

DOOR POSTINGS FOR POTENTIALLY HAZARDOUS LOCATIONS

(For assistance, please contact EHS at (402) 472-4925, or visit our web site at <http://ehs.unl.edu/>)

This SOP describes door placard procedures and methods for UNL locations that are potentially hazardous. The methodology used to post laboratories is different than that which is used to post other types of work locations. Laboratories are placarded with commonly recognized icons and wording corresponding to applicable physical and chemical hazards. The National Fire Protection Agency (NFPA) diamond method is used for all potentially hazardous locations that are not laboratories. An example of each type is shown.

Purpose

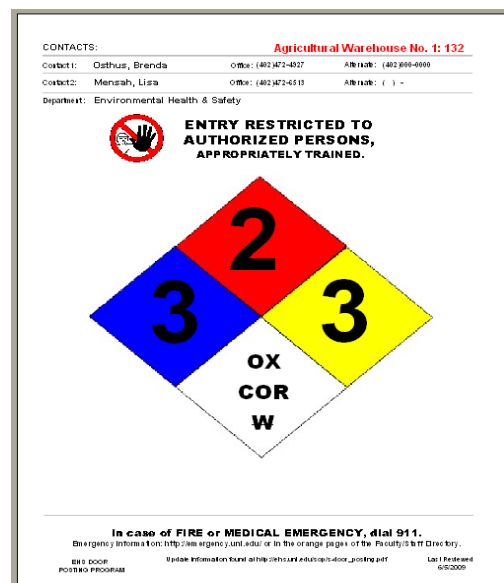
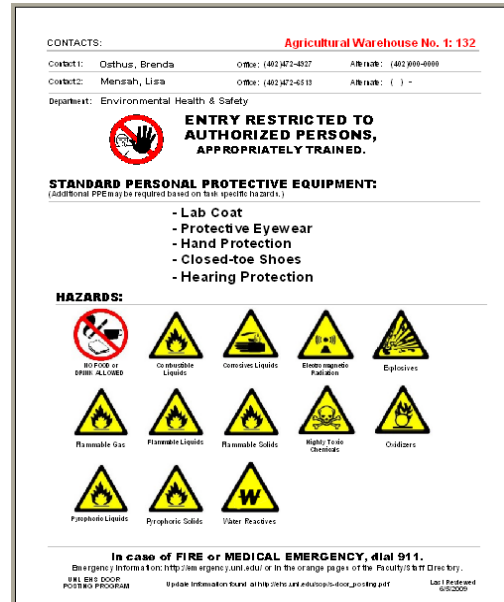
Door placards support routine hazard communication and facilitate response actions during an emergency.

Obtaining a Posting

EHS will conduct a hazard assessment or verify/update a previous assessment and provide a door posting as part of the routine work area survey process. A door posting can be obtained independent of the work area survey process upon request. Following evaluation of the hazards in the room, EHS will send a door placard in electronic form, hard copy, or both. Place a hard copy in the holder provided (or a page protector, if no holder is provided) on the latch side of the door from the hall or public space leading into the room. Color is required for NFPA diamond type placards. Review door postings at least annually. If hazards change, contact EHS to generate a revised door posting. Door postings are not a substitute for a chemical inventory.

Hazard Information

Following is an explanation of information that may be conveyed through a door posting. Additional instruction on chemical hazards is provided in the EHS Chemical Safety Training module.



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Access Restrictions





All persons entering a placarded area should be authorized to do so and appropriately trained in the probable hazards located in the room. Additional entry restrictions may be indicated in accordance with department policy and/or specialized hazards.





Personal Protective Equipment (PPE)








At a minimum, people working in chemical, biological, or radiological lab spaces are required to don standard lab apparel. This includes: a lab coat, protective eyewear, hand protection, and closed-toe shoes. Additional PPE may be required based on specific area or task hazards.




Icons and Warning Words

The table below shows common icons and the associated identifying word(s) that are used to denote certain chemical and other hazards on laboratory placards. A brief description of the hazard is also provided for each icon.

