Caproic Acid Report 100 pts

Introduction: 30 Pts

- Include a full arrow pushing mechanism for each step.
- Include real world applications for multistep synthesis
- Include normal introduction material, including the purpose.
- Approximately two pages

Experimental: 15 pts

- Follow instructions on page two
- If you include specific glassware anywhere in this section, I will give you 0/15.
- Approximately one half page. NO MORE THAN ONE PAGE.

Results: 10 pts

- Include all the melting points/boiling points for each step (obviously if you didn't record it, you don't need to put it)
- Include number of NMR peaks and integration number. Do not make a big table.. just a short paragraph style list. One sentence per NMR spectra.
- Include IR peaks for each step in paragraph fashion. No chart. This does not need to be big.. Approx. one sentence per IR spectra.
- Bullet points for observations
- Include all sample calculations.
- Include all percent yields (there should be four total. One for each week (3 total) and one overall (1 total)
- Save all explanations for discussion section. DO NOT include it here.

Discussion: 40 pts

- Should explain results/observations and explain what happened by relating it to the theory found in the introduction.
- Include error analysis.
- Approximately 2 pages.

Title page, formatting, and works sited: 5 pts

5 pts from each of the introduction, experimental and discussion will be "style" points. This will be an evaluation of your scientific writing style. I'm fairly positive no one will receive 5/5 points on this section. The average will probably be 3/5. Don't fret. The class is normalized. To receive 5/5. It would have to be absolutely perfect scientific writing.

10 points from the introduction and discussion section will be for going the extra mile. A perfect on the introduction will be 20/30 and on the discussion will be 30/40. This will be so that the students who give extra work will receive what they rightfully earned. Once again, remember that this class is normalized and if 10/14 of you get 20/30 and 30/40, it will not hurt you. It will only benefit those who go the distance.

Remember this is the capstone project of Pitt's organic chemistry lab curriculum. With that in mind, I will be grading it much harder than the last full report. I fully expect the average to be 80 pts.

Experimental

A solution of KIO_3 (2.28 g, 10.7 mmol) and KI (4.04 g, 24.3 mmol) in H_2O (160 mL) was added to a solution of m-cresol (4.23 g, 39.1 mmol) and HCl (100 mL, 12 M) in MeOH (200 mL). After 30 min at rt, the mixture was diluted with H_2O (100 mL) and extracted with toluene (3 x 80 mL). The combined organic layers were washed with brine, dried (Na_2SO_4), filtered, and concentrated. The crude product was absorbed on SiO2 and purified by chromatography on SiO2 (0-90% EtOAc/Hexanes) to give the product (4.5 g, 49%) as an orange solid. Melting point, IR spectra, and NMR spectra were obtained.

Tips

- You don't need to make a reagent table! Following the example above, you can include the amounts of reagents (grams and mols) that you used after you state them in the experimental [i.e KIO_3 (2.28 g, 10.7 mmol)]. $1000\ mmol = 1\ mol$.
- An experimental doesn't need to be much longer than this. State everything that you did, but don't start mentioning error or random details. For example, stating that you separated the layers in the separatory funnel is pointless; just mention that you did an extraction (see above).
- Save analysis for the discussion.