

Nicks assignment

Unit 4

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I will be discussing factors that influence purity in two of my practicals, which are recrystallization and separation of ethanol from water.

Recrystallization:

Hot water:

We did several procedures and steps to ensure that the final solution would be as accurate as possible. First we dissolved the benzoic acid in hot water, because it would remove any soluble impurities, and it's because the product will only dissolve in a hot water beaker or container.

Activated charcoal:

This is used to increase the surface area, so more debris and impurities will be removed. Also this activated charcoal. Overall this activated charcoal helps removed coloured impurities in the benzoic acid, and thus increasing its purity.

Filter solution while hot:

This is done to remove any insoluble impurities in the benzoic acid, so impurities like anti-bumping granules, activated charcoal and other bits and pieces of solid impurities. This was done to remove any solid bits remaining from the previous stage, and to filter them out, thus increasing purity.

Allow solution to cool:

This causes the solution to be less soluble, as the mixture of benzoic acid and other impurities cool. Soluble impurities left in the benzoic acid, become less concentrated so remain in the water with the benzoic acid. However if the solution is cooled way too quickly then the impurities will stick with the crystals and become trapped, and thus decrease impurity.

Vacuum filtration:

This is one of the many final steps to remove any last bits and pieces of contaminants. All of the contaminated solvent will pass through the funnel, and as a result any product and solvent will remain on the filter paper and not pass through. This step is done, because just filtering it once will not help remove all contaminants. This step is done with the use of a vacuum source. This vacuum causes the liquid to pass through and the solid bits to stay on top. The vacuum source in our experiment was a water tap.

Buchner funnel:

This is a step done to remove all the water from the crystals, as they were full of water. We also washed the crystals to remove impurities. This water will reduce the overall purity off the final crystals, so the water has to be removed. We used a Buchner funnel to remove the water, so we got a Buchner funnel, which looks like as the image below shows. We then got a filter paper that fits exactly, so the filter paper cannot be too big or too small, it has to fit exactly. Then the crystals were poured onto the filter paper. We then got cold water or