

Policy Subject: Laboratory Door Postings	Effective: 1/1/09
Affected Area/Department: All Areas on Campus	Reviewed/Revised: 03/08/2016

Policy

It shall be the policy of the University of Tennessee to provide emergency responders with information regarding the hazards on campus. Laboratories often contain hazardous materials, equipment and processes that could endanger first responders.

Scope

This policy shall apply to all laboratories on campus that contain or appear to contain hazards.

Door Signage Responsibilities

All laboratory rooms on campus that contain hazardous materials, hazardous equipment or other hazards shall be posted with a sign facilitated by Environmental Health and Safety. The Responsible Person shall be responsible for completing or updating the signs as information changes or annually, whichever occurs first. The Responsible Person is the Principle Investigator (P.I.), faculty member or staff manager to whom the room is assigned by the department head or the department head when no assignment is made.

EHS will print and deliver the final signage to ensure accuracy and incorporation of the data into a laboratory hazard database.

A reference sample is provided on the following page.

CAUTION: The Selected Hazards May Be Present

SAMPLE

 <input type="checkbox"/> BIOHAZARD <input type="checkbox"/> BSL Class: ___	Explosive/Reactive  <input type="checkbox"/>	Gas Cylinder  <input checked="" type="checkbox"/>	Toxic  <input checked="" type="checkbox"/>	Exclamation Mark  <input checked="" type="checkbox"/>
 <input type="checkbox"/> Materials <input type="checkbox"/> X-ray:	Flammable Materials  <input checked="" type="checkbox"/>	Corrosive Materials  <input checked="" type="checkbox"/>	Health Hazard  <input type="checkbox"/>	Oxidizers  <input checked="" type="checkbox"/>

Other Hazards

- Laser(s) (Class _____)**
- High Pressure Equipment**
- High Voltage ≥ 480 Volts**
- Natural Gas**
- Air/Water Reactive**
- Hazardous Waste Storage**
- Cryogenic Materials**

Special Hazards or Precautions

Flammable liquids stored in flammable storage cabinet. Air/Water reactive chemicals stored in glove boxes under nitrogen.

Required PPE & MSDS/SDS Location

Eye protection and lab coat must be worn in lab work areas.
Safety Data Sheets located in notebook near main door.

Contact Information

	Office Phone	Home/Mobile
Principle Investigator	865-974-0000	865-555-1234
<small>Primary Contact (PI)</small>		
Post Doc	865-974-0000	865-555-1234
<small>Secondary Contact</small>		
Safety Officer	865-974-0000	865-555-1234
<small>Dept. Safety Officer</small>		
Department Head	865-974-0000	865-555-1234
<small>Department Head</small>		

Emergency Contact

Police/Fire/Medical:	911
UT Police:	974-3111
EHS	974-5084

Information is to be updated as information changes or annually, whichever comes first. For questions about this posting please contact Environmental Health and Safety.

Hazards Posting Guidelines:

The following will serve as a guide to responsible persons for completing the placard information. Please note that a responsible party may elect to post a hazard (if below the threshold for reporting) if they consider the hazard to pose a potential threat to emergency personnel.

General Information:

Building: Enter the official Building Name. The building list is available on the Facilities Services website: <http://fs.utk.edu/buildlist.asp>. Some abbreviations are acceptable. The style should be modelled on the style already in use in the building. (SERF, Hesler, Dabney-Buehler, etc.)

Room #: Enter the official room number. Rooms should not be combined unless there is no clear differentiation between two areas (there is no door or there is no suitable to place individual signs. When in doubt EHS should be consulted. A combined can appear as “501-502”. Sometimes rooms have alternate door numbers such as in Walters Life Sciences. Such cases are noted with the official floor plan number followed by the alternate parenthetically, e.g. C501(D501). This example would be for a room primarily identified to C corridor but with an alternate designation on the door opening to D corridor.

Department: Enter the official department name.

Lab Type: Enter an appropriate short description of the laboratory type.

Some possible examples: Machine Shop, Genetic Sequencing, Microbiology, Organic Chemistry, Inorganic Chemistry, Cell Culture. Generic terms such as “Research” are discouraged. The information should be in a state that emergency personnel or safety representatives can interpret it to provide general emergency safety support.

