

Lab 1.4: The Reduction of Copper Oxide

Purpose: To determine whether the compound CuO decomposes into an element, and to discover what else forms when CuO reacts with C.

Procedure:

1. Weigh out an empty test tube, and record the mass. *Remember not to drop the decimal.*

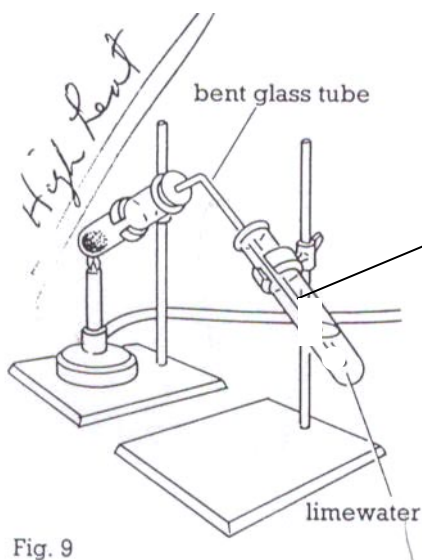
Mass of empty test tube(g)	
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2. Carefully weigh out 5.0 g of copper oxide (CuO) and add it to a large test tube. Record the actual mass used. Remember not to drop the decimal.

Mass of CuO(g)	
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3. Weigh out 2.0 g of charcoal.
4. Add the charcoal (C) to the test tube containing CuO and mix carefully. Calculate the total mass (just add values in #1,2 and #3) = _____

5. Pour 2-3 ml of limewater into **the second test tube**. Look at the diagram below and connect it to the first tube with a rubber tube. **IMPORTANT:** *When sealing the first tube, hold the rubber stopper, not the glass part which breaks easily.*



The tube should not touch the limewater. Otherwise it'll get messy!

6. Heat the first test tube and record what happens to the limewater.

Observation	
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- Continue heating until about $\frac{1}{4}$ of the test tube has undergone a colour change. You can remove the stopper from the tube with the black powders.

Colour Observation	
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- Turn off the heat.
- Allow the product to cool.
- Weigh the first test tube and its contents.

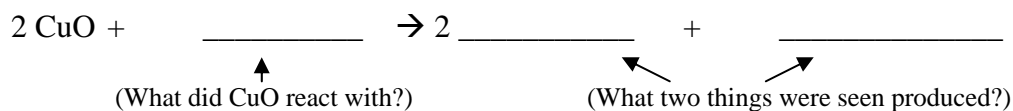
Total mass of product and test tube	
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Analysis:

- Remember you reacted CuO and C (charcoal). What two products were formed from this reaction, based on what you observed and based on what you reacted?

The two products were _____ and _____.

- Write an equation for this reaction.



- Classify as a physical or chemical change.
- Why is the mass in #10 less than what you started with in #4?
- Why would the limewater get sucked back into the original tube if the delivery tube touched it?

Conclusion:

Summarize whether you fulfilled the purpose of this lab.
