

Research Laboratory Safety Self-Inspection: Chemical & Physical Safety Checklists

Principal Investigator:	Department:
Lab Building:	Inspector Name:
Lab Rooms:	Inspection Date:

Chemical and Physical Safety General Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Is Chemical Hygiene Plan available, reviewed, signed and all appendices attached?				
Is EH&S General Lab Safety training completed and documented for all current lab personnel?				
Is lab-specific training provided and documented for lab personnel?				
Is EH&S Hazardous Waste Training completed, current and documented for all lab personnel?				
Is a chemical inventory complete, updated and accessible?				
Is safety data sheet (SDS) for each chemical available, current, organized and accessible?				
Is eyewash available within 50 ft or 10 seconds travel, functional, maintained and maintenance checks documented?				
Is safety shower available within 50 ft or 10 seconds travel, functional, maintained and maintenance checks documented?				
Is path to the eyewash and safety shower clear and free of obstruction?				
Is a fully-stocked spill kit available and current?				

⚠ Chemical and Physical Safety General Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Is a fully-stocked first-aid kit available and current?				
Are appropriate hand protection available and in good condition for specific hazardous materials handled in the lab? (e.g., latex, nitrile, leather, cryogen, autoclave)				
Are appropriate eye and face protection available and in good condition for specific hazardous materials handled in the lab? (e.g., safety glasses, safety goggles, face shield, UV shield)				
Is splash apron available and in good condition for handling corrosives?				
Are lab coats available and in good condition?				
Are PPEs used appropriately according to hazards used and/or stored in the laboratory and according to USC PPE policy?				
Is appropriate ear protection available for protection against unusually loud equipment and/or procedures?				
If a respirator/s is/are present in the lab, are lab personnel medically cleared and fit tested to use the respirators?				
Is laboratory free of any sign of release of chemical contaminant?				
Is a chemical fume hood available for use of volatile flammable and/or inhalation hazards?				

Fume Hood Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Is fume hood certified by EH&S within the last 12 months or after a recent repair?				
Is fume hood airflow within 80-150 lfm?				
Is fume hood free of stored unnecessary items?				
Is fume hood sash clear and in good condition?				

Fume Hood Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Are fume hood side panels intact?				
Is fume hood airfoil and baffle openings free of obstruction?				
Is fume hood lighting in good working condition?				
Is fume hood alarm, if present, in good working condition?				
Is proper fume hood sash height adjusted based on fume hood use or status?				
Is fume hood work surface clean and free of chemical spill?				

Benchtop, Non-ducted Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Is fume hood certified and maintained?				

Routine Chemicals Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Are chemicals segregated based on compatibility?				
Are hazardous chemicals stored below shoulder level but not on the floor?				
Are chemicals stored in appropriate cabinets with secured shelving?				
Are flammables stored in appropriate fire-rated cabinets or flammable-safe refrigerator or freezer?				
Are chemicals kept in capped, sealed leak-proof containers and stored upright?				
Are labels on original containers intact and readable?				

Routine Chemicals Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Are secondary containers (containers of solutions and mixtures) labeled properly?				
Are old and/or unused (not used within the last three years) chemicals disposed of as hazardous waste and purged from the chemical inventory?				
Is amount of each chemical reasonable for research need?				
Are cabinets used to store hazardous chemicals labeled?				

Compressed Gases Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Is gas cylinder secured?				
Is gas cylinder capped if no regulator is attached?				
Is gas cylinder labeled?				
Are gas valves and connections leak tested and leak free?				
Is gas cylinder transported with cylinder cart?				
Is gas cylinder located away from high traffic areas, doorways, electrical sources, heat sources?				
Are gas cylinders segregated by chemical compatibility?				
Is cylinder hydrostatic test current?				
Are old gas cylinders disposed of properly or returned to the vendor?				
Are gas lines clearly labeled from point of source to end of use?				
Are blow guns/gas nozzles used for cleaning and other approved purposes regulated at 30 psi or below?				
Are gas cabinets labeled?				
Are cylinders that are not in use (not connected to a system/process) have their regulators removed and the cylinder capped?				

Compressed Gases Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Are gas lines in good condition?				

High Hazard Chemicals and Procedures Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Are written standard operating procedures (SOPs) established for all high hazard chemicals and procedures?				
Are printed SDSs for all high hazard chemicals on file, organized in the lab and readily accessible to all lab personnel or attached to SOPs?				
Are lab personnel authorized to work with high hazard chemical, equipment and procedure trained on the procedures and the training documented on written SOPs?				
Are SDSs, equipment manuals and other references listed and/or attached to the SOP for use of highly hazardous substances, equipment and processes?				

High hazard gases-Toxic Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Is the amount of gas reasonable for the procedure so that the IFC's MAQ for highly toxic gases is not exceeded in the control are where the lab is located?				
Is toxic gas concentration reasonable for lab procedure?				
Is cylinder of toxic gas secured, stored and dispensed in ventilated gas cabinet or chemical fume hood?				
Is gas specific detector installed at point of release and point of use, and calibrated bi-annually or as recommended by the manufacturer?				
Is gas detection system for toxic gas attached to an alarm system that is monitored 24 hours a day?				
Is written SOP for use of toxic gas available, approved by PI and signed by authorized users?				
Are authorized users of toxic gases trained on safe handling of compressed gases, cylinder change-out and specific SOPs? Are their trainings documented?				

High hazard gases-Toxic Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Is written SOP for cylinder change-out available and followed?				

