

## Laboratory Safety Inspection Checklist

### Safe Laboratory Practices

- **Laboratory personnel not wearing appropriate PPE:** Ensure all laboratory personnel wear appropriate PPE (eye protection, lab coats, gloves, etc.) whenever there is risk of exposure. *Prudent Practices 2011, Page 175*
- **Laboratory personnel not wearing appropriate clothes and/or shoes:** Appropriate clothing (no shorts, unsecured long hair, open-toes shoes, dangling jewelry, bare midriffs) should be worn when working in laboratory. *Prudent Practices 2011, Page 175 Section 7.F.1.2 & 176*
- **Evidence of eating/drinking in lab:** Consumption and preparation of food and beverages is strictly prohibited inside laboratories, including desk areas where hazardous materials are stored or handled. *Prudent Practices 2011, Page 109 Section 6.C.2.3*
- **Food/beverage stored in lab:** Food and beverages, including eating and drinking utensils may not be stored in areas where hazardous materials are stored or handled. *Prudent Practices 2011, Page 109 Section 6.C.2.3*
- **Food/beverage stored in lab refrigerator/freezer /microwaves:** Food and beverages may not be stored in labs to prevent the ingestion of toxic or infectious materials as food can absorb the toxic vapors from the chemicals in the refrigerators. All laboratory refrigerators and freezers must be labeled 'No food or drinks in the refrigerator'. *Prudent Practices 2011, Page 97 - 98, Page 109 Section 6.C.2.3*
- **Domestic refrigerator/freezer not labeled 'Do not store flammables':** General household refrigerators that are used to store food and beverages are not suitable for storage of flammable materials. Such refrigerators have internal switching or wiring that can arc, spark, or generate a source of ignition. It is best practice to label such refrigerators and freezers as 'Do not store flammables' *Prudent Practices 2011, Page 98 Section 5.E.4*
- **Excessive clutter on lab floors and benches:** Avoid cluttering of work spaces and do not store multiple chemical containers on laboratory benches. Return chemical containers to storage cabinets when not being used. *29 CFR 1910.22(a)(1)*
- **Damaged Bunsen burner tubing:** Burner hose should not have cracks, holes, pinch points, other defects. It must also be ensured the hose fits securely on the gas valve and the burner. *Spelman College Chemical Hygiene Plan*
- **Bunsen burner used inside a biosafety cabinet:** Bunsen burner may not be used in a biological safety cabinet. Personal protection is reduced when the air curtain is disrupted by flame, and unburned gas can collect in filters, increasing potential for explosion. *BMBL 5th edition 2007, Appendix A, B18*
- **Compressed gas cylinders not secured:** All compressed gas cylinders shall be secured with chain or strap between the 'waist' and 'shoulder' of the cylinder at all times. This includes empty cylinders. *Prudent Practices 2011, Page 168 Section 7.D.3*

- **Caps missing from compressed gas cylinders not currently being used:** Valve protection caps are required on cylinders at all times except when being used. *Prudent Practices 2011, Page 168 Section 7.D.3*
- **Soap and paper towel not available for hand washing:** Hand washing is a primary safeguard against exposure to toxic chemicals or biological agents. All wet bench labs will have access to sink suitable for hand washing and will be stocked with soap and paper towels. *29 CFR 1910.1030(d)(2)(iv)*

## Chemicals

- **Chemicals are not properly labeled:** All chemical containers shall be labeled with complete name of the contents, even those that contain only water. The label should also notify users of the hazards associated with the chemicals. *29 CFR 1910.1200(f)(6)*
- **Chemical label damaged and/or unreadable:** Replace missing or deteriorating labels on chemical containers. *29 CFR 1910.1200(f)(6)*
- **Chemicals not dated for received date and date opened:** All chemicals must be dated for the date it was received and opened. *Prudent Practices 2011, Page 68 Section 4.C.2*
- **Time-sensitive chemicals stored beyond use/disposal timelines:** All time-sensitive chemicals should be marked with an expiration date upon receipt. Common time-sensitive chemicals are chloroform and chemicals that form peroxides.
  - Chloroform should be used within 1 year of opening the container as it can form phosgene gas upon decomposition. Exposure to phosgene can cause damage to the central nervous system, and can be fatal.
  - Explosive peroxide forming chemicals and oxidants such as ethyl ether, tetrahydrofuran (THF), perchloric acid, cyclohexene, butadiene, isopropyl ether and dioxanes must be used within 1 year of purchase or 6 months after opening and must be disposed of before the expiration date. Indicators of formation of peroxides are visible crystals, visible precipitate, or an oily viscous layer present in the material.
- **Flammable liquid not stored in flammable liquid cabinet:** All flammable chemicals must be kept in an approved flammable liquid storage cabinet when not in use. *Prudent Practices 2011, Page 95 Section 4.E.3*
- **Flammable chemicals stored in domestic refrigerator:** General household refrigerators that are used to store food and beverages are not suitable for storage of flammable materials. Such refrigerators have internal switching or wiring that can arc, spark, or generate a source of ignition. *Prudent Practices 2011, Page 98 Section 5.E.4*
- **Hazardous liquid chemicals stored above eye level:** Do not store hazardous liquids chemicals above eye level. *Prudent Practices 2011, Page 95 Section 5.E.1, Page 114 Section 6.C.5*
- **Chemicals not stored according to hazard classification:** Store chemicals according to hazard classification. This is to ensure incompatible chemicals do not accidentally come into contact with one another as they could react violently and/or release poisonous gas. *Prudent Practices 2011, Page 21 Section 2.D.2*

