



Office of Chemical Safety Laboratory Safety Visit Preparedness

www.ehs.wisc.edu

608-265-5700

Chemsafety@fpm.wisc.edu



Environment, Health and Safety
DIVISION OF FACILITIES PLANNING & MANAGEMENT
UNIVERSITY OF WISCONSIN-MADISON



Chemical Safety Office

The UW-Madison Chemical Safety Office:

- Establishes policies and procedures for the safe acquisition, use, storage, and disposal of chemicals on campus.
- Helps the university community comply with federal, state, and local regulations.
- Provides training related to chemical and laboratory safety.
- Manages disposal of all hazardous waste.
- Responds to emergency events.
- Reviews accidents, incidents and close calls
- Supports ~3200 labs on campus.
 - Almost all use hazardous chemicals!

Our **ultimate goal** is to help create a university where safety is deemed a primary value and not an afterthought.




Chemical Visit Process

We walk through the lab with you, discuss your laboratory operations, and make recommendations as needed.

Our basic areas of review are:

- Documentation
- Egress and Housekeeping
- Emergency Equipment
- Chemical Safety
- Compressed Gasses
- Personal Protective Equipment
- Ventilation and Engineering Controls

*Most importantly our visits allow us to discuss *your specific lab work* to help identify best practices for safe chemical usage.

 **Laboratory Safety Visit Checklist Form**

Principal Investigator: _____

Building: _____ Room #: _____

Yes	No	NA	
			Documentation
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is the emergency door card present and up to date?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is a Chemical Hygiene Plan available?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are laboratory Standard Operating Procedures available?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are Safety Data Sheets (SDS) readily available?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is the laboratory's chemical inventory available?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Have employees received training in General Safety Practices and OSHA Lab Standard?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Have employees received training in Lab-Specific Procedures?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Have employees received training in Emergency Response (Spills, exposures)?
			Egress and Housekeeping
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are egress pathways kept unobstructed and free from trip hazards?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are benches and working surfaces kept clean and uncluttered?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is the consumption or storage of food or beverage prohibited in the laboratory?
			Emergency Equipment
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is an emergency safety shower and eyewash station readily available for immediate use?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is an emergency eyewash station operational, inspected and flushed weekly?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are eyewashes, emergency showers, fire extinguishers, & electrical panels kept accessible and unobstructed?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is a chemical spill kit readily available and adequate for the work being performed?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Do sprinklers have at least 18 inches of unobstructed clearance?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is an appropriate fire extinguisher available?
			Chemical Safety
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are all chemicals stored according to compatibility?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are flammable, corrosive, toxic or reactive chemicals stored in approved chemical storage cabinets or locations?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are all stored chemical containers kept closed, not leaking and in good condition?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are all containers labeled to identify the contents and any applicable hazard warnings?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are all hazardous chemicals stored at or below eye level?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are flammable liquids that require refrigeration stored in approved refrigerators or freezers?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are hazardous, liquid chemicals stored in a refrigerator or freezer kept in secondary containment?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are flammable liquids in excess of 10 gallons stored in a flammable storage cabinet?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are peroxide forming reagents dated when first opened?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are peroxide forming reagents are disposed of or tested after the expiration date?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are precautions & appropriate PPE used when working with Perchloric or Hydrofluoric Acid?



Documentation

Emergency door card

- Notifies emergency personnel of any hazards to expect when responding to an emergency.
- Provides contact information for key laboratory and emergency personnel