High hazard gases-Corrosive Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Is written SOP for use of corrosive gas established?				
Is corrosive gas stored/used inside a ventilated enclosure such as a fume hood or gas cabinet?				
Is a gas sensor and alarm system installed to detect accidental release of corrosive gas?				
Are gas lines for corrosive gas free of signs of corrosion?				

High hazard gases-Flammable Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Is written SOP for use of flammable gas established?				
Are non-sparking tools available for cylinder change-out?				
Is gas cylinder in appropriate location?				
Are tubing used appropriate for the type of gas and rated for the pressure by which the gas is being dispensed from the cylinder?				

High-hazard liquids and solids- Cryogen Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Is cryogen tank/dewar stored in a well-ventilated area?				

High-hazard liquids and solids- Cryogen Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Is oxygen monitor available where cryogen tanks are stored in a room with unreliable ventilation?				
Are required PPE (cryogen gloves, face shield) available and used when handling cryogen?				
Are necessary precautions observed so that the potential for oxygen displacement is minimized when transferring liquid nitrogen inside a confined space or a small room?				

High-hazard liquids and solids- Flammable liquid (5 gal or more container) Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Is solvent pump available and used for dispensing from large flammable liquid containers?				
Is 55-gal drum containing flammable liquid properly grounded and bonded?				

High-hazard liquids and solids- Pyrophoric liquid Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Is written SOP for use of pyrophoric liquid available, signed and implemented?				
Are authorized users of pyrophoric liquid trained on safe handling of pyrophoric liquid and their training documented?				
Is flame resistant clothing and flame resistant lab coat available and used when handling pyrophoric liquid?				

High-hazard liquids and solids- Peroxide formers Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Do containers of peroxide formers indicate date of receipt and date opened?				
Are peroxide formers discarded according to their expected shelf-life and ability to form peroxides?				
Is inhibited counterpart of the peroxide former purchased if available and usable?				
If peroxide testing is performed, are testing results clearly documented on the container?				

High-hazard liquids and solids- Water Reactive Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Is a class D fire extinguisher available in the lab?				

USC-listed high-hazard chemicals- Mercury Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Is mercury spill kit available?				
Is alcohol-based thermometer used if mercury thermometer is not necessary?				

USC-listed high-hazard chemicals- HF Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Is calcium gluconate gel and calcium gluconate eyewash (if applicable) available and not expired?				
Is neoprene gloves, tyvek suit, acid resistant apron, acid resistant shoe cover, face shield available?				
Is HF signage posted in HF work area?				
Is written HF SOP available, and signed by PI and authorized users?				
Is HF-specific procedure and safety training of authorized users performed and documented?				
Is HF spill kit available?				
Is amount and/or concentration of HF on hand reasonable for research needs?				

Hazardous Chemical Waste Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Is waste storage minimized in the lab?				
Are old and/or unused, unidentified or unlabeled chemicals discarded as hazardous waste?				

Hazardous Chemical Waste Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Is chemical waste container capped and sealed unless waste is actively being added to the container?				
Is designated collection area in the vicinity of where waste is generated?				
Is container used for collection compatible with the waste?				
Is official USC Hazardous Waste tag used to label containers and no chemical abbreviations are used?				
Is chemical waste removed from the lab accumulation area within 6 months of generating the waste or as soon as 10 gallon limit is reached; whichever comes first?				
Is waste container filled to the level where there is head space to allow liquid expansion?				
Are used chemicals that are hazardous (toxic, corrosive, flammable, reactive) collected as hazardous waste?				
Are only compatible chemicals mixed added in a waste container?				

Wastes other than chemical, biological or radioactive Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Is broken glass collected in sturdy cardboard box, lined with thick plastic bag or in plastic bucket and not overfilled and/or more than 10 lbs?				
Are used oil, used lamps, bulbs and batteries or other universal waste collected in compatible containers, labeled and disposed of through EH&S?				
Are syringes and needles and other sharps such as blades and scalpels, etc. used for chemical/mechanical work disposed of appropriately?				
Are empty chemical containers disposed of?				
Are other non-RCRA waste such as metal shavings or dust from any cutting/machining operations collected and disposed of properly?				

Nanomaterials Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Is written SOP developed for use of nanomaterial?				
Is nanomaterial handled inside the fume hood?				
Are proper PPEs used when handling nanomaterials?				
Are personnel authorized to work with nanomaterials trained specifically for safe use of this hazard and is the training documented in the CHP?				

DEA Controlled Subs Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Are DEA drugs stored in secured place?				
Is DEA and State permit available and current?				
Is annual drug inventory and drug usage log kept current?				
Are expiration dates of drugs closely monitored and expired drugs disposed of properly?				

High Hazard Equipment and Processes Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Is a written safety SOP available, approved and signed by the PI and authorized users?				
Are lab personnel authorized to use hazardous equipment provided hazard-specific training and is the training clearly documented in the CHP or Lab Safety Manual?				
Is manufacturer-issued safety manual available for reference?				
Are built-in safety mechanisms in place and functional?				
Is periodic maintenance check performed and documented?				
Is a written lock-out tag-out procedure available and implemented when equipment is being serviced?				
Are rotating or spinning parts of equipment guarded so long as the operation of the equipment is not obstructed by guarding?				

High Hazard Equipment and Processes Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Are equipment or specific parts of equipment properly labeled to communicate hazards present?				

High Hazard Equipment and Processes- Uninterrupted Power Supply (UPS) Questions	Yes	No	N/A	Comments or Deficiencies * Indicate room where deficiency is identified
Are UPS units under service contract for battery testing, maintenance and replacement after the warranty period expires?				
Is there a 36" clearance around the UPS and are combustible materials kept away from it?				