- **Chemical containers in poor condition:** All chemical containers must be in good condition with no visible damage or deterioration. Caps must be secure, intact, and without chemical residue. Any container found to be leaking, rusted, or forming precipitates must be disposed immediately as chemical waste. *Prudent Practices 2011, Page 113 Section 6.C.3*
- **Chemicals containers stored on floor:** Do not store chemical containers directly on the floor. Store them in secondary containers large enough to hold the entire contents of the bottle in case of a spill. *Prudent Practices 2011, Page 77 Section 4.E.10*
- **Flammable chemicals stored near ignition sources:** Flammable chemicals must be stored away from ignition sources (hot materials, flames, or sparking equipment). *Prudent Practices 2011, Page 96 Section 5.F.2*

### Chemical Waste

- **Hazardous waste container not appropriately labeled:** All waste containers shall be marked as 'Hazardous Waste' and should be marked for the contents with full chemical name (no abbreviations or formulas). *Spelman College 'Chemical Waste Management Policy'*.
- **Chemical waste container left open:** All chemical containers should be kept closed unless adding waste. *Spelman College 'Chemical Waste Management Policy'*.
- **Liquid chemical waste container not stored in secondary containment:** All liquid waste containers must be stored in secondary containment capable of containing 10% of the total volume of the waste container. *Spelman College 'Chemical Waste Management Policy'*.
- **Secondary containment in poor condition:** Secondary containment must be in good condition (free of cracks, gaps and impervious to leaks). *Spelman College 'Chemical Waste Management Policy'*.
- **Chemical waste not segregated by hazard classification:** Store chemical waste according to hazard classification. This is to ensure incompatible chemicals do not accidentally come into contact with one another as they could react violently and/or release poisonous gas. *Spelman College 'Chemical Waste Management Policy'*.
- **Glass waste box full:** Containers for broken glass should not be overfilled and glass waste should not protrude over the lip of the container. *Spelman College 'Chemical Waste Management Policy'*.

### Safety Showers and Eyewashes

- **Eyewash not available:** Continuous-flow (plumbed), hands-free eyewash station is required in areas where the eyes of body of any person may be exposed to any hazardous materials (including corrosives). *ANSI Z358.1-2009 Section 5*
- **Access to safety shower and eyewash obstructed:** Area around the safety shower and eyewash station must be free of physical obstruction. It is recommended to keep at least 3 feet clearance around the safety shower and eyewash stations. *ANSI Z358.1-2009 Section 4.5.2*

- **Safety shower and eyewash inspection out of date:** All eyewash and safety shower units must be inspected weekly and a log must be maintained. *ANSI Z358.1-2009*

### **Fume Hoods & Biosafety Cabinets**

- **Fume hood being used as storage:** Fume hoods are designed to be used to protect lab workers handling hazardous materials. They should not be used as space to store chemicals and storage and clutter will interfere with proper air flow. *Prudent Practices 2011, Page 223 Section 9.C.2.5*
- **Electrical power strips used inside fume hoods:** Never use electrical outlets inside a fume hood. All equipment cords should be plugged into the outlets outside the fume hood.
- **Airflow obstruction in fume hood:** To avoid obstruction of airflow in the fume hood, place items at least 6 inches back from the face of the hood and 6 inches away from the baffles in the rear of the hood. *Prudent Practices 2011, Page 223 Section 9.C.2.5, Page 159 Section 7.C.5.7, Page 110 Section 6.C.2.4.1*
- **Chemicals stored in fume hood:** Fume hoods must not be used as storage as it obstructs the air flow inside the hood. *Prudent Practices 2011, Page 223 Section 9.C.2.5*
- **Open flame being used inside biosafety cabinet:** Personal protection is reduced when the air curtain is disrupted by flame, and unburned has can collect in filters, increasing potential for explosion. *BMBL 5th edition 2007, Appendix A+B18*
- **Loose paper in fume hood:** Remove loose paper (paper towels, Kim wipes, notebook paper) from fume hood. Paper can become lodged in the duct work, and removing it requires significant monetary costs and labor. *Prudent Practices 2011, Page 223 Section 9.C.2.5, Page 110 Section 6.C.2.4.1*