This sample report is of an experiment we will be completing later in the semester. It is only partially completed but the basic elements and format for a formal report are given.

This sample report, as well as other sample reports are available for download from the home page for this course.

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ALWAYS CHECK YOUR GRAMMAR & style

Solubility and Recrystallization of Organic Substances

PURPOSE

please always double spaced

subtitles

In this experiment the solubility of four organic compounds were determined in three different solvents ranging in polarity. The best solvent for re-crystallization of each compound was determined through their solubility characteristics. Finally, the techniques for re-crystallization were practiced on samples of pure and impure acetanilide. After the re-crystallization of the impure sample the percentage yield and purity produced noted and evaluated, and the FTIR, HNMR, and CNMR spectra were analyzed and discussed.

CONCLUSION

Begin each conclusioin by briefly restating your purpose.

note the general purpose has been restated

In this experiment, the solubility of acetanilide, naphthalene, benzoic acid, and resorcinol in cold and hot solvents of water, petroleum ether, and 95% ethanol were measured. The compounds and solvents both ranged in polarity. Finally, the technique of recrystallization from the minimum amount of boiling solvent for both pure and impure samples of acetanilide was practiced.

ALWAYS write in third person past tense passive voice.

Before determining which is a better solvent, one should know a good solvent is. A good solvent has certain characteristics that pertain to the solute-solvent mixture as being:

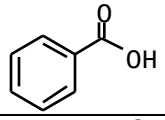
- LIST the characteristics of a good solvent
  which is most important? and why?

By looking at the physical structures and determining whether the molecule is polar or non-polar it can be determined which solvents will be best at dissolving the

particular molecule as each compound has different solubility in different solvents governed by the general rule like dissolves like.

In Part A, the best solvent for re-crystallization of each compound was ~~to be~~ determined through their solubility characteristics, see Table I.

Table 1: Results for Part A

Compounds	Resorcinol	Naphthalene	Benzoic Acid	Acetanilide
Structure				
Mp	_____ °C[2]	_____ °C[1]	_____ °C[3]	_____ °C[3]
Cold H_20	Soluble			
Hot H_20 Bp: 100 °C	NA			
results upon cooling the solution	NA			
Cold Ethanol				
Hot Ethanol Bp: _____[1]				
results upon cooling the solution				
Cold Pet. Ether				
Hot Pet. Ether Bp: _____[1]				
results upon cooling the solution				
Recrytallization solvent recommendation				

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1. Literature source (reference it) [you may or may not have more than one literature source.
2. Literature source (reference it)
3. Literature source (reference it)

How did structure affect solubility? What if any was the relationship between structure and solubility?; did your predicted results match the experimental results

These results in Table I were consistent with expect results.

Resorcinol showed …. ....structurally resorcinol has polar OH bonds capable of hydrogen bonding with water....

Naphthalene showed ….

Benzoic acid showed ….

Acetanilide showed ….

In Part B, a 1.00 gram sample of pure acetanilide acid recrystallized from the minimum amount of boiling water. The mixture was cooled in an ice bath, crystals formed, and, the solution was vacuum filtered to yield _____ grams of pure acetanilide as a white crystalline; see notebook pages _____ to _____. Several recrystallization trials were conducted and results summarized below.

Table 2: Recrystallization of Pure Acetanilide, Part B

	Trial One	%yield	Trial Two	%yield
Initial Mass of acetanilide (g)	1.00		1.00	
Mass of crystal in Crop 1 (g)	0.38	38%	0.78	78%
Mass of crystal in Crop 2 (g)	0.54	54%	0.12	12%
Total Mass recovered (g)	0.92	92%	0.90	90%
Percent Yield	92% (combined yield)		90% (combined yield)	

Overall Average Yield	91%

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Normalization factor	0.91

Recrystallization of pure acetanilide from the minimum amount of boiling water in three trials of showed…. First and second crops were recovered …. This showed….

complete these sentences

In Part C, an impure acetanilide was issued as a (give physical properties) mixture. A 1.00 gram sample of brown impure acetanilide acid was dissolved in boiling water in the presence of activate charcoal to decolorize, gravity filtered, and recyrstallized from the minimum amount of boiling water. Upon cyrstallization after the mixture was cooled for ten minutes in an ice, the solution was vacuum filtered to yield _____ grams of pure acetanilide as a white crystalline with a m.p. _____(Lit[1]_____), see notebook pages _____ to _____. A normalized yield was calculated…..

Always check\grammar

Table 3: Recrystallization of Impure Acetanilide, Part C

	Trial One	%yield	Trial Two	%yield
Initial Mass of acetanilide (g)	1.000		1.000	
Mass of crystal in Crop 1 (g)	0.53	53%	0.38	38%
Mass of crystal in Crop 2 (g)	0.12	12%	0.17	17%
Total Mass recovered (g)	0.65	65%	0.55	55%
Melting Point Crop 1	112-114 °C		114-115 °C	
Melting Point Crop 2	100-109 °C		111-115 °C	
Percent Yield	53% (uncombined yield)		55% (combined yield)	

Normalized Yield based on Part B results, 0.91 normalization factor	58% (uncombined yield)	61% (combined yield)

Average Normalized Yield	59.5%

The results of three trials showed ….Based on the average normalized yield…

In comparison between the yields of recrystallized pure and impure samples….

These results were in agreement with expected results as seen in the case of …..

In the purification both gravity and vacuum filtration were used. The difference between each technique was…

Where appropriate discuss the difference in percentage yields of the first and second crops.

After recrystallization of impure acetanilide in part C, FTIR spectroscopy showed WORD PROCESS LIKE WE DID FOR THE FTIR UNK. Include a SCANNED copy of the spectrum with my initials written on it. How did your spectrum compare to that of the actual spectrum. Be sure you downloaded the actual spectrum as thin film (KBr) NOT Nujol.

^{1}HNMR spectroscopy showed…. WORD PROCESS LIKE WE DID FOR THE NMR UNK give a brief discussion of prominent features observed in the actual spectrum

^{13}CNMR spectroscopy showed…. WORD PROCESS LIKE WE DID FOR THE NMR UNK brief discussion of prominent in the features observed in the actual spectrum

DON'T forget to include at the end of each report the following:

E. Final Four Questions. After your conclusion, please provide answers to the following four questions:
1) What did I do in this activity,
2) What did I see in this activity,
3) What did I learn in this activity, and
4) What would like to do next.