



U.S. DEPARTMENT OF
ENERGY



UNIVERSITY OF
CALIFORNIA

Recent Electrical Shock

Gripping to remove plug and grasped prongs



Managing Hazardous Waste

1. Identify

If you don't know if a specific waste is hazardous, check label(s) or MSDS to determine if these criteria apply:

Toxic:



- carcinogen,
- bioaccumulative properties,
- waste containing heavy metals/organics
- waste oil

Corrosive:

- pH < 2 or >12.5



Ignitable:



- Liquids with a flash point of <140°F (60°C)
- Solids that burn spontaneously
- Oxidizers

Reactive:

- Unstable material
- Explosives
- Water reactives
- Cyanide or sulfide-bearing wastes



3. Accumulate

- Place in a designated satellite accumulation area (SAA)
- Segregate incompatible waste
- Provide secondary containment
- Keep containers closed except while adding waste
- Use an accumulation log

2. Contain and Label

- Use compatible container

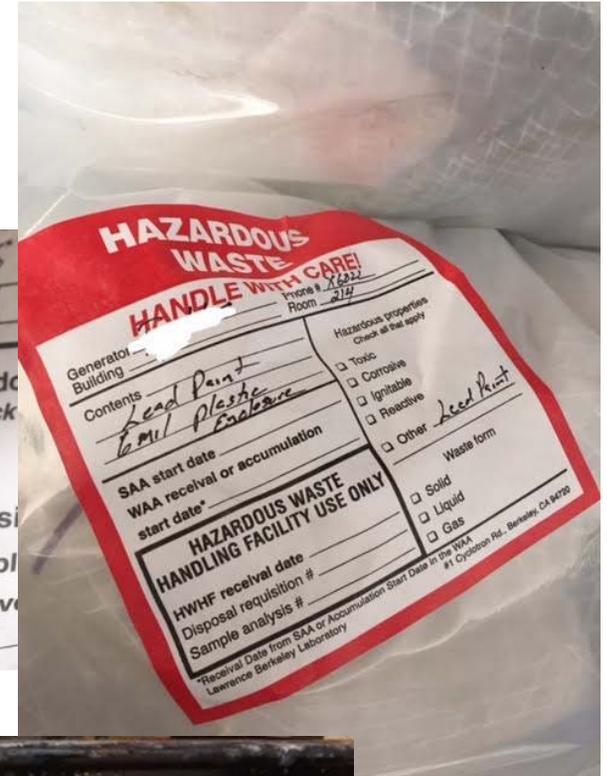
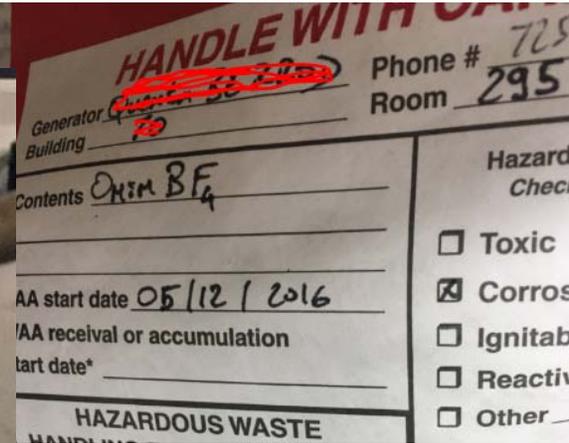
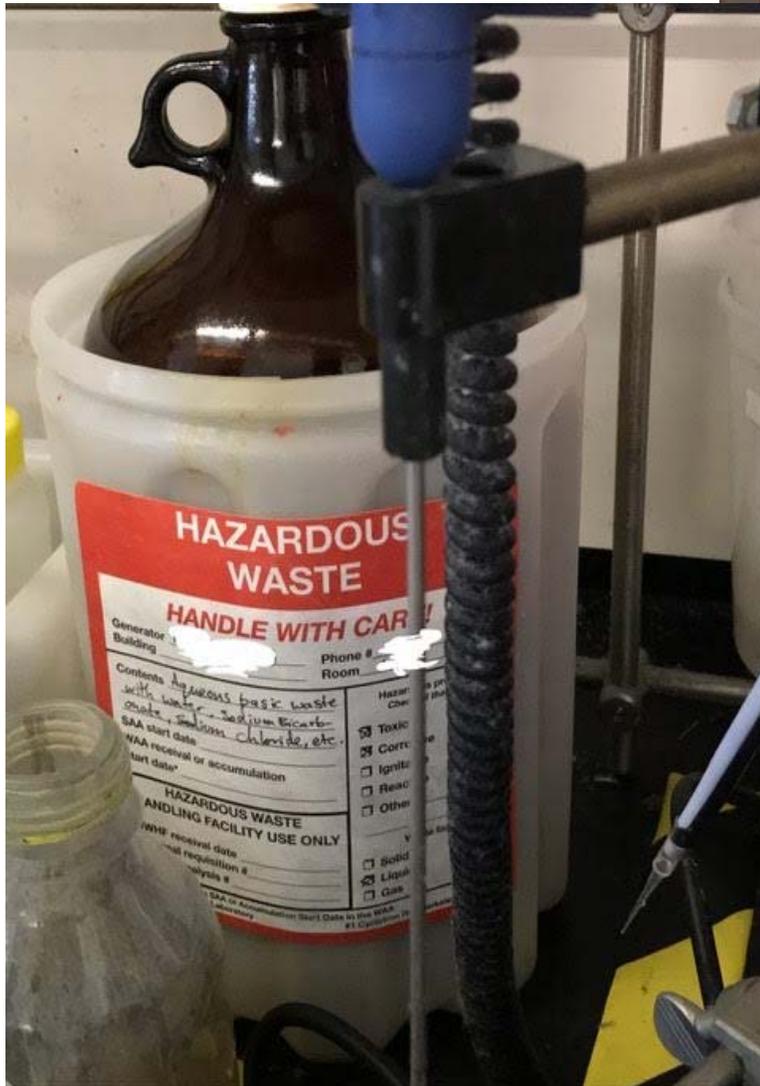
HAZARDOUS WASTE			
HANDLE WITH CARE!			
Generator _____ Building _____	Name _____ Building _____	Phone # _____ Room _____	Phone _____ Room No. _____
Contents _____	Description of waste _____	Hazardous properties <i>Check all that apply</i>	
SAA start date _____	Date _____	<input type="checkbox"/> Toxic	Check all that apply
WAA receipt or accumulation start date* _____		<input type="checkbox"/> Corrosive	
		<input type="checkbox"/> Ignitable	
HAZARDOUS WASTE HANDLING FACILITY USE ONLY		<input type="checkbox"/> Reactive	
HWHF receipt date _____		<input type="checkbox"/> Other _____	
Disposal requisition # _____		<input type="checkbox"/> Solid	Check all that apply
Sample analysis # _____		<input type="checkbox"/> Liquid	
		<input type="checkbox"/> Gas	
*Receipt Date from SAA or Accumulation Start Date in the WAA Berkeley Laboratory 1 Cyclotron Rd., Berkeley, CA 94720			

