

# Edexcel Chemistry GCSE

## CP 3 - Preparing Copper Sulfate

### Flashcards

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How could you prepare pure, dry copper sulfate crystals from copper oxide?



## How could you prepare pure, dry copper sulfate crystals from copper oxide?

- React sulfuric acid with excess copper oxide
- Filter to remove the excess copper oxide
- Heat the filtrate to start evaporation
- Turn off the heat and leave until all the water has evaporated
- Left with copper sulfate crystals



Why shouldn't you evaporate all the water from the copper sulfate solution using a Bunsen burner?



Why shouldn't you evaporate all the water from the copper sulfate solution using a Bunsen burner?

- The copper sulfate crystals would start to decompose if continually heated
- Hot copper sulfate crystals would spit out, this could damage skin and eyes



Sulfuric acid is warmed in a water bath before the copper oxide is added. Why?



Sulfuric acid is warmed in a water bath before the copper oxide is added. Why?

The reaction is faster with warm acid.  
This ensures all the acid reacts.



Why is copper oxide added in excess to the sulfuric acid when preparing pure copper sulfate crystals?





Why is copper oxide added in excess to the sulfuric acid when preparing pure copper sulfate crystals?

To ensure all the sulfuric acid reacts

Any excess copper oxide can be filtered out



# What is a base?



# What is a base?

Any substance which reacts with an acid to form salt and water only



Write the chemical equation for the reaction between  $\text{CuO}$  and  $\text{H}_2\text{SO}_4$



Write the chemical equation for the reaction between CuO and H<sub>2</sub>SO<sub>4</sub>



What colour is  $\text{CuSO}_4(\text{aq})$ ?



What colour is  $\text{CuSO}_4(\text{aq})$ ?

Blue



During filtration, what is the filtrate and what is the residue?





During filtration, what is the filtrate and what is the residue?

Filtrate - the liquid that has passed through the filter

Residue - the solid which remains in the filter paper



What safety precautions need to be considered when preparing a pure dry salt from an insoluble compound?



What safety precautions need to be considered when preparing a pure dry salt from an insoluble compound?

- Bunsen burner should be turned off or put on the safety flame when not in use, tie hair back, keep flammable chemicals away from the flame
- Sulfuric acid is corrosive so wear eye protection



What are two methods of separating mixtures?



What are two methods of separating mixtures?

Any two from:

Filtration

Crystallisation

Evaporation



How can you separate an insoluble product from a solution?



# How can you separate an insoluble product from a solution?

## Filtration:

- Place filter paper in a funnel over a conical flask
- Pour mixture through the funnel
- Insoluble product left on the filter paper



How can you separate soluble solids  
from solutions?





# How can you separate soluble solids from solutions?

Evaporation:

- Pour mixture into an evaporating basin
- Slowly heat the solution
- As the solvent evaporates, the solution becomes more concentrated so crystals start to form
- Keep heating the evaporating basin until you have dry crystals



How could you separate a soluble solid from a solution, if the solid decomposes when heated?



# How could you separate a soluble solid from a solution, if the solid decomposes when heated?

## Crystallisation:

- Pour the solution into an evaporating dish and heat gently
- When the crystals start to form, remove the dish from the heat and leave to cool
- Once cold, filter the crystals out of the solution and leave them in a warm place to dry.