Rev. Date: Enter the current date of revision in the format MM/DD/YYYY. The revision date should be within one year.

Biological and Radiological Hazards

Radioactive Materials: If marked, additional signage should be present. Radioactive Materials can be selected and/or X-Ray generating equipment as appropriate. Contact the Radiation Safety Office for more information: 974-5580.

Biohazards: Selected if biohazards are present, and note Biosafety Level. Only BSL 2 or 3 requires additional signage through the Biosafety Office. Consult the Biosafety Office 974-5547.

Chemical Hazard Pictograms:

The Globally Harmonized System of Hazard Communication adopted by OSHA includes the use of new pictograms on chemical containers. As of June 1, 2015 all chemical labels will be required to incorporate these pictograms. Door placards will incorporate them to make a more cohesive representation of hazards present. However, it is recognized that de minimis levels of hazardous materials do not represent a hazard to first responders, and as such, thresholds for reporting hazards are set in terms of concentration, activity and quantity by Environmental Health and Safety.

The following table is to be used in conjunction with chemical container labels, and Material Safety Data Sheets/ Safety Data Sheets. If a threshold for reporting is met in the table, the corresponding pictograms should be checked.

Please note that amounts are based on reasonable estimates of current status as quantities vary over time. Where only liquids quantities are indicated the responsible person should use best judgement to determine if the quantity will pose a significant risk to emergency personnel during a medical, fire, or spill emergency.

GHS-Hazard Communication Standard Pictograms



Health Hazard: Carcinogen, Mutagenicity, or Reproductive Toxicity, Respiratory Sensitizer, Target Organ Toxicity, Aspiration Toxicity

The minimum amount required for posting is 100 grams



Flame: Flammables, Pyrophorics, Self-Heating, Emits Flammable Gas, Self-Reactives, Organic Peroxides

The minimum amount required for posting is 5 Gallons (~20 Liters) or one lecture bottle



Exclamation Mark: Irritant (skin and eye), Skin Sensitizer, Acute Toxicity (harmful), Narcotic Effects, Respiratory Tract Irritant, Hazardous to Ozone Layer (Non-Mandatory).

The minimum amount required for posting is 500 grams



Gas Cylinder: Gases under Pressure

The minimum amount required for posting is One Lecture bottle(aerosol cans are not counted here)



Corrosion: Skin Corrosion/Burns, Eye Damage, Corrosive to Metals.

The minimum amount required for posting is 5 Gallons (~20 Liters) If conc. solutions, a lower threshold of ~1-2 Gal is advised



Explosion Bomb: Explosives, Self-Reactives, Organic Peroxides

The minimum amount required for posting is Any Amount



Flame Over Circle: Oxidizers

The minimum amount required for posting is 500 grams or one lecture bottle



Skull and Crossbones: Acute Toxicity (fatal or toxic)

The minimum amount required for posting is 100 grams or one lecture bottle

Other Hazards:

Laser(s) (Class _____): Check if class IIIa , IIIb and IV lasers present and enter the class of lasers used. Contact Radiation Safety for more information. *Note: Do not include consumer products sealed-source lasers. This is oriented towards research lasers only.*

High Pressure Equipment: Check if using pressurized equipment or apparatus under vacuum operating in excess of 30 psi-absolute (15 psi gauge). This does not apply to building utilities (steam pipes, waterlines, natural gas, and low pressure pneumatic lines). 100 psi pneumatic lines should be included. This section should not include a compressed gas cylinder in and of itself.

High Voltage \geq 480 Volts: Check if using greater than or equal to 480 Volts AC. This includes the presence of 480V electrical distribution panels.

Natural Gas: Check if Natural Gas is supplied or is in use in the room. It may be advisable to include cut-off locations in the Special Hazards Section

Air/Water Reactive: Check if using Air or Water Reactive Compounds. If pyrophoric chemicals are involved, a special hazard statement may be prudent.

Hazardous Waste Storage: Check if hazardous waste is stored in this room. In the special hazards section, the Hazardous Waste Storage location may be provided (e.g. "Hazardous Waste Storage is under fume hood").

