

## LABORATORY HAZARD ASSESSMENT CHECKLIST

This list is designed to help you answer five critical questions prior to beginning work:

1. What are the hazards?
2. What is the worst thing that could happen?
3. What can be done to prevent this from happening?
4. What can be done to protect from these hazards?
5. What should be done if something goes wrong?

### Pre-Operational Planning

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| <input type="checkbox"/> Toxicity               | What is the level of toxicity? What are the routes of exposure (inhalation, skin absorption, ingestion, injection) and which of these are likely under the conditions of use? What are the signs and symptoms of overexposure? |
| <input type="checkbox"/> Flammability           | Is the material flammable or explosive under the conditions of use?  |
| <input type="checkbox"/> Warning Properties     | Can odor or irritation adequately warn of over-exposure before it becomes dangerous?   |
| <input type="checkbox"/> Laboratory Equipment   | Is laboratory equipment in good condition? Are machine guards or interlocks in place and functioning?  |
| <input type="checkbox"/> Storage Precautions    | Does the material need isolated storage, refrigeration or other special conditions for storage?  |
| <input type="checkbox"/> Incompatible Materials | Should certain materials be segregated (e.g., flammables and oxidizers)?   |
| <input type="checkbox"/> Reagent Stability      | Should materials be dated for disposal (e.g., ethers)? Should materials be kept refrigerated to prolong shelf life?  |
| <input type="checkbox"/> Protective Clothing    | Is a lab coat, apron, or clothing made of resistant material needed or is a standard lab coat adequate?  |
| <input type="checkbox"/> Gloves                 | What glove material is needed? Is the right type, thickness, glove length and size available for the materials being handled?  |
| <input type="checkbox"/> Eye Protection         | What type of eye protection is needed (e.g., safety glasses for impact, chemical splash goggles for chemicals)? Is a face shield needed in combination with the goggles?   |
| <input type="checkbox"/> Heat Sources           | Is heating needed? Is there an alternative to open flames? Are heating mantles in good condition?  |
| <input type="checkbox"/> Electrical Equipment   | Is equipment it grounded and bonded properly? Are electrical cords insulated? Is ground fault circuit interruption (GFCI) needed?  |

Vacuum/Pressure Systems      Have connections been leak tested, hydrostatically tested, properly vented, and traps installed when necessary?

Ventilation/Containment      Does the work need to be done in a chemical hood, ventilated cabinet or a glove box to provide the needed level of containment?

### **Experimental Scale & Design**

Quantity      Are there ways to minimize the amount of materials used without affecting results (e.g. microscale)?

Ambient Conditions      Are special conditions necessary to carry out the reaction (e.g., cold room or dry box)?

Time Constraints      Can the experiment be completed while lab workers are present? If not, can the experiment be safely run unattended or overnight?

### **Spill/Emergency Planning**

Lab Personnel      Are others in the laboratory aware of what you are doing?

Fire Extinguishers      Are special types required; are you aware of their location and proper use (e.g., Class D for metals)?

Emergency Response      Do you have a response planned in the event of a spill; would evacuation be necessary?

Spill Cleanup      Are materials on hand to absorb/neutralize; is the needed protective equipment on hand and have you been trained on its use?

Safety Shower/Eyewash Fountain      Are you aware of the locations and methods of operation?

### **Waste Disposal**

Method      Is there an approved method for disposal of waste generated by the experiment or procedure?

Labeling      Are waste containers clearly, indelibly and accurately labeled as to the contents?

Segregation      Are incompatible wastes kept segregated?

Containers      Are suitable containers with adequate closures available?

Recycling      Is it feasible to safely recover/recycle used chemical?