2023 Ch H1 Q19

Section: Researching Chemistry

Topic: Experimental Procedures

Question Summary

In an experiment, nickel oxide is added to sulfuric acid until no more reacts. The products are nickel sulfate and water. What is the correct method to separate and collect a dry, pure sample of nickel sulfate?
A: Evaporation
B: Filtration
C: Filtration followed by evaporation
D: Evaporation followed by filtration

Worked Solution

Nickel oxide is a base and reacts with sulfuric acid to form soluble nickel sulfate. When excess nickel oxide is added, the unreacted solid must be removed. This is done by filtration. The filtrate contains nickel sulfate solution. Evaporating this solution removes water and produces dry

nickel sulfate crystals.

Final Answer

C — Filtration followed by evaporation

Revision Tips

• For preparing soluble salts: react acid + base until excess solid remains.
• Remove excess solid by filtration.
• Evaporate the filtrate to obtain crystals.