

Chem 343

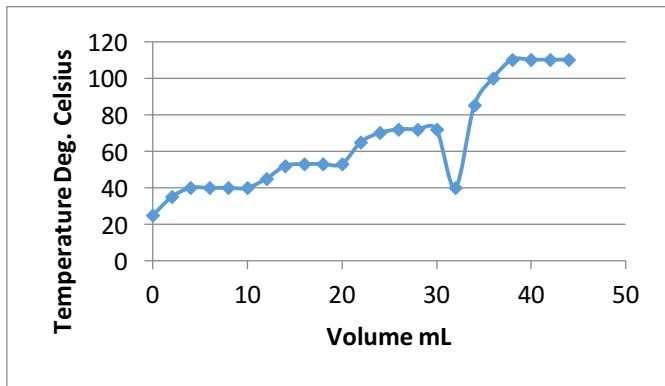
Name: \_\_\_\_\_

Quiz 4

Section: \_\_\_\_\_

Review: Imagine you are doing the fractional distillation of a mixture of 4 liquids and you obtain the following graph. Give the approximate boiling point of each liquid.

Explain the temperature drop observed at 32mL.



To perform a liquid-liquid extraction successfully which of the following conditions must be met?

- You must have 2 insoluble liquid layers
- The solid to be extracted must be soluble in one of the solvents
- One of your liquid layers must be aqueous
- Both a and c are necessary conditions
- Both a and b are necessary conditions

Let's talk about the proper use of separatory funnels during these washings and/or extractions.

Which of the following are things to keep in mind?

- When shaking and swirling to mix the liquid layers, be sure to vent occasionally by opening the stopcock.
- When venting, be sure the sep funnel's stem is pointed away from you and everyone else.
- Hold both the stopcock and the glass stopper tightly so stuff doesn't come pouring out during this shaking process.
- When at rest, the sep funnel should be placed/suspended using an iron ring of the appropriate diameter.
- All of these.

If you did all of the reading, then you know about the partition coefficient of a compound and how that affects the 'completeness' of each extraction. Putting aside for now the math, what is the big take home message that the calculations show you for each successive extraction?

- a. Each successive extraction removes a greater mass of the compound than the previous extraction.
- b. Use one big volume of extracting solvent to extract the greater mass of the compound.
- c. Use multiple smaller volume extractions to extract the greater mass of the compound.
- d. Any one of these might be true, it depends on the value of the partition coefficient.

In order to selectively extract the benzoic acid from the mixture dissolved in diethyl ether in today's experiment, you are directed to extract using sodium bicarbonate solution. What happens that makes the benzoic acid suddenly 'prefer' the aqueous layer?

**(Drawings/structures for full credit!!)**