Experimental Chemistry I Your Name _____
PreLab 2
Winter term, 2009

PreLab assignments are due at 1 pm before lecture - Jan 20 TR section; Jan 21 WF section. You may need to use your lab manual, the Mohrig text, and your organic text book as references.

1. (2 pts) The normal boiling point of cyclohexyl chloride (the starting material for the H synthesis) is 142 °C at 1 atm. Use a simple nomograph like that on p 148 fig 11.17 of the Mohrig text to predict:

   a) the vapor pressure of cyclohexyl chloride at 25 °C. _____ torr

   b) the distillation temperature of cyclohexyl chloride at 40 mm Hg. _____°C

2. (5 pts) One of the esters that contributes to the distinctive odor of strawberries is hexyl 2-methylbutyrate (MW 186.29). An industrial preparation for this ester is the Fisher esterification of 1-hexanol (MW 102.13) with 2-methylbutanoic acid (MW 102.18). This esterification has a one to one stoichiometry.

   a) What is the theoretical yield in **grams** expected if 786 mL of 2-methylbutanoic acid (d=0.936 g/mL) is reacted with 1154 mL of 1-hexanol (d=0.814 g/mL)?

   b) When the synthesis was completed 1 kg of hexyl 2-methylbutyrate was obtained. What is the % yield for the synthesis?

3. (3 pts) Write the balanced chemical equation for the reaction of thionyl chloride ($SOCl_2$) with each of the following reagents:

   a) water

   b) acetic acid