

## Organic Chemistry Laboratory

Lab Quiz #2

NAME \_\_\_\_\_

1. In the chlorination of 1-chlorobutane,

- What was the purpose of the AIBN?
  
- There is a very large peak on GC that has the shortest retention time (excluding air/water). What substance does this correspond to?
  
- What gases collect in the gas trap?
  
- What is the purpose of the sodium sulfate?

2.(a) Which is more polar, 1-octanol or octane? Explain. Which would have the higher  $R_f$ ?

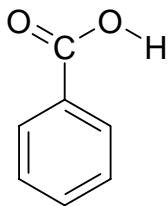
(b) Which is more polar, 1-octanol or 1-hexanol? Explain. If each were used as an eluent (mobile phase), which one would cause spots to have the higher  $R_f$ ?

(c) Describe how TLC might be used to monitor a reaction where both reactants and products are known. What limitations are there for this?

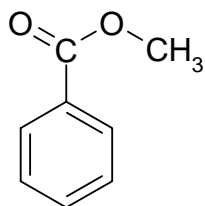
(d) Give at least two ways of visualizing a TLC plate.

3. Which of the analgesics you tested (aspirin, ibuprofen or acetaminophen) is the most modern?

4. Benzoic acid and methyl benzoate are compounds with a similar structure, making them both soluble in t-butyl methyl ether but insoluble in water.



Benzoic acid



Methyl benzoate

(a) Draw the structure of t-butyl methyl ether (MTBE).

(b) What is the major use for MTBE in the outside world?

(c) How might you separate benzoic acid and methyl benzoate using extraction?

(d) Draw the structure of the substances in each layer during your proposed extraction.

6. Explain when it is appropriate to use % recovery, and when it is necessary to use % yield only.