LABORATORY EMERGENCY INFORMATION				
University of Wisconsin - Madison				
BUILDING	DATE (UPDATE ANNUALLY)		IN CASE OF EMERGENCY	
LAB ROOM NUMBER	DEPARTMENT		FIRE: Pull fire alarm, do not use elevators, evacuate building, stay 500 feet away	
PRINCIPAL INVESTIGATOR	OFFICE & HOME PHONE NUMBERS		HAZARDOUS GASES: Inform others to evacuate the area, close doors, call 911	
LAB MANAGER OR ALT. CONTACT	OFFICE & HOME PHONE NUMBERS		HAZARDOUS MATERIALS SPILL: If in doubt, get out and call 911	
EMERGENCY COORDINATOR	OFFICE & HOME PHONE NUMBERS		HAZARDOUS MATERIALS SPILL: (small) call UW-Safety for assistance (265-5000)	
			MAJOR MEDICAL EMERGENCY: If trained, begin first aid; call 911	
			NATURAL DISASTER: Monitor news broadcast and seek shelter in interior hallways	
			INJURIES: Call 911 , provide dispatch with your location (room number & building)	
			UW Hospital ER: 262-2398	
			UW EHS: 265-5000	
			Poison Control Center: 800-222-1222	
			Ambulance/Fire/Police/Spill: 911	
BIOLOGICAL MATERIALS				
Type of Agent	Low BSL-1	Medium BSL-2	High BSL-3	RADIOLOGICAL HAZARD
Human Pathogen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> IRRADIATOR
Animal Pathogen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> SEALED SOURCE
Plant Pathogen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> RADIOACTIVE MATERIAL
Not Infectious	<input type="checkbox"/>	NA	NA	<input type="checkbox"/> RADIOACTIVE WASTE
				<input type="checkbox"/> LASER
				<input type="checkbox"/> OTHER:
EMERGENCY EQUIPMENT				
<input type="checkbox"/> SAFETY SHOWER LOCATED WITHIN 10 SECONDS OF TRAVEL				
<input type="checkbox"/> EYE WASH LOCATED WITHIN 10 SECONDS OF TRAVEL				
<input type="checkbox"/> FIRE EXTINGUISHER LOCATED WITHIN 75 FEET OF TRAVEL				
<input type="checkbox"/> FIRST AID KIT LOCATED WITHIN LABORATORY				
<input type="checkbox"/> SPILL KIT LOCATED WITHIN LABORATORY				
<input type="checkbox"/> OTHER:				
CHEMICAL HAZARDS (see back for examples)				
COMPRESSED GASES (CLASS 2)		RECOMMENDED USE/STORAGE LIMIT		TOTAL MATERIALS USED/STORED IN LABORATORY; INCLUDE LOCATION
<input type="checkbox"/> FLAMMABLE		2 - 5 FOOT CYLINDERS (MAX)		
<input type="checkbox"/> NON - FLAMMABLE		4 - 5 FOOT CYLINDERS		
<input type="checkbox"/> POISONOUS		2 - 15 INCH LECTURE BOTTLES (MAX)		
FLAMMABLE LIQUIDS (CLASS 3)		40 LITERS ON BENCH TOP		
FLAMMABLE LIQUIDS (CLASS 3)		180 GALLONS IN STORAGE CABINET		
REACTIVES (CLASS 4)				
<input type="checkbox"/> FLAMMABLE SOLIDS		1 KILOGRAM		
<input type="checkbox"/> SPONTANEOUSLY COMBUSTIBLE		2 KILOGRAMS		
<input type="checkbox"/> DANGEROUS WHEN WET		2 KILOGRAMS		
REDUCERS (CLASS 5)				
<input type="checkbox"/> OXIDIZERS		5 KILOGRAMS		
<input type="checkbox"/> ORGANIC PEROXIDES		1 KILOGRAM		
TOXIC (CLASS 6)		2 KILOGRAMS		
CORROSIVE MATERIAL (CLASS 8)				
<input type="checkbox"/> ACID		20 LITERS		
<input type="checkbox"/> BASE		20 LITERS		

Complete and post next to your laboratory door and provide a copy to Facility Managers

