Chem 217L

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Fall 2020 (Total 12 points, each question = 2 points)

Active learning Exercise 1: crystallization

1. What is the reason for using activated charcoal during crystallization?

Activated charcoal is used to remove the impurities from the solution, that is, decolorize the solution so that pure crystals can be collected.

2. If a little activated charcoal does a good job removing impurities in a crystallization, why not use a larger quantity?

A larger quantity of activated charcoal would not just remove the impurities but instead would also remove some of the compound that you are trying to collect as crystals.

3. Under which circumstances is it wise to use a mixture of solvents to carry out crystallization?

A mixture of solvents is wise to use when a single satisfactory solvent cannot be found.

4. Why is gravity filtration and not suction filtration used to remove suspended impurities and charcoal from a hot solution?

This is because the suction filtration will cause the solution to cool and formed crystals will also be filtered out along with the impurities.

5. Why is a fluted filter paper used in gravity filtration?

It has a larger surface area than the regular filter paper which makes it easier to remove finely divide charcoal, dust, lint and so on.

6. Why are stemless funnels used instead of long-stem funnels to filter hot solutions through fluted filter paper?

Stemless funnels are used instead so that the saturated solution being filtered will not have a chance to cool and clog the stem with crystals.