

## Liquid Unknown Lab Report Form

Name \_\_\_\_\_

Unknown code \_\_\_\_\_

**Boiling point range of unknown:** \_\_\_\_\_ to \_\_\_\_\_

### Solubility in water

Name of positive control \_\_\_\_\_

Test performed on Unknown (yes or no)? \_\_\_\_\_

Observations (soluble or insoluble, litmus test results):

Observations (soluble or insoluble, litmus test results):

Interpretation:

Interpretation:

### Solubility in aqueous acid (5% HCl)

Name of positive control \_\_\_\_\_

Test performed on Unknown (yes or no)? \_\_\_\_\_

If no, why not?

Observations (soluble or insoluble):

Observations (soluble or insoluble):

Interpretation:

Interpretation:

**Solubility in aqueous base (5% NaOH)**

Name of positive control \_\_\_\_\_

Test performed on Unknown (yes or no)? \_\_\_\_\_

If no, why not?

Observations (soluble or insoluble):

Observations (soluble or insoluble):

Interpretation:

Interpretation:

**Solubility in concentrated H<sub>2</sub>SO<sub>4</sub>**

Name of positive control \_\_\_\_\_

Test performed on Unknown (yes or no)? \_\_\_\_\_

If no, why not?

Observations (soluble or insoluble):

Observations (soluble or insoluble):

Interpretation:

Interpretation:

## Functional Group tests

*Warning: You should not necessarily do these in the order that they are listed. **Points will be deducted** if you perform unnecessary or illogical tests.*

### 2,4-DNP test

Name of positive control \_\_\_\_\_

Test performed on Unknown (yes or no)? \_\_\_\_\_

If yes, # in testing sequence \_\_\_\_\_

If no, why not?

Observations:

Observations:

Interpretation:

Interpretation:

### Tollen's test

Name of positive control \_\_\_\_\_

Test performed on Unknown (yes or no)? \_\_\_\_\_

If yes, # in testing sequence \_\_\_\_\_

If no, why not?

Observations:

Observations:

Interpretation:

Interpretation:

**Hinsberg test**

Name of positive control\_\_\_\_\_

Test performed on Unknown (yes or no)? \_\_\_\_\_

If yes, # in testing sequence\_\_\_\_\_

If no, why not?

Observations:

Observations:

Interpretation:

Interpretation:

**Iodoform test**

Name of positive control\_\_\_\_\_

Test performed on Unknown (yes or no)? \_\_\_\_\_

If yes, # in testing sequence\_\_\_\_\_

If no, why not?

Observations:

Observations:

Interpretation:

Interpretation:

**Jones reagent test**

Name of positive control\_\_\_\_\_

Test performed on Unknown (yes or no)? \_\_\_\_\_

If yes, # in testing sequence\_\_\_\_\_

If no, why not?

Observations:

Observations:

Interpretation:

Interpretation:

**Ceric nitrate test**

Name of positive control\_\_\_\_\_

Test performed on Unknown (yes or no)? \_\_\_\_\_

If yes, # in testing sequence\_\_\_\_\_

If no, why not?

Observations:

Observations:

Interpretation:

Interpretation:

## Narrowing the identity of your unknown

List all the compounds (from the liquid unknown book) that could be your unknown

**Name of compound**

**boiling point**

## Spectroscopy

1. Attach a copy of your IR spectrum with all the relevant peaks corresponding to your functional group CLEARLY labeled.
2. Attach a copy of your  $^1\text{H}$  NMR spectrum. Draw the structure of your unknown, label all protons (HA, HB, etc.), and label the corresponding peaks on the spectrum.
3. Attach a copy of your  $^{13}\text{C}$  NMR spectrum. Draw the structure of your unknown, label all carbons (1, 2, etc.), and label the corresponding peaks on the spectrum.

## Unknown Identification

Identity (name) of unknown: \_\_\_\_\_

### Justification

(write a paragraph explaining your identification based on your series of test results, including boiling point, solubility and functional group tests and IR and NMR analyses).