4. Dispose

- When container is full or SAA date approaches 275 days, submit a waste requisition via wastereq.lbl.gov
- Remove from CMS, if applicable.

Call your Generator Assistant with any questions [Mabel Fong x6144 mwfong@lbl.gov](mailto:mwfong@lbl.gov)

Examples of incorrect labels



ES&H Manual Chapter 12 Updates

Work Process F. Hot Work Permits

- Bunsen burners now considered hot work

WPC Changes

- FIR002: Changed to Hot Work in Labs
- New FIR003: Hot Work in Non-Lab Areas
- New FIR004: Bunsen Burners
 - Requires an annual Designated Area Hot Work Permit (Email: hotwork@lbl.gov)

ES&H Manual Chapter 12 Updates

WPC Changes

Hot work controls:

- Hot Work Permit
- Fire Extinguisher Training
- Hot Work Permit Class

WPC Changes

Bunsen burner controls:

- Fire Extinguisher Training
- Three New Controls
 - Clearance
 - Inspect burner and fuel supply
 - Consider alternate methods

Changes to PUB 3000 Chapter 45 and 12 to align with NFPA 45

OSHA and old policy allowed 10 gal of flammables in lab, NFPA does not.

- ❖ **Needed to define storage and in-use**
- ❖ **All storage must be in flam cabinet**
- ❖ **Staged Chemicals:** Chemicals that are placed in a location where they are to be used for ongoing procedures.
 - Must be in closed containers or squeeze bottles.
 - Place in secondary containment when not in use.
 - Limit staged amounts to the smallest practical quantity.

New features in Chemical Management System (CMS)

Add Container

*** Required fields**

* Container Barcode:

CAS Number (optional):

* Chemical Name:

* Engineered Nanomaterial:

* Container Size: * Unit: * Count: * Type:

Concentration: Concentration Unit:

Temperature:

* Pressure:

* Physical State:

* Manufacturer:

* Building: * Room: Outdoor Storage Location

Location Note:

* Container Owner: (Employee ID) (Employee Last Name)

* Division:

Surplus:

Acquisition Date: MM/DD/YYYY or [Set Date](#)

Comment:

Created By: Neitzel, Martin L (034947) on 04/19/2017

Updated By: Neitzel, Martin L (034947) on 04/19/2017

Last Activity: Neitzel, Martin L (034947) on 04/19/2017

New QEW Researcher (QEW-R) Category

QEW R (NO LINE VOLTAGE)

Risk Level: 3

QEW R - Perform work that requires a Qualified Electrical Worker Level R (QEW R).