Cryogenics: – substances that exist in a closed container below $-150\text{ }^{\circ}\text{C}$, $-238\text{ }^{\circ}\text{F}$ or 123 K. Examples include liquid nitrogen and liquid helium. The minimum reporting threshold for this category is 4 liters.

Special Hazards or Precautions: Enter any additional Special Hazards in the room that might not be evident from the selections provided. Some examples of Special Hazards could include: Exposed electrical circuits/High magnetic fields within 5 feet of NMR/Hydraulic equipment in use. Trained personnel only/Poisonous by Inhalation Gases present etc. Remember to consider the perspective of emergency responders.

Required PPE: Enter any required PPE or precautions. Examples could include. Safety Glasses and lab coats are required in this room. Special glove requirements may be required in this lab.

Contact Information:

Contacts shall be provided as available.

The primary contact should be the Supervising Staff member or Principle Investigator.

The Secondary Contact can be another person strongly associated with the lab such as a staff laboratory manager, the senior Post-Doc, or managing graduate student.

The contact for the departmental chemical hygiene or safety officer shall be provided.

The department head or administrative contact shall be provided.

Sensitive contact information may be sent directly to EHS to be stored on-file as necessary such that is not posted on the actual door placard.

Appendix:

The following information is intended to familiarize the user with some definitions and potentially hazardous materials. The following can be used to help suggest Special Hazards or to help identify categorical hazards.

Water-reactive chemicals – can react violently or vigorously in contact with water, wet surfaces, or even the moisture in the air. These chemicals may react to give off a flammable gas (such as hydrogen) or a toxic gas, (such as phosgene) or spontaneously burn or explode. Water is obviously NOT a good choice for putting out fires caused by water reactive chemicals. A class D fire extinguisher is designed to be used to fight fires caused by certain water reactive chemicals.

Examples include potassium, lithium, sodium, calcium carbide, acid anhydrides, acid chlorides and salt hydrides.

Air-reactive materials – chemicals which react violently in contact with air or oxygen or with compounds containing oxygen. Sometimes air reactive chemicals are called spontaneously combustible or pyrophoric materials. Pyrophoric materials burst into flame spontaneously upon contact with air or oxygen. Spontaneous combustion means that the material does not need an ignition source to begin combustion, or to burn. These materials are sometimes sold in gas cylinders, although they may not be gases themselves. They may be sold packaged under nitrogen or some other inert atmosphere, or they may be created by a chemical reaction in your laboratory. The flame of certain pyrophoric materials is clear and not readily visible. Examples include alkali metals (potassium, cesium), finely divided metal dusts (nickel, zinc, titanium), hydrides (barium hydrides, diborane, diisobutyl aluminum hydride).

Shock/Heat Sensitive Agents – (These may be classified under the “Exploding Bomb” (explosive/reactive) pictogram.

Chemicals which may decompose violently if struck or heated. Solids are also prone to explosive decomposition if ground, for example with mortar and pestle or by unscrewing the cap on the container where crystals may be present. Examples of shock sensitive chemicals are Acetylenic compounds, Acyl nitrates, Alkyl nitrates, Alkyl and acyl nitrates, Alkyl perchlorates, Amine metal oxosalts, Azides, Chlorite salts of metals, Diazo compounds, Diazonium salts (when dry), Fulminates, N-Halogen compounds, N-nitro compounds, Oxo salts of nitrogenous bases, Perchlorate salts, Peroxides and hydroperoxides, Picrates, especially picric acid when dry [creanine picric reagent or trinitrile phenol], Polynitroalkyl compounds, Polynitroaromatic compounds. Heat sensitive chemicals are materials with a Self-Accelerating Decomposition Temperature (SADT) such as some organic peroxides, high concentrations of hydrogen peroxide and hydrazine, ethylene oxide, peroxydicarbonate, peroxyacetate, nitro benzyl halides and hydroperoxides. Heat sensitive chemicals should be used in a thermally controlled area.

Recordkeeping

The posted sign is the record as long as the conditions indicated are present in the lab.

Training Requirements

All laboratory personnel should be introduced to the elements of the completed and posted door placard during lab-specific training for the labs in which they are expected to work upon employment. Visitors, students, and guests should be made aware upon their first visit. Both groups should be made aware when changes are made to the posting.

Standard

None