

**CHEM 258 – Spring \_\_\_\_\_**  
**Unknown A - Identification Report**

Name \_\_\_\_\_

Unk # \_\_\_\_\_

1. (5 pts) Solubility Water \_\_\_\_\_ (pH if soluble \_\_\_\_\_)

Diethyl ether \_\_\_\_\_

5% HCl \_\_\_\_\_

5% NaHCO<sub>3</sub> \_\_\_\_\_

5% NaOH \_\_\_\_\_

2. (5 pts) Initial Classification Tests NOT preliminary tests. List all observations and their conclusions. These are the test that you used to make the list in #3.

Test

Observations

Conclusions

3. (5 pts) ALL Possible compounds (list 3, or more, where appropriate) based upon preliminary data, solubility, and initial classification tests. Use an additional sheet if necessary. Be sure to place the name of the derivative on the appropriate line.

Name

Structure

mp or bp

\_\_\_\_\_  
Derivative mp:

\_\_\_\_\_  
Derivative mp:

1.

2.

3.

4.

5.

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4. (5 pts) Additional Classification Tests used to narrow the above list. List all observations and their conclusions.

Test

Observations

Conclusions

5. (12 pts) Derivatives attempted/prepared and their melting points. Show the reactions (including by-products) and structure of **your** derivatives. Submit a sample of each derivative labeled with your name, type of derivative and melting point range of the sample submitted. (Note: Derivatives must be recrystallized if the melting range is greater than 4°).

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6. (8 pts) Structure and name of your unknown:

7. (25 pts) On an attached page justify the structure provided above for your unknown. Provide a summary of your results and explain how you arrived at your identity. This is basically a story of what you did in a concise, scientific matter. This is a narrative NOT a list. The narrative should include at least the following information:
- a) Results that support your conclusion.
  - b) Results, if any, that are contradictory to your conclusion.
  - c) Attach IR spectra and fully interpret on the spectra by assigning all possible peaks. Also, discuss your IR data in the narrative.
  - d) What, if any, additional test(s) could you have performed to confirm the identity of your unknown?