	Description
 NO Food or Drink Allowed	Food or drink for human consumption is not allowed in an area characterized by chemical, biological, or radiological hazards. Food or beverages used for experimentation should be clearly indicated as "Not for Human Consumption."
 Human Pathogen	The universal biohazard symbol is used to denote the potential for human pathogenic organisms. The Biosafety Officer will specify additional required postings as applicable by specific regulation or standard.
 Carcinogen	Carcinogens are chemicals that are believed to have the potential to cause cancer.
 Combustible Liquid	A combustible liquid has a flash point greater than or equal to 100°F but less than 200°F.

 <p>Corrosive Gas Corrosive Solid Corrosive Liquid (as applicable)</p>	<p>The “corrosive” icon is used to denote corrosive liquids, gases, and/or solids. The physical state will be denoted by wording, as applicable. Corrosives, regardless of the physical state, will corrode metal or cause visible destruction of or irreversible alterations in living tissue by chemical action at the site of contact.</p>
 <p>Electromagnetic Radiation</p>	<p>The electromagnetic radiation symbol is used to denote the presence of equipment that may produce radio and microwave frequencies of 10MHz – 100 GHz with power density of greater than or equal to 10mW/cm² or energy density greater than or equal to 1mW-hr/cm². Of primary concern is thermal effects on receiving tissues.</p>
 <p>Explosive</p>	<p>An explosive chemical will release substantial energy in the form of pressure, gas, heat, and light when subjected to sudden shock, pressure, high temperature, or other initiating force. This icon is reserved for chemicals classified as Explosive Hazard Class 1 by the United States Department of Transportation at 49 CFR.</p>
 <p>Flammable Aerosol Flammable Liquid Flammable Gas Flammable Solid (as applicable)</p>	<p>The “flammable” icon can be used to denote flammable aerosols, liquids, gases, and/or solids. The physical state will be denoted by wording, as applicable.</p> <p>A flammable aerosol yields a flame projection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening. This icon is not used to denote the presence of small to moderate amounts of standard sized aerosol cans available to ordinary consumers.</p> <p>A flammable liquid has a flash point of less than 100°F.</p> <p>A flammable gas is defined as a gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of thirteen percent by volume or less; or a gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than twelve percent by volume, regardless of the lower limit.</p> <p>A flammable solid may cause or contribute to fire through friction, absorption of moisture, spontaneous chemical change, or retention of heat from external processes/operations.</p>

 <p>Highly Toxic</p>	<p>Highly toxic chemicals have the potential to cause death if inhaled, ingested, or absorbed through the skin in relatively small amounts. Highly toxic chemicals are usually described as having an oral LD50 ≤ 50 mg/Kg; dermal LD50 ≤ 200 mg/kg; or inhalation LC50 ≤ 200 ppm.</p>
 <p>Ionizing Radiation</p>	<p>The radiation tri-foil symbol is used to denote the potential for ionizing radiation which is subject to licensing/registration. The Radiation Safety Officer (RSO) will specify additional required postings specified by regulation or standard.</p>
 <p>Laser</p>	<p>The laser symbol is used to indicate the presence of Class IV laser(s) that have the potential for operating in an open beam configuration. Viewing of the direct beam or reflection is likely to cause serious eye injury. Additional hazards may include skin burns or fire.</p>
 <p>Noise</p>	<p>The noise symbol is used to demarcate areas where an employee's exposure to noise is expected to exceed occupational limits (115 dBA at any time; or greater than 85 dBA when expressed as an 8-hour TWA).</p>
 <p>Organic Peroxide</p>	<p>Organic peroxides contain the bivalent -O-O- structure and may be considered a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms have been replaced by an organic radical. Many organic peroxides spontaneously decompose at a slow rate; but may react violently when subjected to shock, sparks, high temperature, or other initiating force</p>
 <p>Oxidizer</p>	<p>Oxidizers initiate or promote combustion in other materials by donating or liberating oxygen.</p>
	<p>The "pyrophoric" icon is used to denote pyrophoric liquids, gases, and/or solids. The physical state will be denoted by wording, as applicable. A pyrophoric chemical will ignite spontaneously in air at a temperature of 130°F or below.</p>

