Lab 14: Solutions and Dilutions PART 2

# Goal

Make a 1M solution of copper (II) sulfate in 50 mL. Then make four 10 mL diluted solutions at 0.8 M, 0.6 M, 0.4 M, and 0.2 M.

# General Procedure

MAKE SOLUTION

1. Convert mL to L.

2. Use **Molarity formula** to find moles.

3. Plug moles from step 2 in to the **Mole formula** to find the mass of copper (II) sulfate needed to make the 1M solution.

4. Make the solution in an Erlenmeyer flask. Be sure that you always measure liquids in a graduated cylinder. This solution will be your **stock solution for the dilutions on the back**.

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| SHOW YOUR WORK HERE…  Include the formula used, the numbers your plugged in and your final answer with units. |

DILUTIONS

5. Use **M1V1 = M2V2** to determine the amount of stock solution you need to add to make a solution with a 0.8M concentration. Remember the 1’s are the “stock solution” side, and the 2’s are the dilutions you want to make.

6. In a 10 mL graduated cylinder, use a pipette to add the appropriate amount of stock solution and water to make a total of 10 mL of your dilution.

7. Repeat steps 5 and 6 to make 3 more solutions with concentrations at 0.8 M, 0.6 M, 0.4 M, and 0.2 M.

8. In the right column, draw a sketch using dots that represents the amount of CuSO4 for each solution. *Note: The higher the concentration, the more copper (II) sulfate there is in solution.*

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| SHOW YOUR WORK HERE…  Include the formula used, the numbers you plugged in and your final answer with units. | Particle diagram sketch of solutions using dots. |
| **0.8 M dilution** | [http://web.mst.edu/~tbone/subjects/tbone/apparatus/graduatedcylinder.gif](http://www.google.com/url?sa=i&rct=j&q=10ml+graduated+cylinder&source=images&cd=&cad=rja&uact=8&ved=0CAcQjRw&url=http%3A%2F%2Fweb.mst.edu%2F~tbone%2Fsubjects%2Ftbone%2Fapparatus%2Fgraduatedcylinder.html&ei=wanTVNuWGMqqyATuroD4Ag&bvm=bv.85464276,d.aWw&psig=AFQjCNGwIp748uu6a7uDdPz34uQTBiN6zQ&ust=1423244075589345) |
| **0.6 M dilution** | [http://web.mst.edu/~tbone/subjects/tbone/apparatus/graduatedcylinder.gif](http://www.google.com/url?sa=i&rct=j&q=10ml+graduated+cylinder&source=images&cd=&cad=rja&uact=8&ved=0CAcQjRw&url=http%3A%2F%2Fweb.mst.edu%2F~tbone%2Fsubjects%2Ftbone%2Fapparatus%2Fgraduatedcylinder.html&ei=wanTVNuWGMqqyATuroD4Ag&bvm=bv.85464276,d.aWw&psig=AFQjCNGwIp748uu6a7uDdPz34uQTBiN6zQ&ust=1423244075589345) |
| **0.4 M dilution** | [http://web.mst.edu/~tbone/subjects/tbone/apparatus/graduatedcylinder.gif](http://www.google.com/url?sa=i&rct=j&q=10ml+graduated+cylinder&source=images&cd=&cad=rja&uact=8&ved=0CAcQjRw&url=http%3A%2F%2Fweb.mst.edu%2F~tbone%2Fsubjects%2Ftbone%2Fapparatus%2Fgraduatedcylinder.html&ei=wanTVNuWGMqqyATuroD4Ag&bvm=bv.85464276,d.aWw&psig=AFQjCNGwIp748uu6a7uDdPz34uQTBiN6zQ&ust=1423244075589345) |
| **0.2 M dilution** | [http://web.mst.edu/~tbone/subjects/tbone/apparatus/graduatedcylinder.gif](http://www.google.com/url?sa=i&rct=j&q=10ml+graduated+cylinder&source=images&cd=&cad=rja&uact=8&ved=0CAcQjRw&url=http%3A%2F%2Fweb.mst.edu%2F~tbone%2Fsubjects%2Ftbone%2Fapparatus%2Fgraduatedcylinder.html&ei=wanTVNuWGMqqyATuroD4Ag&bvm=bv.85464276,d.aWw&psig=AFQjCNGwIp748uu6a7uDdPz34uQTBiN6zQ&ust=1423244075589345) |