

The Copper Cycle Lab

CLASS SET!

The Law of Conservation of Matter states that in a chemical reaction matter cannot be created or destroyed. This means that when we perform chemical reactions the atoms that we start with must be the same atoms that we end with. Sure, they may be combined differently, but they are still there. In this lab we will see how the Law of Conservation of Matter relates to copper as we perform many reactions using it.

Materials:

- 250 mL beaker
- 100 mL beaker
- graduated pipettes (2)
- 50 mL graduated cylinder
- funnel and filter paper
- spatula
- digital scale
- weigh paper
- copper powder (0.1 g)
- zinc filings (0.1 g)
- stir rod
- hot plate
- oven mitt
- 8M NaOH
- 8M HNO₃
- 1M H₂SO₄

Procedure:

1. Using a digital scale, measure out 0.1 g of copper powder on a piece of weigh paper.
2. Pour the copper powder from the weigh paper into a 250 mL beaker. Record observation.
3. In the fume hood, put 2 mL of 8M HNO₃ into the beaker. Gently swirl the contents or a few minutes.
4. When the brown gas (haze) has gone away, take the beaker back to your lab station. Record observation.
5. Add 25 mL of water to the beaker.
6. Measure out 2 mL of NaOH and pour into the beaker. Record observation.
7. Place beaker on the hot plate and set it to level 4 (or 100°C).
8. Stir with a stir rod until a precipitate appears. Record observation.
9. Use the oven mitt to remove the beaker from the hot plate and let it cool.
10. Filter the solution with a funnel and piece of filter paper.
11. Use a spatula to scrape the solid from the paper into a 100 mL beaker.
12. Add 15 mL of 1M H₂SO₄ and stir. Record observation.
13. Using a digital scale, measure out 0.1 g of zinc filing on a piece of weigh paper.
14. Pour the zinc filings into the 100 mL beaker and stir until colorless. Record observations.
15. Gently poor off the liquid (NOT the solid) into the sink.
16. Add 10 mL of water to rinse.
17. Once again, pour off the liquid into the sink. Retain the solid for final observations.
18. Clean up your area: Turn off your hot plate, be sure all trash gets into a trash can, once done with your final product wipe it out in the trash, rinse all glassware and leave it to dry.

Turn Over for Lab Report Instructions →

These are the items (in order) you must include in your **typed** lab report (there are computers in the library you can use if you are having printer/computer problems):

- **Please note: This is an independent report. You may not work on this report with any other chemistry student (even though you did this with your team). If more than one student turns in the same report, all students will receive zeros for this assignment. It is an independent assignment. If you need help, I will be more than happy to help you before school, during break, or after school. ALSO, late reports will NOT receive full credit. You will receive 50% of the earned grade! Bottom Line: Do it by yourself and get it in on time!**

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