UW-Madison Environment, Health & Safety; 265-5000

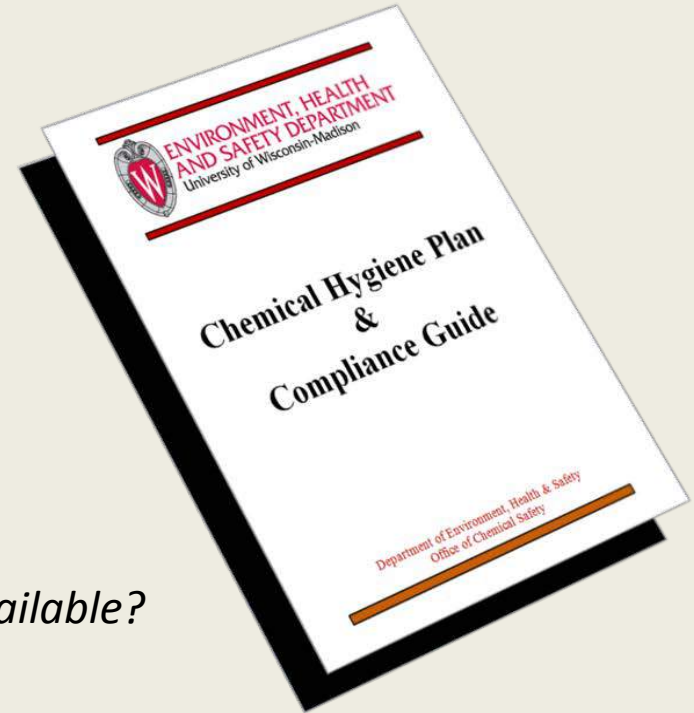
Can be downloaded here: <https://ehs.wisc.edu/forms-manuals-signs/>



Documentation

Is a *Laboratory Specific Chemical Hygiene Plan (CHP)* available?

- Required by OSHA for all laboratories with hazardous materials
- Outlines laboratory policies for handling chemicals and protecting workers



Are laboratory *Standard Operating procedures (SOPs)* available?

- Key component of laboratory specific CHP
- SOP's are documentation of how procedures are done in your lab. They explain what the chemicals used in the procedure are, what hazards are associated with them, and what controls are needed to be safe.

For more information or to download a template, visit our website:

<https://ehs.wisc.edu/chemical-hygiene-plan/>



Documentation

Is a *chemical inventory* available?

- Should include chemical names, supplier, and amount
- Update at least annually

Are *Safety Data Sheets (SDS)* available?

- An SDS is a written document containing information about the specific properties of a chemical.
- SDSs are provided by the chemical manufacturer.
- OSHA requires SDSs to be available for all hazardous chemicals.
- Become familiar with the different sections of an SDS.

Contact our office if you need assistance finding an SDS at chemsafety@fpm.wisc.edu.

Safety Data Sheet



1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: **HYDROCHLORIC ACID =<10%**

Other name(s): Hydrochloric acid 5%; Hydrochloric acid 9%; Hydrochloric acid 10%; 1N HCl; 1N HCl; HCl Activator Liquid

Recommended use of the chemical and restrictions on use: Precursor for generation of chlorine dioxide gas used in water treatment.

Supplier: Orica Australia Pty Ltd
ABN: 59 004 111 828
Street Address: 1 Nicholson Street, Melbourne 3000, Australia
Telephone Number: +61 3 9665 7111
Facsimile: +61 3 9665 7937
Emergency Telephone: **1 800 033 111 (ALL HOURS)**

2. HAZARDS IDENTIFICATION

Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail. **DANGEROUS GOODS.**

This material is hazardous according to Safe Work Australia: **HAZARDOUS SUBSTANCE.**

Classification of the substance or mixture:
Corrosive to Metals - Category 1
Skin Corrosion - Sub-category 1B
Eye Damage - Category 1
Specific target organ toxicity (single exposure) - Category 3

SIGNAL WORD: DANGER



Hazard Statements:
H200 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.

Precautionary Statements:

Prevention:
P201 Keep only in original container.
P260 Do not breathe dust / vapour / spray.
P264 Wash hands thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves / protective clothing / eye protection / face protection.