This applies to any electrical work on equipment fed from non-line electrical sources, such as systems fed from hazardous power supplies, or hazardous batteries, or including hazardous capacitors. Excludes any work on systems fed from line power. Line power is voltage from the building distribution system, either hard wired or cord and plug, at 120 VAC, 208 VAC, or any other standard premises wiring voltage that is typically fed to utilization equipment at 50 or 60 Hz.

Electrical work includes deenergized repair, assembly or disassembly (Mode 0), implementation of LOTO with zero voltage verification (ZVV) (Mode 1), live testing, troubleshooting, and visual inspection within the Limited Approach Boundary of energized parts (Mode 2), and any repair, assembly or disassembly performed while energized (Mode 3).

Repair, assembly or disassembly includes tasks such as construction, demolition, repairs, servicing, maintenance, torque checking, and parts replacement that are not designed to be user-serviceable (plug-and-play) while the equipment is placed in an Electrically Safe Work Condition (under LOTO).

[Read Less](#) 

Additional Non-QEW Work

ELECTRICAL-LOW HAZARD (NON QUALIFIED ELECTRICAL WORKER)

LOW HAZARD CAPACITORS

Risk level: 2

ID: ELE091

DESCRIPTION

Perform work on capacitors above 100 VDC and above 1 J, or above 400 VDC and above 0.25 J, but no more than 10 J total capacitance. Risk of minor shock or reflex action that could cause injury.

HAZARDS AND CONTROL LIBRARY: CONTROLS

CLASS	CONTROL NAME		RECOMMENDED / REQUIRED
TRN	Training Course EHS0534 Capacitor Safety for Non-QEWs (not yet available)		Required

Additional Non-QEW Work

ELECTRICAL-LOW HAZARD (NON QUALIFIED ELECTRICAL WORKER)

OPERATING BREAKERS

Risk level: 1
ID: ELE065

DESCRIPTION

Perform non-hazardous switching, including operation of circuit breakers and disconnect switches rated at 15 amps or greater, where there is no shock or arc flash hazard. Includes opening or closing breakers, and resetting of tripped breakers.

HAZARDS AND CONTROL LIBRARY: CONTROLS

CLASS	CONTROL NAME		RECOMMENDED / REQUIRED
ADM	Contact supervisor or a QEW for any questions regarding electrical work		Recommended
PPE	PPE for switching		Required
WRK	Tripped Breaker Resetting		Required
WRK	Body positioning for switching		Required
TRN	Training Course EHS0536 Switching Safety for Non-QEWs		Required

Additional Non-QEW Work

ELECTRICAL-LOW HAZARD (NON QUALIFIED ELECTRICAL WORKER)

NON-ELECTRICAL REPAIRS – CORD-AND-PLUG ELECTRICAL EQUIPMENT

Risk level: 1

ID: ELE071

DESCRIPTION

Perform non-electrical repairs on cord-and-plug electrical equipment. Repairs may include mechanical components, but do not involve electrical circuits or components above hazardous thresholds.

HAZARDS AND CONTROL LIBRARY: CONTROLS

CLASS	CONTROL NAME		RECOMMENDED / REQUIRED
ADM	Periodically check equipment and cords for damage. If damage is found, remove the equipment/cord from service until it is repaired or replaced.		Required
WRK	Maintain exclusive control of cord and plug isolation		Required

4. Cord-and-plug equipment is exempt from LOTO controls when:

a. All hazardous energy is controlled by unplugging the equipment, and

b. The plug(s) remain(s) under the exclusive control of the worker performing the work. *Under the exclusive control of the worker* means that the authorized person has the authority to, and is continuously in a position to, prevent (exclude) other individuals from re-energizing or starting the machine or equipment while performing the servicing or maintenance activity.

Additional Non-QEW Work

ELECTRICAL-LOW HAZARD (NON QUALIFIED ELECTRICAL WORKER)

LOW HAZARD ELECTRICAL REPAIRS – CORD-AND-PLUG ELECTRICAL EQUIPMENT

Risk level: 1

ID: ELE073

DESCRIPTION

Like-for-like replacement of electrical components designed to be user-serviceable by the manufacturer on cord-and-plug electrical equipment. Includes replacement of bulbs, fuses, circuit boards, relays or other plug-and-play devices designed to eliminate the shock hazard and requiring no special tools or methods. Does not include electrical work to be performed by a QEW.

HAZARDS AND CONTROL LIBRARY: CONTROLS

CLASS	CONTROL NAME		RECOMMENDED / REQUIRED
ADM	Periodically check equipment and cords for damage. If damage is found, remove the equipment/cord from service until it is repaired or replaced.		Required
ADM	Contact supervisor or a QEW for any questions regarding electrical work		Recommended
WRK	Maintain exclusive control of cord and plug isolation		Required