

**REPORT GUIDELINES: CHEMISTRY 2283g**  
**EXPERIMENT 4: Preparation and Reactions of Alkenes**

Include the following in your report:

1. Title, Date, Name
2. Objective: purpose of lab
3. Introduction: brief description of concept studied
4. Reaction Equation:
  - a. Include proper structures for reactants and products
  - b. Include all reagents used
  - c. Include data for reactants and products (i.e. molar mass, mass, mol, etc.)
5. Procedure:
  - a. Cite lab manual with proper reference, note any changes
6. Results:
  - a. Yield – must show sample calculation
    - i. Crude Yield (mass and percent)
    - ii. Purified Yield(s) (mass and percent)
  - b. Physical properties
    - i. Appearance – liquid/solid, crystalline character, colour
    - ii. Boiling point – product, literature
    - iii. GC – % of each alkene, labelled
    - iv. IR Spectra – (Me-pentanol and alkenes mixture) label important peaks with respect to functional groups present
    - v. NMR Spectra – label  $^1\text{H}$  spectra (Me-pentanol, all alkenes, product mixture)
    - vi. Qualitative Tests – results presented in table (compound, structure, observations, conclusions)
7. Discussion:
  - a. Discussion of yield (crude and purified)
  - b. Discussion of physical properties (**evidence that correct product was obtained**)
    - i. Discussion of Boiling Point
    - ii. Discussion of GC
    - iii. Discussion of IR Spectra – Me-pentanol vs. alkenes mixture
    - iv. Discussion of NMR
    - v. Discussion of Qualitative test for product
  - c. Mechanism
    - i. a full mechanism for dehydration of 4-methyl-2-pentanol to ***all possible alkenes***