Product Name: HYDROCHLORIC ACID =<10%
Substance No: 0000301ST01

Issued: 05/08/2014
Version: 0

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Documentation

Have employees taken Chemical Safety Training, or received training in General Safety Practices and the OSHA Laboratory Standard?

- All employees must receive training on the hazards associated with the space they work in.
- Our Chemical Safety Training is available to all laboratory workers. This fulfils the [OSHA Laboratory Standard](#) training requirement. See [our website](#) for more information.

Have employees received training in Lab-Specific Procedures and Emergency Response (spills, exposures)?

- The PI is responsible for ensuring that everyone in the lab is properly trained.
- Our office will provide in-lab training about specific procedures upon request. Further training should be provided in your lab by your PI or lab manager.

Are training records available?

- All trainings should be documented and records available.
-



Egress and Housekeeping

Are *egress pathways* kept unobstructed and free of trip hazards?

- Egress pathways are the ways you exit the lab in an emergency. If pathways are blocked or obstructed, an employee would have a problem exiting the building.



Good



Bad



Egress and Housekeeping

Is the consumption or storage of food and beverages prohibited in the laboratory?

- Prevents accidental ingestion of hazardous materials





Egress and Housekeeping

Are *benchtops* and *working surfaces* kept clean and uncluttered?

- Are benchtops clean and available for work?
- Are surfaces clear of chemical residue?

Are *glass* and other “*sharps*” disposed of appropriately?

- Medical Sharps
 - Designed to cut or puncture
 - Needles, razor blades
 - Need puncture-resistant containers
- Hazardous glass and plastics
 - *Can* puncture, cut, or scratch
 - Broken glass, pipettes
 - Use plastic-lined, sturdy boxes



See website for further details:
<https://ehs.wisc.edu/sharps-disposal/>



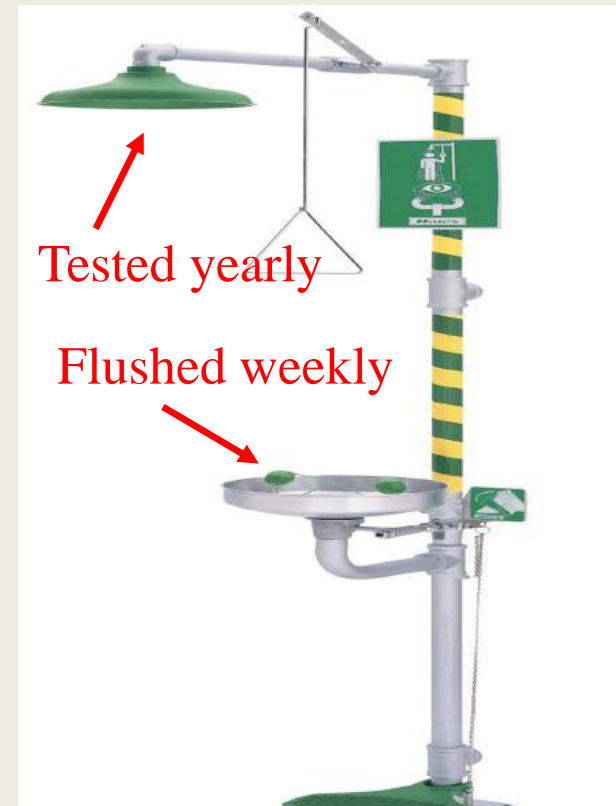
Emergency Equipment

Is an emergency *safety shower* and an *eyewash station* readily available for immediate use?

- Required when a worker could be exposed to any hazardous materials
- Must be located within 10 seconds of travel

Is the emergency eye wash station operational and flushed weekly, and is the safety shower tested yearly?

- Eye washes can build up bacteria or mineral deposits if they are not flushed weekly.
- Records of safety shower and eyewash station flushes must be available. See our website for an eyewash log.





Emergency Equipment

Are eyewashes, emergency showers, fire extinguishers, and electrical panels kept accessible and unobstructed?

- Emergency equipment must remain accessible at all times
- 36" of clearance is typically required





Emergency Equipment

Is a *chemical spill kit* available and adequate for the work being performed

- Includes proper absorbent, PPE, broom and dustpan, and bucket to collect materials
- Need enough absorbent for largest chemical container
- Don't forget neutralizers for corrosive spills





Emergency Equipment

Do *sprinklers* have at least 18” of clearance?

- Obstructions can decrease effectiveness of sprinklers
- Objects need to be kept 24” below the ceiling in buildings that do not have sprinklers.





Emergency Equipment

Is an appropriate *fire extinguisher* available?

Extinguisher types:

- **Class ABC**: combustibles, flammable liquids, electrical fires.
- **Class D**: metal fires

Do not use an ABC extinguisher on a metal fire



Class ABC



Class D

See website for further details:
<https://ehs.wisc.edu/fire-extinguishers/>



Chemical Safety

Are all chemicals stored according to *compatibility*?

- Segregate chemicals which could react with each other or their surroundings
 - Acid and bases stored separately
 - Flammables and combustibles stored away from Oxidizers
 - Water reactive substances stored away from any potential water source
 - Highly toxic substances segregated from others



Additional information on chemical compatibility can be requested from [Chemical Safety](#).



Chemical Safety

Are flammable, corrosive, toxic or reactive chemicals stored in approved chemical storage cabinets or locations?

- Cabinets must be appropriately rated
- Cabinets contain chemicals and protect the surrounding lab
- Proper storage also increases allowed quantities





Chemical Safety

Are all chemical containers kept closed, not leaking and in good condition?

- Open containers are easier to spill and release vapors
- EPA rules do not allow disposal by evaporation

Are all chemical containers labeled to identify the contents and any applicable hazard warnings?

- Containers must have full chemical names and applicable hazards
- Replace worn or missing labels





Chemical Safety

Are hazardous chemicals stored below eye level?

- If hazardous chemicals are stored above eye level, the chances of exposing the face and head to chemical spills increases.
- Keep heavy containers on lower shelves
- Try to use shelves with raised edges
- Use secondary containers





Chemical Safety

Are flammable liquids that require refrigeration stored in approved refrigerators or freezers?

- Must be rated for flammable or modified to be spark-proof
- Vapors from flammables can create explosive atmosphere



Are hazardous liquid chemicals stored in a refrigerator or freezer kept in a secondary container?

- Contains leaks and spills
- Protects refrigerator and workers



Chemical Safety

Are flammable liquids greater in quantity than 10 gallons stored in a flammable storage cabinet?

- OSHA limits flammables to 10 gal. per laboratory outside rated cabinets
- Fire codes are often more restrictive
 - Maximum allowable quantities (MAQ) are based on fire control areas (not per lab) and change based on which floor in a building.
 - Contact [EH&S](#) for details on your specific laboratory





Chemical Safety

Are peroxide-forming reagents dated when first opened?

- These are compounds which can auto-oxidize to form potentially explosive organic peroxides over time.
- Examples of peroxide formers are: Acetaldehyde, Benzyl Alcohol, Butadiene, 2-Butanol, Chloroprene, Cyclohexanol, Cyclohexene, **Diethyl ether**, Dioxanes, Divinylacetylene, Isopropyl ether, 2-Phenylethanol, 2-Propanol, Tetrafluoroethylene, **Tetrahydrofuran**, Tetrahydronaphthalene, Vinylidene chloride, Vinyl ethers

Are peroxide-forming reagents disposed of or tested at or before the expiration date?

- Contact [Chemical Safety](#) if you do not know what the peroxide-forming chemical's expiration date is or the date when the chemical was opened.

 CAUTION	
	PEROXIDE FORMING CHEMICAL
Date Received:	_____
Date Opened:	_____
Date Expires:	_____
Inhibitor Added:	Yes No



Chemical Safety

Are precautions and appropriate PPE used when working with *perchloric* or *hydrofluoric acid*?

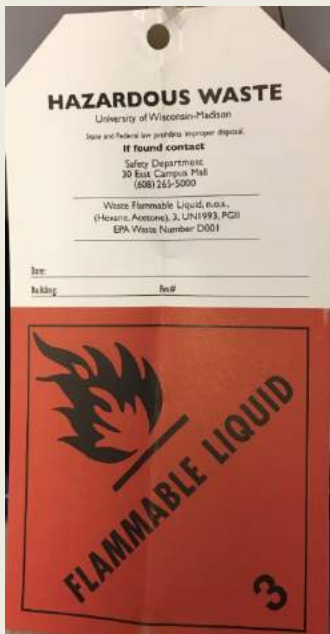
- Perchloric and hydrofluoric acids are particularly hazardous acids
- Perchloric acid requires a special fume hood to avoid buildup of dangerous perchlorate salts
- Hydrofluoric acid burns are very dangerous and require immediate medical attention
- If you have any questions about precautions that should be taken with these acids, contact [Chemical Safety](#).





Chemical Safety

Are waste carboys and surplus chemical containers properly labeled and have the contents been identified?



- Contact EH&S if you need containers for hazardous waste. We drop off and pick up containers free of charge.
- Here are the containers we provide to labs:
 - Non-halogenated organic solvent carboy
 - Halogenated organic solvent carboy
 - Silica waste carboy
- **Remember, only our carboys should use the term “waste!”**

See website for further information on disposal: <https://ehs.wisc.edu/disposal-services/>



Chemical Safety

Is waste containers kept closed and stored away from drains or in a secondary container?



- Waste containers must remain closed when not being filled.
- The use of secondary containers reduces the risk that hazardous waste enters the environment.



Chemical Safety

Are *particularly hazardous* substances only used with prior approval, using appropriate control measures and in a posted, designated area?

- OSHA designates certain chemicals as particularly hazardous
 - Select Carcinogens
 - Reproductive toxins
 - Acutely toxic chemicals
- Employees must be trained and made aware of the hazards associated with these chemicals
- See appendix D in the [Laboratory Safety Guide](#) for more information

DANGER
DESIGNATED AREA
for select carcinogens, reproductive
toxins and high acute toxicity chemicals
AUTHORIZED PERSONNEL ONLY



Compressed Gasses

Are *compressed gas cylinders* properly labeled?



Are compressed gas cylinders transported using hand trucks?

- Never roll a cylinder on its end!



Compressed Gasses

Are compressed gas cylinders properly secured and stored by compatibility?

- Gas cylinders need to be securely chained at all times
- When not in use they must have a safety cap
- Flammable gas and oxygen must be stored 20 ft apart, or separated by an appropriate fire-rated wall



Safety Cap

Chained in place

The chains must be strong enough to hold the cylinders in place, with a chain placed within $\frac{1}{2}$ to $\frac{3}{4}$ of the cylinder height.



Compressed Gasses

Are compressed gas lines and fittings on equipment regularly checked for problems?

- Soapy water is best to check for leaks
- Monitor usage for irregularities





Compressed Gasses

Are High-Hazard Gas Cylinders used only after approval from EH&S?

- Release of dangerous gases is particularly dangerous and difficult to contain
- Campus Chemical Hygiene Plan requires prior approval to use certain gasses
 - All gases that are designated by Global Harmonization System (GHS) classification as Category 1 or 2 for acute toxicity
 - All corrosive gases as designated by GHS, including both gases that are corrosive to the skin and/or corrosive to metal
 - All pyrophoric gases.





Personal Protective Equipment

Are lab coats, safety glasses, splash goggles, and chemical protective gloves available?

- Lab SOPs should specify exact PPE needs.

Is reusable PPE maintained and stored in a clean and serviceable condition?

- Always check the condition of the PPE before using.
- Clean reusable PPE on a regular basis.

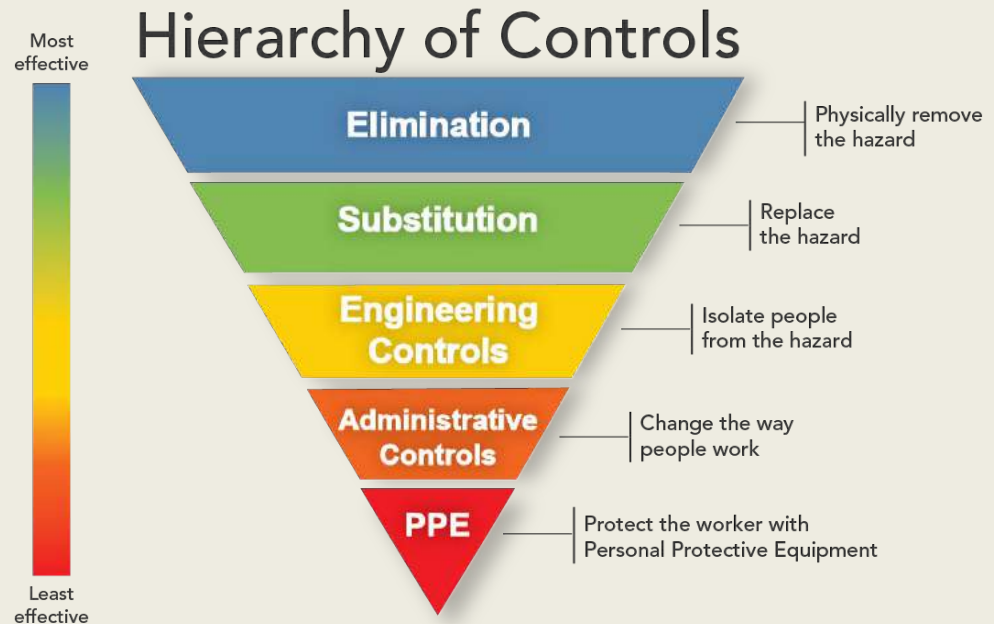




Personal Protective Equipment

Have *PPE hazard assessments* been conducted for job tasks that require PPE?

- An important part of standard operation procedures (SOP) is assessing the need for PPE for that operation and noting it in the SOP.
- Potential routes of entry dictate protective equipment.
- Engineering controls should always be considered first.





Personal Protective Equipment

Is appropriate eye protection worn at all times?

- Safety glasses, goggles, and face shields should be available based on the needs of the work being done
- Splashes, flying debris, or optical radiation hazards can impact people that are not directly working on an experiment
- *Note: Campus chemical safety committee mandates that anyone working in a lab where they could potentially be exposed to hazardous materials must wear a minimum of safety glasses at all times!*
- Contact [UHS](#) for information on prescription eyewear

Are lab coats required by all personnel when a chemical hazard exists?

- Carefully select lab coats made of the appropriate material
- Launder coats regularly to reduce contamination





Personal Protective Equipment

Are opened toed shoes prohibited in the laboratory?

- Open toed shoes cause unnecessary risks of chemical exposure as well as a physical hazard associated with broken glass.
- Mandated by OSHA and the campus Chemical Safety Committee!

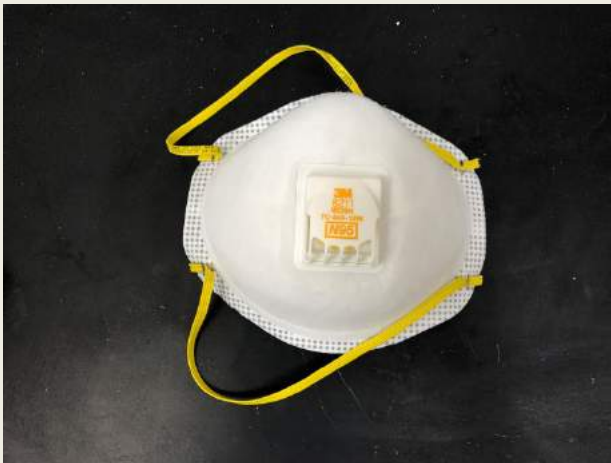




Personal Protective Equipment

Have employees that use a respirator been trained, fit tested and medically cleared?

- If an employee has to wear a respirator it is required by law that they be fit tested with that respirator and be medically cleared to wear that respirator.
- If you have questions or believe you may need to wear a respirator, contact EH&S to evaluate
- If you have employees that need to be fit tested, [contact UHS](#).





Personal Protective Equipment

Are appropriate gloves selected and worn when a risk of skin contact with a hazardous chemical exists?

- Consult manufacturers compatibility charts for glove selection
- Have multiple glove types available



Note that some chemicals such as chloroform can permeate nitrile gloves.



Ventilation and Engineering Controls

Are fume hoods annually certified and labeled with a current inspection sticker?

- Green for Pass, Yellow for Caution, Red for Warning
- Inspected annually or upon request

All fume hoods are equipped with a flow monitor in order to ascertain the operational status of the chemical fume hood.

- If alarm sounds:
 - Check sash openings
 - Check for obstructions
 - Contact physical plant for further assistance





Ventilation and Engineering Controls

When chemical fume hoods are in use, are hazardous materials kept at least 6 inches behind the plane of the sash and is the sash kept as low as possible?

- Allows for proper air flow and containment

Are the hoods free of clutter?

- Air flow must not be inhibited
- Storage of chemicals and equipment must be kept to a minimum





Ventilation and Engineering Controls

Do you make sure you use a snorkel trunk or chemical fume hood when operating equipment or conducting a process that emits hazardous vapors?

- Canopy hoods are not for use with hazardous materials
- BSCs and other enclosures do not provide the same protection as fume hoods.





Ventilation and Engineering Controls

Are cryogenics used and stored in a well-ventilated location?



Cryogenics can displace oxygen, creating a potentially fatal environment if proper ventilation is not available. Note that we offer an [online safety course about using cryogenics.](#)

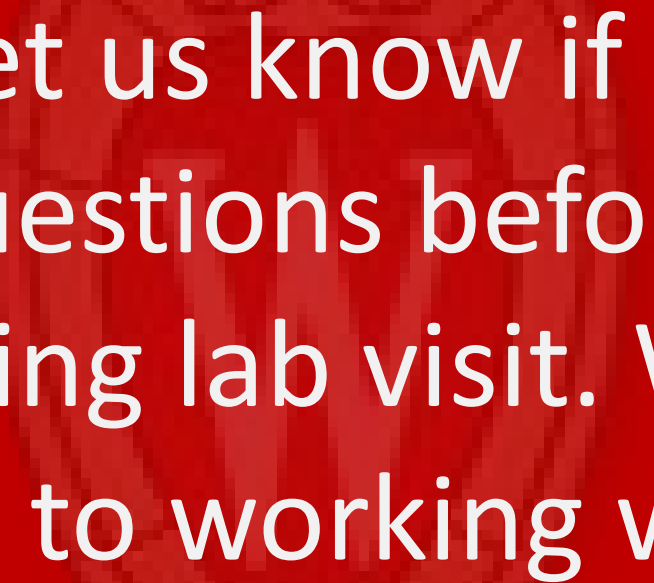


Ventilation and Engineering Controls

Is laboratory equipment properly safeguarded?

- Does all equipment have appropriate shielding/guarding?
- Are interlocks needed for any equipment?
- Are extension cords being used?





Please let us know if you have any questions before your upcoming lab visit. We look forward to working with you.