Pyrophoric Liquid Pyrophoric Gas Pyrophoric Solid	
 Self Reactive	Self-reactive chemicals are generally unstable in one way or another. They may be temperature sensitive and will “self-heat” if not maintained below a certain temperature, absent any external energy source. Some “self-reactive” chemicals may have a tendency to “polymerize” under certain conditions (e.g., in the presence of light) to form larger molecules and generate sufficient energy in the process (e.g., heat, gas/pressure, etc.). Unstable compounds act like explosives, but the rate of reaction is less than that of an explosive
 Strong Magnetic Field	The magnetic field symbol is used to denote the presence of equipment producing > 0.01T (10,000 Gauss) at potential points of exposure. Of primary concern are the affinity of the magnetic field for metal objects in the room, on a person, and effect on medical implants.
 Water Reactive	Water reactive chemicals, as the name implies, tend to react with water, resulting in the generation of heat, fire, or explosive gases, or release of large amounts of energy

Other Warning Words

Other warning words may be found on chemical container labels or Material Safety Data Sheets (MSDS) that will not be routinely listed on a UNL door placard. Examples include:

Cryogen(ic)	Cryogenic liquids are gases at normal temperature and pressure. When cooled and placed under pressure in specially designed containers, the gases condense to a liquid state and maintain very cold temperatures. Contact can cause frostbite.
Irritants	Chemicals that are not corrosive, but will cause a reversible inflammatory effect on living tissue by chemical action at the site of contact.
Poison	Typically used as a synonym of “toxic.”
Sensitizer	Chemicals that will cause a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical.
Simple Asphyxiant	Gases which can displace oxygen and cause suffocation.
Toxic	Chemicals (gas, liquid or solid) that have the potential to cause

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	harm. Toxic chemicals are usually described as: Oral LD50 > 50 mg/Kg but ≤ 500 mg/Kg; Dermal LD50 > 200 mg/kg but ≤ 1,000 mg/Kg; Inhalation LC50 > 200 ppm but ≤ 2,000 ppm. (Not to be confused with Highly Toxic chemicals.)
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NFPA Diamond

The NFPA diamond is used to convey chemical hazards. There are four sections of the diamond. The top section is colored red and conveys relative fire hazard. The right hand section is colored yellow and conveys relative reactivity hazard. The left hand section is colored blue and conveys relative health hazard. The bottom section is colored white and is used to convey special hazards. The NFPA system uses a relative ranking system of 0 to 4. An explanation of the ranking for each NFPA diamond section follows.

Health (blue)	
4	Very short exposure could cause death or major residual injury.
3	Short exposure could cause serious temporary or moderate residual injury.
2	Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury.
1	Exposure would cause irritation with only minor residual injury.
0	Poses no health hazard, no precautions necessary.
Flammability (red)	
4	Will rapidly or completely vaporize at normal atmospheric pressure and temperature, or is readily dispersed in air and will burn readily. Flash point of less than 23°C (73°F).
3	Liquids and solids that can be ignited under almost all ambient temperature conditions. Flash point below 38°C (100°F) but above 23°C (73°F).
2	Must be moderately heated or exposed to relatively high ambient temperature before ignition can occur. Flash point between 38°C (100°F) and 93°C (200°F).
1	Must be heated before ignition can occur. Flash point over 93°C (200°F).
0	Will not burn.
Instability/Reactivity (yellow)	
4	Readily capable of detonation or explosive decomposition at normal temperatures and pressures.
3	Capable of detonation or explosive decomposition but requires a strong initiating source, must be heated under confinement before initiation, reacts explosively with water, or will detonate if severely shocked.
2	Undergoes violent chemical change at elevated temperatures and pressures, reacts violently with water, or may form explosive mixtures with water.
1	Normally stable, but can become unstable at elevated temperatures and pressures.
0	Normally stable, even under fire exposure conditions, and is not reactive with water.
Special Hazards (White Section at bottom of Diamond)	

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W	Water reactive
OX or OXY	Oxidizer
SA	Simple Asphyxiant
COR or ACID or AIK	Corrosive
POI	Poison
CRY	Cryogenic