

1. Assume that you need 0.3 moles of HCl. You have 37% hydrochloric acid on hand, density 1.18. How many milliliters will you need? (Atomic weights, H = 1.01; Cl = 35.45) (4 pts).

$$\frac{36.46 \times 0.3 \times 100}{37 \times 1.18} = 25.05 \text{ mL}$$

2. When 2-methyl-2-propanol was treated with hot sulfuric acid rather than hydrochloric acid, an alkene was obtained. Propose a name and a structural formula for this alkene! (4 pts)



methyl propene

3. Circle all correct statements. They refer to the preparation of 2-chloro-2-methylpropane (4 pts)

- A. "The 2-methyl-2-propanol I used last time is a secondary alcohol"
 B. "I could make the same product by using phosphoric acid instead of HCl in last week's experiment"
 C. "The leaving group in last week's reaction is OH"
 D. "I could have replaced sodium sulfate by calcium chloride in last week's procedure"

4. What would happen to the reaction rate if you tripled the concentration of HCl? Circle the correct answer! (3 pts)

- a. It would triple b. it would increase ninefold c. it would stay the same