Mixtures **LAB**

Chemistry is a science of experimentation. We use the laboratory to discover and clarify concepts that given meaning to the world around us. For this reason, it is very important that you develop sound procedural skills and good laboratory reasoning abilities. Without good laboratory skills and the ability to reason through the results of a lab, the information gained can confuse concept that you are trying to show in the lab.

In this activity, you will practice your laboratory skills and reason through the result by good thoughtful questions. As always, strict safety rules and procedures are to be followed.

**Pre-Lab Questions**: answer left hand side of notebook

1. What type of a mixture will salt make? What types of mixture will sand make?
2. What cannot pass through a filter in term of atoms, molecules, mixtures, etc? Explain your answer.
3. What are separation techniques that will be used in the lab?
4. Read through the procedures and explain what the main point of the lab is.

**Materials:**

Ring stand, clay triangle, 2 beakers (1 for making the mixture and one for catching the solution), funnel, filter paper, stirring rod, wash bottle, salt, and sand.

**Procedures: Making the Mixture**

1. Set up your filter and fold your filter paper correctly. Weigh any materials
2. Using a weighing dish and the electronic balance, mass approximately 1.00 g of sand and 1.00 g salt. Record the exact mass on your observations page, then put into your data table after lab.
3. Obtain 60mL of water in your beaker that you are making your mixture in and add the salt and sand.
4. Make qualitative observation the salt and sand mixture.
5. Pour the mixture into the filter and use the wash bottle to make sure all sand and salt in out of the mixture beaker.
6. Make sure all the mixture is in the filter by the end of the school day.
7. Make sure the filter paper is dry before you weigh your sand.

**Write a Hypothesis:**

Think about what the main point of the lab is and what we will have at the end of the lab. Think about the following questions to help you write a good hypothesis. What will pass through the filter? What will be caught in the filter paper? Then make an if/then statement telling what you think you will have at the end; perfect results? Then give 2 statements about why that is your prediction.



**Evaporation: (May have to do second or start and finish on second day)**

1. Set up water bath with a hot plate. And obtain a watch glass. (weigh the watch glass)
2. Use the watch glass to cover the beaker. SLOWLY evaporate off the water. You will need to adjust the heat. DO NOT hard boil. If this is heated too much, it will splatter resulting in a loss of mass.
3. Once the water in the beaker has evaporated completely, allow it to cool.
4. Examine the crystals in the beaker and make observations.
5. Mass and record the beaker and watch glass. **The difference is the amount of salt recovered**. Compare the recovered mass to the beginning mass and record.

Data Tables you should have:

|  |  |  |
| --- | --- | --- |
|  | Mass before filtration | Mass after filtration |
| Sand |  |  |
| Salt |  |  |

|  |  |  |
| --- | --- | --- |
|  | Mass before evaporation (dry) | Mass after evaporation (with product) |
| Evaporating dish and watch glass |  |  |

**Post Lab Questions:**

1. What type of crystals (from the 4 types discussed in class) do you think you have?
2. What type of crystals were the sand?
3. Obtain a piece of salt and sand and compare and contrast their shape. (you may get a microscope to look at them more closely.
4. From the separation techniques that we learned about in class, is there another way we could have separated the salt and sand mixtures?
5. Why didn’t the sand crystals dissolve? (think about the type of crystals they were and investigate that)