaporated.

reheat, reweight and repeat until mass is constant.

▼ Suggest why the mixture in the beaker was stirred as it was heated.

to speed up dissolving.

▼ Give one safety precaution that should be taken when working with concentrated acid.

wear safety gloves

▼ Why it is not a good idea to warm something in polystyrene cup?

polystyrene will melt.

- ▼ Explain why the conical flask was swirled as the dilute hydrochloric acid was added from the burette.

To mix the content

- ▼ Explain why the conical flask was not rinsed with solution L in Experiment 2.

It will add unknown volume of solution L in the flask.

- ▼ State why using 50 cm³ of solution L would cause a problem.

more than can fit into burette

- ▼ Suggest how the reliability of the results could be checked.

Repeat and average and compare

- ▼ Which of the reactants is in excess? Explain your answer.

{name of solvent in excess}. solid is left behind

- ▼ In terms of safety, explain why it is necessary to heat gently at first.

solid spits out of the tube / the tube might crack

- ▼ Describe how you would carry out a flame test.

- blue /roaring/ hot flame
- use of a splint /wire to introduce the solid into the flame
- use of (concentrated) hydrochloric acid

- ▼ State the temperature of mixture after 2hrs?

Room temperature, heat lost to surrounding because reaction is over.

- ▼ In disappearing cross experiment, what is the effect of using a 100cm³ conical flask rather than 250cm³?

- cross disappear more quickly
- depth of the solution is greater

- ▼ How to carry out titration?

1. measure known volume of alkali into a conical flask

2. using pipette
3. methyl orange indicator added
4. add hydrochloric acid
5. from a burette in small portions, and stir as each portion is added
6. until indicator changes colour
7. record / calculate volume acid added
8. repeat with same volume acid without indicator

▼ Why was the burette then rinsed with acid S?

To remove traces of water.

▼ Universal indicator.

- Red → 1
- Orange → 3 to 4
- Yellow → 5
- Green → 6 to 8
- Green + Blue → 9
- Blue → 10 to 12
- Purple → 13 to 14

▼ Why was the residue rinsed?

To make sure all the filtrate goes through. no filtrate left behind in the filter paper. (This will increase yield). To wash-out / dissolve / remove salt

▼ Suggest the purpose of the cotton wool.

- Allow gas to escape;
- Prevent loss of acid;

▼ Explain, in terms of particles, why the rate of reaction was greatest in this experiment

- More particles per unit volume

- Greater chance of collisions so more frequent collisions.
- ▼ Suggest and explain a disadvantage of using a graduated pipette instead of a measuring cylinder to measure solution M
 - Too slow / slower addition of solution / takes longer to add
 - Measuring time taken less accurate / results less accurate
- ▼ Explain why the lumps of copper(II) carbonate were crushed before adding the dilute nitric acid.
 - Larger surface area
 - Increases rate of reaction
- ▼ Suggest how a sample of copper could be obtained from the solution of copper(II) nitrate.
 - Add more reactive metal like magnesium
 - magnesium displace copper and solid copper is formed and can be filtered.
- ▼ Suggest one reason why zinc is not a suitable material to use as the electrodes.
Zinc reacts
- ▼ What is the advantage of using partition container.
 - The reaction can be started by tipping the flask
 - do not have to replace / remove the bung
 - so no gas escapes (while the bung is being removed / replaced)

Accuracy measures how close results are to the true or known value. Precision, on the other hand, measures how close results are to one another