Date: Hayes Lab Safe Practices for Chemical Reactions

<u>Reaction Code</u> (must match reaction code in lab book):

<u>Expected Reaction</u> (Draw balanced reaction. Provide structures, conditions and quantities):

<u>Hazard checklist</u>

☐ Alkyllithium Reagent(s)	☐ Thermally sensitive reactant(s), intermediate(s) and/or product(s)	☐ Consumption or release of gases
☐ Other Pyrophoric Reagent(s)		☐ Large scale reaction (>1 g of any reagent)

<u>Additional Details</u> (Complete all that apply)

1. Alkyllithium Reagent(s)

- Which alkyllithium reagent are you using? Is it a solid, or in solution?

- Where will the reagent be used?

☐ Vacuum line in fumehood	☐ Bench	☐ Glove box
▪ Explain possible safety concerns:	▪ Briefly describe the procedure you will execute:	▪ Precautions to be taken:

2. Other Pyrophoric Reagent(s)

- Identify the reagent being used. Is it a solid or in solution?

- Where will the reagent be used?

☐ Vacuum line in fumehood	☐ Bench	☐ Glove box
▪ Explain possible safety concerns:	▪ Briefly describe the procedure you will execute:	▪ Precautions to be taken:

3. Thermally Sensitive Reactant(s), Intermediate(s) and/or Product(s)

- Which of the reactants, intermediates or products are thermally sensitive?

- At what temperature does the species decompose?
- How does it decompose? Is a gas given off? If so, what volume of gas is expected?
- Is the decomposition expected to be rapid and/or exothermic?

- Where will the product be stored?
- Which cold or hot baths will be used?

4. Consumption or Release of Gases

- Are gases being consumed, produced or both?
- Which gases are being consumed/produced?

- Boiling point of the gas:
- Freezing point of the gas:
- Is the gas flammable?
- What volume of gas is expected to be consumed or produced (at STP)?

- Will the reaction be open to an argon bubbler? If not, what type of glassware will the reaction be conducted in, what volume is the vessel, and what pressure do you expect to be generated (under the experimental conditions you will be using)?

5. Large Scale Reaction (>1 g of any reagent)

- Which hazards are inherent to this reaction?
- How will you mitigate these hazards on this scale?

6. Safe Disposal of Chemicals:

- If alkyllithium, pyrophoric or other hazardous reagents are being used, how will they be safely killed?
- How will all other chemicals be safely disposed?

Additional Comments/Concerns/Hazards:

Researcher Signature: