University of Delaware
Environmental Health and Safety
Laboratory Inspection Form

It is the aim of the Chemical Hygiene Committee (CHC) and Environmental Health & Safety (EHS) to work cooperatively with Principal Investigators and laboratory workers to achieve compliance with University safety policies, the Chemical Hygiene Plan and governmental regulations. Unsatisfactory items and laboratory safety violations will be handled, following the steps outlined in the Chemical Hygiene Compliance Policy (http://sites.udel.edu/generalcounsel/policies/department-safety-committee-policy/)
Issues that represent an immediate or imminent hazard to University Personnel, risk to the environment or potential to cause damage to University facilities are classified at Category 1 Deficiencies and must be rectified immediately.

Department: _____	**Date:** _____
Building and Room Number: _____	
Inspector(s): _____	

A. Administrative

Inspection Item	S	UNS	N/A	Comments
Access to Safety Data Sheets in Lab? *Personnel must have access to updated SDS in the laboratories. SDS may be managed as printed hard copies in an organized fashion such as a binder. SDS may also be maintained through a bookmarked Internet site or as an electronic file. A functioning computer with internet access and a functioning printer must be available in the laboratory. All laboratory personnel must know where and how to access the material safety datasheets (SDS) for the hazardous materials they use in their operations. Laboratories are strongly urged to print the SDS sheets for their chemicals from the manufacturer that produced them and keep them in a clearly marked three ring binder in the laboratory on a bookshelf or other organized fashion where they will be visible to all researchers. These printed SDS must be updated and current. If a laboratory chooses to use electronic access, internet bookmarks, desktop icons or shortcuts must be used on the computer or posted in a conspicuous location to facilitate easy access. These electronic copies must be updated and current. Provisions are needed for dealing with long-term interruptions to power, the network, or the server which would make electronic versions unavailable.*	☐	☐	☐	
Hand washing sink, Hand Soap and Paper Towels Available to Assure Proper Decontamination? *On leaving the designated area or the laboratory area, remove protective apparel and thoroughly decontaminate or dispose of contaminated items. Thoroughly wash hands and forearms with soap and water.*	☐	☐	☐	
No Smoking, Eating, Drinking? *Smoking, Eating, Drinking, and the application of cosmetics are prohibited in University laboratories.*	☐	☐	☐	
Unauthorized Occupants? *Laboratory workers must limit access by unauthorized occupants and challenge or report any suspicious activity or people to the University Police. Children should not be allowed in the laboratory.*	☐	☐	☐	
Lab Secured? *Assure that the laboratory is locked when no one is present in the laboratory.*	☐	☐	☐	
Emergency posting current, emergency contacts posted, Laboratory sign is accurate? *Is the laboratory hazard sign accurate? Is an up to date list of emergency contacts and phone numbers posted or listed on the grey card behind the laboratory hazard sign? Contact EHS to have an updated sign created or installed.*	☐	☐	☐	
Chemical Inventory Available? *An up to date chemical inventory must be maintained online in ChemInventory. The CI program is available at https://udel.cheminventory.net/*	☐	☐	☐	
Biological Material Inventory Available? *A biological material inventory must be maintained.*	☐	☐	☐	

Key: S – Satisfactory ● UNS – Unsatisfactory ● N/A – Not Applicable ● **Bolded Inspection Items** – Category 1 Deficiency

Inspection Item	S	UNS	N/A	Comments
Right-To-Know/Chemical Hygiene Plan and Task Specific Training? *All members of the lab must have Right-to-Know and Chemical Hygiene training certificates signed and on file in the department office and copied to EHS every year. Electronic management of training records is permitted by using BioRaft. Laboratory personnel must receive task and chemical specific training on all processes, chemicals, equipments and hazards in the laboratory.*	☐	☐	☐	
Job Hazard Analysis (JHA) or Standard Operating Procedures (SOP)? *Written procedures are required for all hazardous operations and use of hazardous chemicals, including highly toxic chemicals, and Category 1 [GHS] reproductive, and carcinogenic materials. These written procedures should discuss the hazards involved in the operation and ways to mitigate the hazard. The written procedures should dictate the types of personal protective equipment, fume hood use and other safety practices. They should be revised whenever there is a change in procedure or a new procedure added. Information on Job Hazard Analysis and Standard Operating Procedures are is found at http://www1.udel.edu/ehs/research/chemical/job-hazard-analysis.html*	☐	☐	☐	
Lab Doors and Windows Closed? *Lab doors should remain closed at all times to assure optimum laboratory ventilation. Keeping lab doors closed also helps prevent the spread of smoke in the event of a fire.*	☐	☐	☐	
Emergency Training? *Laboratory members should know the procedures to follow for a laboratory accident; i.e. use an emergency phone or dial 911 for help, location of first aid kits, accident reporting procedures. Researchers need to develop procedures to make operations safe should a ventilation or power failure occur. Lab members should know where the emergency gathering point is located.*	☐	☐	☐	
B. Electrical				
General Condition? Check for frayed power cords, unsafe electrical operations, open/exposed wires, grounding plugs removed, etc. *Adequate electrical service is necessary in the lab to avoid the use of unsafe practices such as permanent use of extension cords. Electrical equipment must be maintained in good condition.*	☐	☐	☐	
Use of Extension Cords? *Extension cords are allowed for temporary use provided the weight of the cord is adequate for the load applied. Contact Electrical Services x2621 for additional guidance. Check to be sure the extension cord is three pronged and that no cords are frayed. Multi-plug devices are allowed provided they are UL listed with a built-in circuit breaker and used in accordance with the manufacturer's intended use. See Policy 7-13: Extension Cords.*	☐	☐	☐	
Breaker/Circuit Identification? *Circuit breakers that service laboratory equipment should be identified as such. Contact Electrical Services for assistance.*	☐	☐	☐	
Ground Fault Protection? *Outlets located near sinks (within three feet) or other sources of water should be on a ground fault circuit or otherwise ground fault protected. Contact Electrical Services for assistance. Departmental/Laboratory funds will be required to install ground fault outlets.*	☐	☐	☐	
C. General Safety				
Housekeeping, Surplus Equipment and Egress? *Housekeeping must be maintained so that the aisles are clear to allow for emergency egress. A minimum of 36" of clear aisle space in required throughout the lab. Could a person exit the lab quickly without tripping over objects? Materials, chemicals and debris should not be stored on the floor or in the path of egress. Excess or surplus equipment and supplies should be disposed of or relocated to a storage location.*	☐	☐	☐	
Hot Surfaces/Equipment? *Hot surfaces or equipment should be posted with an appropriate warning sign or have a mechanism to indicate that the surface is hot.*	☐	☐	☐	
Safety Shower/Eye Wash? *Safety showers and eyewash units should be located in the lab or nearby (within 10 seconds) and accessible at all times. Eyewash must be in the laboratory if corrosive materials are used. They should bear a tag indicating an inspection within the last year by the Plumbing Shop. Eyewash units should be tested weekly by lab occupants wherever possible. Eyewash Station should be double stream and mounted in the sink or to the wall.*	☐	☐	☐	

Inspection Item	S	UNS	N/A	Comments
Refrigerators/Freezers? *Laboratory refrigerators and freezers must not be used to store of food or drink for human consumption. Refrigerators and freezers used to store flammable, combustible and corrosive chemicals must be approved and certified. Units must be signed. EHS provides labels.*	☐	☐	☐	
Needles/Syringes Secured? *Needles and/or syringes must be kept secured at all times. This means kept in a locked drawer or cabinet or in a locked laboratory and under surveillance of lab personnel when the lab is unlocked. Do not leave uncapped needles in fume hoods or on laboratory benches.*	☐	☐	☐	
Tripping/Slipping Hazards? *Floors should be in good repair, i.e. no tripping hazards caused by cracks, holes, protrusions, missing tiles, ethernet cords, wires, hoses, tubing, etc.*	☐	☐	☐	
Potable Water Protection? *Hoses connected to sink faucets should not extend below the plane of the sink surface or back flow preventers should be installed. (See Policy 7-30: Protection of Potable Water Supply)*	☐	☐	☐	
First Aid Kits? *There should be a first aid kit available in case of minor injuries. It should be accessible during the hours of operation of the lab. It must be stocked as per Policy 7-04.*	☐	☐	☐	
Emergency Lights? *Is there adequate emergency lighting? If there is a unit in the area, depress the test button to determine if the light is operational. Any problems should be reported to FIXIT or x1141.*	☐	☐	☐	
Ice Machines/Microwave Ovens (Labeled)? *Laboratory microwaves or ice machines must not be used with food or drink for human consumption. Make sure they are signed appropriately. Signs are available through EHS.*	☐	☐	☐	
D. Fire Safety Concerns				
Detectors/Sprinklers? *If there are smoke/heat detectors, audio/visual devices or sprinklers in the lab, make sure that nothing is stored near them that would interfere with their intended operation. No storage within 18 inches of sprinkler heads. Visually check for physical damage or leaks. Report any deficiencies to Facilities at x1141.*	☐	☐	☐	
Combustible Storage, such as excess boxes, shipping containers, paperwork? *Check for excess storage of combustibles or combustibles near any hot surfaces or equipment. Maintain at least 18 inches from hot surfaces or equipment.*	☐	☐	☐	
Special Concerns? *If drying operations are performed in the lab, are there procedures written for safe operation; i.e. are lab personnel instructed not to use combustible trays for holding materials to be dried? Limit the use of Bunsen burners. Develop written safety procedures for all heating operations and train lab workers.*	☐	☐	☐	
Fire Extinguishers? *Fire extinguishers should be located nearby and accessible from the hallway. They should be inspected monthly and bear two tags: one indicating the monthly University inspection and the other indicating the date of the last annual maintenance. Check to make sure the extinguisher is charged and is not damaged.*	☐	☐	☐	
E. Chemical Concerns				
Storage by Hazard and Chemical Storage? *Chemicals need to be stored by hazard class, i.e. Reactives, Flammables, Poisons, Oxidizers, Inorganic Acids, Organic Acids, Caustic Materials, etc. Organic acid should not be stored with inorganic acids. Carcinogenic chemicals, acutely toxic chemicals and reproductive toxics should be used in designated areas. Pay close attention to special storage requirements such as refrigeration, desiccated, inerted, etc. Liquids must not be stored above eye level and should be stored in the appropriate cabinet in secondary containment. Chemicals must not be stored on the floor. Open shelving units should have a lip. Chemicals must not be stored on the floor*	☐	☐	☐	
Flammables/Combustibles? *Flammables and combustible materials should be stored in flammable storage cabinets wherever possible and always kept away from ignition sources. Lab safe or explosion proof refrigerators and freezers are required when flammables and combustible chemicals must be stored at refrigerated temperatures. Regular/residential refrigerators and freezers should bear the caution statement prohibiting storage of these materials.*	☐	☐	☐	

Inspection Item	S	UNS	N/A	Comments
Peroxide formers, such as ethyl ether and tetrahydrofuran, dated when the material was received and when opened. Material is stored past the manufacturer's expiration date. *Date all peroxidizables upon receipt and upon opening. Unless an inhibitor has been added by the manufacturer, materials should be properly disposed of after 18 months from the date of receipt or 3 months from the date of opening. If an inhibitor is added, dispose of the material based on the manufacturer's expiration date.*	☐	☐	☐	
Excessive Quantities? *Quantities of chemicals kept in the lab should not be excessive. Outdated chemicals should be disposed of using proper disposal methods outlined in the flow chart for waste management procedures. See http://www1.udel.edu/ehs/research/chemical/chemical-storage.html for more information.*	☐	☐	☐	
Container Labels? *All chemical containers must be labeled and the labels must be securely affixed to the container. Reaction flasks, samples and other lab containers must be labeled as well. EHS recommends that the preparer's name, the date prepared and the basic hazard also are listed. EHS can provide/recommend labels. Abbreviations or trade names should not be used to label containers, unless the container is too small to fit the full name. Common chemical or IUPAC nomenclature should be used whenever possible.*	☐	☐	☐	
Chemical Spill Kits? *Chemical spill kits, available through UD Web forms, must be readily available.*	☐	☐	☐	
Lab limits the use of mercury thermometers and metallic mercury? *Laboratories should eliminate the use of metallic mercury. Replace all mercury thermometers with digital or alcohol thermometers. Eliminate metallic mercury monometers and sphygmomanometers (blood pressure units). Contact EHS for proper disposal and recycling of the units and equipment.*	☐	☐	☐	
F. Waste Management				
Quantity of Waste Accumulated? *Waste should be removed from a laboratory in a timely manner. Do not store more than 55 gallons of waste materials in a lab. Full waste containers must be removed promptly. See http://www1.udel.edu/ehs/waste/chemical-waste-pick-up.html, follow the directions and fill out the necessary form. Contact DEHS at 831-8475 if you are unable to use the online form.*	☐	☐	☐	
Properly Labeled? *Abbreviations or trade names must not be used to identify contents. Common chemical or IUPAC nomenclature must be used. Label every constituent added to the container, especially with heavy metals in the parts per million ranges. Unknowns are forbidden and will be disposed of at the department's expense.*	☐	☐	☐	
Properly Stored/Secured? *Liquid waste must be stored in a secondary container, segregated by chemical compatibility. Do not fill liquid waste containers over 90% full. Solid waste should be kept in a properly labeled sturdy cardboard box lined with a heavy plastic bag. Waste containers (both liquid and solid) must be capped or sealed at all times unless material is actually being added. Biowaste boxes must be constructed properly with packing tape and lined with two EHS provided red bags.*	☐	☐	☐	
Proper Waste Containers Available? *Waste containers must be compatible with contents. All liquid waste must be in a LDPE Nalgene type container or a Justrite container segregated by chemical compatibility. Chemical solid waste must be stored in a sturdy cardboard box lined with a heavy plastic bag. The Campus Storerooms sell appropriate waste containers. Biowaste and sharps must be stored in containers provided by EHS.*	☐	☐	☐	
Evidence of Improper Waste Disposal? *Normal trash cans or recycle bins should not contain inappropriate materials; i.e. used PPE or materials that can be construed as chemical or biological waste. Sinks should be free of stains and waste containers should not be stored in close proximity to sinks unless they are in secondary containers. Clean broken laboratory glass is to be collected in "glass only" boxes, closed up and taken to the outside dumpster by lab personnel. Chemical bottles must be triple rinsed and the labels defaced prior to disposal or recycling. All other chemically contaminated glassware must be disposed of as hazardous waste. All biological waste must be disposed of properly in biowaste boxes or sharps containers and autoclaved as necessary.*	☐	☐	☐	
Lab personnel have received chemical waste disposal training? *All personnel who work with chemicals or have the potential to generate, or are generating, chemical waste must attend chemical waste training annually. Contact EHS for more information.*	☐	☐	☐	

G. Physical and Environmental Concerns

Inspection Item	S	UNS	N/A	Comments
Moving Parts Guarded? *All belts, blades or other moving parts on equipment should be guarded or otherwise protected.*	☐	☐	☐	
Shields Used? *Shields should be used when conducting experiments that could explode or if there is the possibility of a flying projectile or object.*	☐	☐	☐	
Equipment Clean and Operable? *All lab equipment should be clean and in good working order. Damaged/out of service equipment must be tagged and removed from the lab for proper disposal or repair.*	☐	☐	☐	
Noise Levels? *Operations or equipment that produces noise at a level of concern require hearing protection.*	☐	☐	☐	
Sharp Edges, Points? *Check for sharp edges or points sticking out on equipment, furniture etc. that could cause an injury.*	☐	☐	☐	
Laboratory Environmental Conditions – Wet Floors, Temperature Concerns, Wet/Stained Ceiling Tiles, Mold *Call Facilities at x1141 to report issues with the temperature, wet/stained ceiling tiles and mold. Use matting in areas where the floors periodically get wet such as in front of -80 Freezers.*	☐	☐	☐	
Oil mist filters installed on oil filled vacuum pumps? Oil mist filters maintained properly? No oil on the floor, in the exhaust lines or no other indications of a leak or issue. *Vacuum pumps exhaust oil mist and toxic materials, depending on the specific operation, into the laboratory or laboratory exhaust. The oil mist collects on equipment, the floor and in the horizontal runs of the laboratory exhaust ductwork. The oil mist is a health hazard which can be magnified if organic solvents and other toxic materials are used with the vacuum pump systems. Install a manufacturer's recommended oil mist filter on the vacuum pump exhaust. Maintain the oil mist filter based on the manufacturer recommendations. Some mist filters require the replacement of a filter matrix; others simply require the collected oil to be drained.*	☐	☐	☐	
High overhead storage safe and secured. A rated/proper ladder available to retrieve overhead storage Overhead storage should be minimized. Liquids and heavy equipment/materials should not be stored overhead. Shelving must be rated for the weight. A ladder or other rated and safe mechanism must be in place to remove the equipment safely from the overhead storage.	☐	☐	☐	

H. Personal Protective Equipment

Proper Lab Attire, Personal Protective Equipment (PPE) Available? *In general, proper lab attire must consist of safety glasses, lab coats, gloves, pants/dresses that come below the knees and closed-toe shoes. Efforts must be made to minimize all exposed skin. Sandals, short skirts or shorts and sleeveless shirts are not appropriate for the lab. Face shields, splash goggles, hot mitts, cryogenic gloves, and specialized PPE should be available. PPE should not be worn in non-lab areas.*	☐	☐	☐	
Safety Glasses Being Worn? *Eye protection is mandatory in all University laboratories except laboratories used exclusively for computers. (See Policy 7-23: Eye Protection Policy)*	☐	☐	☐	

I. Ventilation and Engineering Controls

Proper Use of Fume Hood? *Fume hood work should be performed approximately six inches into the hood, i.e. not right at the front edge. The sashes should be positioned to produce the flow rate indicated on the certification sticker. They should not be used for storage of chemicals. LEV's can only be used under certain circumstances. Large equipment must be raised about 1 inch from the fume hood deck. Only chemicals, materials and supplies for the current experiment or operation should be in the fume hood. Fume hoods must be kept clean and should be decontaminated on a periodic basis.*	☐	☐	☐	
Fume Hoods Available? *If operations in the lab involve materials which present an inhalation exposure hazard, a fume hood, exhaust trunks or biosafety cabinet must be available for use. These operations include, but are not limited to, work with carcinogens, reproductive toxins, acutely toxic materials, flammable liquids, materials with high vapor pressures, dusts, mists, volatile materials, soldering operations, welding operations, or with any chemical that has an occupational exposure value.*	☐	☐	☐	

Inspection Item	S	UNS	N/A	Comments
Fume Hood Certified? *Fume hoods and exhaust trunks are inspected by the EHS for proper operation twice per year. An inspection tag should be present to verify this.*	☐	☐	☐	
Biosafety Cabinets? *All Biosafety Cabinets must be inspected and certified by an EHS contractor annually. Chemicals should not be used in cabinets. Bunsen burners should not be used in biosafety cabinets. Biosafety cabinets should be positioned away from doorways and supply/exhaust vents; this will disrupt the laminar flow.*	☐	☐	☐	
J. Compressed Gases				
Proper Storage? *Gas cylinders should not be stored in laboratories unless they are being used for the current operation. Empty cylinders should be moved out as soon as possible. Some gas companies will accept their cylinders back empty or partially full. These companies should be used to minimize chemical waste. Do not store a gas cylinder between a user and an exit. Compressed gases with a health hazard rating of 3 or 4 must be stored in a rated ventilated gas cabinet. Compressed gases with a fire hazard of 4 (hydrogen, for example) require a second means of egress form a laboratory or must be stored in a rated ventilated gas cabinet. Contact EHS for additional assistances with compressed gas safety.*	☐	☐	☐	
Proper Labeling? *Gas cylinders must be labeled with the contents. Unknown gas cylinders are very hazardous and expensive to dispose of.*	☐	☐	☐	
Cylinders Capped or Restrained properly? *Caps should be kept on the cylinders when not in use. Cylinders need to be individually restrained by chains at approximately two-thirds height from the floor. The cylinder must be of good quality and firmly attached to a structural member. Bench clamps should be avoided an only used if a gas cylinder bracket cannot be permanently mounted.*	☐	☐	☐	
Proper Lines and Regulators? *Gas supply lines need to be compatible with the gas being used. All gas cylinders must have an appropriate regulator. Do not use thread tape on the regulator/cylinder connection. The suppliers can provide information about proper line material. Regulators should be replaced or recertified on a regular basis. Contact the gas supplier with questions.*	☐	☐	☐	
Lab personnel trained on compressed gases and gas cylinder safety? *Laboratory personnel must receive task and chemical specific training on all processes, chemicals, equipments and hazards in the laboratory. EHS can provide some of this training. Contact EHS for more information.*	☐	☐	☐	
K. Additional Comments				

L. Corrective Actions

Items marked as unsatisfactory will be reported to the Safety Committee Chair and to the responsible PI. Category 1 Deficiencies must be rectified immediately. Category 2 Deficiencies should be rectified in 30 days or sent to the Chair of the Department for action. Deficiencies were communicated to:

Name: _____	Signature: _____	Date: _____

Status of Deficiencies:	☐ All Items Rectified:	☐ Steps to Rectify Items Established	☐ Entered into the Chemical Hygiene Compliance Process

Date Items will be Rectified: _____
Corrective Action Comments:

A follow-up inspection to determine if agreed upon steps to rectify outstanding issues were implemented was completed:

By: _____	Date: _____

Unsatisfactory items:	☐ Were Properly Addressed	☐ Are Still in the Process of Being Addressed	☐ Were Not Properly Addressed, Laboratory Entered into the Chemical Hygiene Compliance Process

A follow up inspection has been scheduled for: _____
Follow Up Inspection Comments: