UCONN

Environmental Health and Safety
3102 Horsebarn Hill Road U-4097
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Instructions - Workplace Hazard Assessment Form

The Occupational Safety & Health Administration (OSHA) requires employers to evaluate all work areas to determine whether hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE). The ***Workplace Hazard Assessment Form (WHA***) has been designed to aid in the selection of appropriate PPE in laboratories or work areas where known or potential hazards exist. Select an appropriate WHA Form applicable to the workplace to be assessed: either Laboratories or General Workplaces.

WHA form(s) must be **completed and signed** (written or electronic signatures are acceptable) by the principal investigator/supervisor of the work area in order **to comply with this OSHA requirement**.

Completed forms must be submitted to Environmental Health and Safety (EHS) (via email ehs@uconn.edu, FAX 860-486-1106 or mail to Unit 4097), while a copy **must remain readily accessible to employees** in the work area.

Personal protective equipment (PPE) for the eyes, face, hands, head, body and feet must be of safe design and construction for the work to be performed and be used and maintained in a sanitary and reliable condition. The principal investigator/supervisor of the work area shall be responsible to assure the adequacy, including proper maintenance and sanitation, of such equipment. The personal protective equipment selected in the workplace hazard assessment form, with the exceptions noted in 29 CFR 1910.132(h), shall be provided by the employer at no cost to employees. Please be aware that PPE devices alone should not be relied upon to provide protection against all hazards, but should be used **in conjunction with** engineering, administrative, and work practice controls (e.g. fume hoods, biosafety cabinets, machine guards, warnings signs, SOP's, etc.).

In order to assess the need for PPE, a walk-through survey should be conducted to identify and evaluate hazards present in the work area. The following four steps should be taken to complete the Workplace Hazard Assessment form:

1. Identify the Types of Hazards Present

a. IMPACT

- Working with or around powered tools or machinery
- Grinding, drilling, sawing, sanding, woodworking, buffing, chiseling, etc.
- Use of powered liquid sprayers, air hammers, or compressed air
- Working in areas with high air turbulence where particles, fragments or chips are present
- Working in areas where overhead hazards, falling hazards or moving hazards are present
- Working around centrifuges

b. CUTS/PENETRATION

- Working with or around powered tools or equipment
- Working with needles, syringes, scalpels or razor blades
- Working with glass, wire, metal, sharp objects or other materials that can cut or pierce the skin

c. COMPRESSION (pinching/crushing/roll-over)

- Working with or around moving equipment or parts
- Exposure to falling objects
- Use of heavy equipment, material handling equipment (e.g., carts, lifts, pallet jacks), or tools that could cause compression injuries.

d. CHEMICAL

- Pouring, splash hazards, washing, cleaning or mixing irritating/hazardous chemicals
- Working with slightly irritating chemicals such as cleaning products
- Working with or near flammable, corrosive or toxic substances
- Working with or near carcinogens, mutagens or teratogens

e. BIOLOGICAL

- Working with infectious human pathogens or materials
- Working with blood, body fluids, etc. that may be contaminated with infectious pathogens
- Working with human or animal tissue
- Working with biological toxins

f. THERMAL (Hot/Cold)

- Working with cryogenic materials
- Operating furnaces, pouring and casting hot metal, welding
- Working on steam, refrigerant, high temperature systems, etc.
- Working in temperature extremes (e.g. steam tunnels, freezers, extended work outdoors in the winter or summer months, etc.)

g. LIGHT (Optical) RADIATION

- Electric arc or gas welding, cutting, torch brazing or soldering
- Working with or around lasers
- Working around sources of UV radiation

h. HARMFUL DUST/MISTS/FUMES/VAPORS

- Woodworking, buffing, sanding, general dusty conditions
- Working with nanomaterials
- Working with silica dust
- Animal bedding
- Allergens
- Welding/brazing/soldering

(**NOTE:** Refer to the ***University's Respirator Policy*** in the selection and use of respiratory protection. See Appendix B below for further information)

i. ELECTRICAL

- Working on or around energized lines or equipment
- Working with or near exposed electrical conductors, electrical switch gear, high voltage circuits

j. IONIZING RADIATION

- Working with or around radioisotopes
- Working with or around X-ray equipment

k. NOISE

- Equipment capable of producing more than 85 dB
- Use of hammer drills, impact wrenches, hand drills, chop saws, belt sanders, etc.

2. Describe the Hazards

Once hazards have been identified in the work area, a description of each hazard must be provided in the second column of the WHA form. The description should include the equipment (e.g. cryogenic liquid tank, a syringe, band saw, etc.), source (e.g. corrosive liquids, radioactive isotopes, source of high voltage, pesticides, etc.) and/or process (e.g. cleaning glassware in an acid bath, mowing lawns, welding, etc.) associated with each hazard type. The individual performing the assessment should also evaluate the level of risk and seriousness of potential injury from each of the hazards found in the work area. The possibility of exposure to several hazards simultaneously should also be considered.

If **students** will be exposed to a particular hazard, the principal investigator /supervisor of the work area must determine whether the hazard should prohibit them from working alone as defined in the Working Alone Policy. ***Working Alone*** is defined as "an isolated student working with an immediately hazardous material, equipment or in an area that, if safety procedures fail, could reasonably result in incapacitation and serious life threatening injury for which immediate first aide assistance is not available." Once the principal investigator/supervisor decides whether students are allowed or prohibited from working alone, the appropriate box (yes or no) must be checked on the WHA form.

If no hazards were identified during the walk-through survey, the supervisor must check "**NONE**" at the bottom of the first column on the second page of the WHA form for ***General Workplaces***.

3. Select Appropriate Personal Protective Equipment (PPE)

Personal protective equipment should be selected that provides **a level of protection greater than the minimum required** to protect employees from the hazards identified during the assessment. Safety data sheets (SDSs), manufacturer specifications, Biological Agent Use Registration (BAUR), Memorandum of Understanding and Agreement (MUA) and departmental safety manuals can be used to help choose appropriate PPE. Newly purchased PPE must conform to the updated ***American National Standards Institute (ANSI)/ International Safety Equipment Association (ISEA)*** or ***American Society for Testing and Materials (ASTM)*** performance standards specified in Appendix A. Additional references for hearing and respiratory protection or chemical-resistant gloves are located in Appendices B and C.

Careful consideration must be given to fit and comfort. PPE that fits poorly will not provide adequate protection. PPE that fits well and is comfortable to wear will encourage further employee use. Multiple sizes and/or types of PPE may need to be purchased to accommodate all employees. If several different types of PPE are worn together, principal investigators/supervisors must ensure that they are compatible.

NOTE: Principal investigators/supervisors overseeing laboratories where hazardous chemicals are present must indicate at a minimum, "**safety glasses/goggles**" and "**closed-toed footwear**," since both pieces of PPE are required to be worn in laboratories under the guidelines of the **Chemical Hygiene Plan**.

Once appropriate PPE has been determined, the checkbox next to the body location being protected must be indicated and the specific type(s) of PPE must be described. An example is located below:

Type of Hazards Present	Describe Hazards	Personal Protective Equipment
☑ **Impact** (e.g. falling or flying objects, sand, dirt, dust, particulates, etc.)	Bench grinder in workshop. Overhead storage in mezzanine of shop. Transport of heavy items by handtruck.	☑ Eye/face – *Impact goggles and face shield* ☐ Hand ☑ Head – *Hard hat* ☐ Clothing ☑ Foot/leg – *Impact resistant footwear* ☐ Other (e.g. respiratory)
☑ **Chemical** (e.g. pouring, mixing, splash hazards, washing/cleaning, etc.) ☑ Flammable ☐ Reactive ☑ Toxic ☐ Asphyxiant ☑ Corrosive ☐ Other	*Pouring and mixing of small quantities (< 4 liters) of flammable, toxic and corrosive liquids*	☑ Eye/face- *Splash goggles; plus full face shield when pouring* ☑ Hand- *Nitrile, rubber or neoprene gloves* ☐ Head ☑ Clothing- *Lab Coat* ☑ Foot/leg – *Closed-toe footwear* ☐ Other (e.g. respiratory)

4. Reassess Hazards

The principal investigator/supervisor of the work area must reassess the workplace hazards as necessary, by identifying and evaluating new equipment and processes, reviewing accident records, and reevaluating the suitability of previously selected PPE. The workplace hazard assessment form should be reviewed **annually** and updated whenever a piece of equipment, source, or process changes to warrant the use of new personal protective equipment.

Ready to conduct a Workplace Hazard Assessment?

Select an appropriate WHA Form applicable to the workplace to be assessed:

GENERAL WORKPLACES LABORATORIES

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Appendix A- References for Personal Protective Equipment (PPE)

When engineering, work practice and administrative controls are not feasible or do not provide sufficient protection, employers are responsible for providing personal protective equipment (PPE) to their employees and ensuring its proper use. Newly purchased PPE must conform to the updated ***American National Standards Institute (ANSI)/ International Safety Equipment Association (ISEA)*** or ***American Society for Testing and Materials (ASTM)*** requirements that have been incorporated into the OSHA regulations, as follows:

TABLE 1.

PPE	*OSHA Standard*	*ANSI/ASTM Standard*	*Examples*
Eye and Face Protection	*29 CFR 1910.133*	**ANSI/ISEA Z87.1**	• Safety glasses • Impact goggles • Splash goggles • Face shields • Surgical masks • Filter lenses
Head Protection	*29 CFR 1910.135*	**ANSI/ISEA Z89.1**	• Hard hats • Helmets • Bump caps
Hand Protection	*29 CFR 1910.138*	**ANSI/ISEA 105**	• Abrasion, cut, or puncture-resistant gloves • Electrical lineman gloves • Chemical-resistant gloves • Heat-resistant gloves • Cold-resistant gloves for working with cryogens • Padded gloves to minimize vibration
Foot Protection	*29 CFR 1910.136*	**ASTM F2413**	• Closed-toed footwear • Puncture-resistant safety shoes • Slip-resistant footwear • Foot covers and guards • Dielectric shoes, leggings, chaps
Body Protection	*29 CFR 1910.132*	***Not Applicable***	• Coveralls • Lab coats, • Aprons, vests, or sleeves • Heat-resistant clothing • Reflective clothing • Cooling vests/Flotation devices

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Appendix B- References for Hearing and Respiratory Protection

The workplace hazard assessment form is not meant to be a definitive determination of the need for hearing or respiratory protection since this is established primarily through industrial hygiene monitoring. However, if employees must work in very noisy environments or if work sites are suspected to have high levels of airborne contaminants that are not eliminated by engineering controls (ventilation, fume hoods, etc.), there may be reason for concern. The OSHA regulatory standards and UCONN policies for hearing and respiratory protection are indicated below:

TABLE 2.

PPE	*OSHA Standard*	*UCONN Safety Policy*
Hearing Protection (a)	***29 CFR 1910.95***	***Hearing Conservation Program***
Respiratory Protection (b)	***29 CFR 1910.134***	***Respirator Program***

(a) ***Exposure to high noise levels*** can cause irreversible hearing loss or impairment. Employees working in potentially hazardous noise environments should contact Environmental Health and Safety to schedule a sound survey. As a rule of thumb, a "potentially hazardous noise environment" is one in which workers must raise their voices in order to communicate while standing 3 feet away from each other. Refer to the University's ***Hearing Conservation Program*** or contact EHS at 486-3613 for further information.

(b) ***Respiratory Protection*** may be used to protect against inhalation hazards only when engineering and administrative controls are not feasible or adequate. Refer to the University's ***Respiratory Protection Program*** for further information or contact EHS at 486-3613 for further information.

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Appendix C- Chemical Resistance Selection Chart for Protective Gloves

Prior to engaging in work with hazardous chemicals, information on the chemical resistance of gloves must be consulted to ensure that the gloves being worn are compatible with the substances being handled. The hazards of the chemical, duration of use, temperature, pH and other properties of the chemical as well as the permeation rate, breakthrough time and degradation rate of the glove must all be taken into account. No single type of glove will provide adequate protection against all chemicals. **Safety data sheets (SDSs) and the manufacturer's chemical-resistance glove guide must be consulted to ensure proper selection.** Chemical glove selection guides are available on the EHS website under Personal Protective Equipment. Principal investigators and supervisors may consult with EHS for assistance in determining which gloves provide the best protection against specific hazards. The following glove guide gives a general overview of the most common types of chemical-resistant gloves and the types of hazards they can guard against:

Table 3.

Type	Advantages	Disadvantages	Use Against
Butyl Rubber	Specialty glove, polar organics	Expensive, poor vs. hydrocarbons, chlorinated solvents	Glycol ethers, ketones, esters
Natural rubber	Low cost, good physical properties, dexterity	Poor vs. oils, greases, organics, hard to detect puncture holes, Can trigger latex allergies	Bases, alcohols, dilute water solutions; fair vs. aldehydes, ketones.
Neoprene	Medium cost, medium chemical resistance, medium physical properties	Poor for halogenated and aromatic hydrocarbons.	Good for acids, bases, alcohols, fuels, peroxides, hydrocarbons, and phenols
Nitrile	Low cost, excellent physical properties, dexterity	Poor vs. benzene, methylene chloride, trichloroethylene, many ketones	Oils, greases, petroleum products and some acids and caustics; fair vs. toluene
Polyvinyl alcohol (PVA)	Specialty glove, resists a very broad range of organics, good physical properties	Expensive, water sensitive, poor vs. light alcohols	Aliphatics, aromatics, chlorinated solvents, ketones (except acetone), esters, ethers
Polyvinyl chloride (PVC)	Medium cost, good abrasion resistance, medium chemical resistance	Plasticizers can be stripped, poor for most organic solvents	Acids, fats and petroleum hydrocarbons
Fluoro-elastomer (Viton)	Specialty glove, organic solvents, good resistance to cuts and abrasions	Expensive, poor physical properties, poor vs. some ketones, esters, amines	Aromatics, chlorinated solvents, also aliphatics and alcohols
Norfoil	Excellent chemical resistance	Poor fit, easily punctures, poor grip, stiff	Good for most hazardous chemicals