

Chem 360 Lecture 5b

Results and Discussion Section

Administrative matters

- Pick up graded: (a) HW#4, (b) Group Exer.# 3
- Overview of this coming week:
 - Fri – chapt 4 homework
 - Monday: Dr. Nicolaisen on Posters. Read Ch9-10 to prepare.
- Be prepared to ask Questions.

Today

Wrap up Chapter 3

- Do Quiz #2
- Start Chapter 4

Exercise 3.1

- A table of chemicals with their physical properties (e.g., mp, MW,) NO
- Amounts of reagents used in a synthesis (e.g., mg, mmol) YES
- Directions for preparing a stock solution NO
- The quality (grade) of chemicals used YES
- The names and locations of chemical vendors YES
- The brand names of commercial instrumentation used YES
- A diagram of a distillation apparatus NO
- An illustration of a novel or custom-built apparatus YES
- Operating conditions for a gas chromatograph YES
- Equations used to calculate percent yield or dilution ratios NO
- A list of disposable equipment (e.g., rubber gloves, Bunsen burners) NO
- Step-by-step instructions of the procedure NO
- Warnings to other scientists about unusual hazards YES
- Quantitative statements of reaction times and temperatures YES
- Descriptions of the physical appearances of synthesis products YES
- IR or NMR data confirming product purity YES
- Statistical packages used (including the name of the software) YES
- Reports of other software used to keep track of data (e.g., Excel) NO

“Reagent Grade”

- **Reagent Grade:** suitable for use in general laboratory applications; meets in-house established limits. In-house established limits and their associated test methods are in many cases derived from common compendial methods such as USP, NF, ACS, etc.
- (compendial= in a compendium(a list))

CHAPT 4: RESULTS

- RESULTS = results and discussion (R&D)
- 3 different patterns used:
 - Blocked R&D: [R1,R2,R3], [D1, D2, D3]
 - Iterative R&D: [R1,D1], [R2,D2], [R3,D3]
 - Combined R&D: no obvious pattern, “seamless integral whole”

Results and discussion

- Note distinctions:
 - Results describe facts and measurements (statement of what is “true”)
 - Discussion interpret the trends observed (it may or may not be “true”)

Results and discussion

- Notable aspects of the R&D section:
 - More lasting than Methods or even conclusions
 - Author is responsible for: accuracy, objectivity
 - Leads reader step by step to the conclusion.

Organizational structure

- Move 1: Set the stage
 - *Remind reader how results were obtained
 - *Introduce graphic results
- Move 2: Tell story of scientific discovery
 - *tell the key findings
 - * point out trends
 - *highlight unexpected results

Repeat as needed back to Move 1

Move 1: Set the stage

- Refer to a Figure or table if appropriate.
- “as shown in Fig...”, “is shown in Fig...” or parentheses.
- Allows reader to view key results before it is interpreted.
- Uses both present and past tense. (unlike Methods section; past tense)
- Usually passive voice but sometimes active (“We”...)

Move 2: Tell story of discovery.

- Chronological vs logical sequence
- Style is to “suggest” not claim “Truth”.
- Present tense : direct reader to figures; state general facts
- Past tense : the other verbs.
- Voice: both active and passive used. (recall: for Methods Section, mostly passive used)
- Avoid “very”, use quantitative statements (example: “very acidic” vs “pH 1.5”)