







The Physical Sciences Complex (PSC) encompasses Baker Laboratory, Olin Chemistry Research Wing, the Physical Sciences Building and Clark Hall. Research activities within these buildings are in the areas of physics, engineering physics, chemistry and biochemistry. Due to the nature of research activities within the complex, there are a number of biological, chemical and physical hazards that individuals working in these space must be made aware of. These hazards include electrical (high voltage), chemicals, confined spaces, biological hazards, radiation producing equipment or radioactive material, lasers, magnets, cryogenic liquids and compressed gases.

### Hazard Communication & General Hazard Recognition in Research Spaces

The PSC uses the Hazard Assessment Signage Program (HASP) to denote hazards in a space, entry requirements, points of contact and specific emergency response procedures. HASP uses a system of 3, color-coded, risk categories to classify the degree of risk that each hazard may pose:

- **Gray:** Low; no special precautions need to be taken, no special restriction on who may enter the area
- **Yellow:** Moderate; standard laboratory precautions should be followed, access usually restricted to trained laboratory staff or accompanied visitor
- **Red:** High; special precautions are followed, special equipment in use, access limited to designated staff members Special Requirements and Instructions

EAST HILL OFFICE BUILDING [2921] Room 240					
Contact	Name	Campus Address	Day Phone	Night Phone	
Primary	Jerry P. Gordon Jr (jpg29)	East Hill Office Building, Room 210	607-255-3314		
Secondary	No secondary contact on file				
Tertiary	No tertiary contact on file				
Bldg Coord	No Building Coordinator on file				
Access Limitations					
Other Individuals with Permission					
Only Authorized Users are Allowed to Use Equipment					
Visitors Must Be Under Escort					
Area Hazards					
					
Warnings					
Eating and drinking prohibited					
Caution -- Liquid Nitrogen can be an asphyxiant					
Door must be locked between 5 pm and 8 am					
Emergency Response					
Biohazard wastes are in red biohazard containers					
In case of emergency, call for assistance by dialing 911					
Audit Info					
HASP last updated: 01/04/2012					










**Information Provided by the HASP Sign**

- Location Designation - Facility name and room number
- Supervisor And Other Information Contacts For The Area – Individuals you can contact if you have a question or concern
- Access Limitations - Who can enter the area
- Area Hazards and Warnings
- Appropriate personal protective equipment and security restrictions
- Emergency Information – Instructions to emergency responders

**Recognizing Specific Chemical Hazards- GHS Labeling**

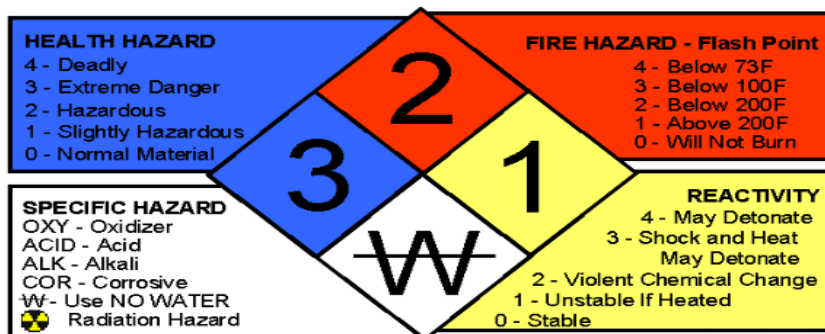
Many chemical containers are compliant with the new GHS Hazard Communication System. This system uses a series of (9) pictograms to classify chemicals according to their health, physical and environmental hazards. In addition to pictograms, each label includes hazard statements, and the signal words “Danger” and “Warning” to communicate hazard information on product labels.

**HCS Pictograms and Hazards**

<p><b>Health Hazard</b></p>  <ul style="list-style-type: none"> <li>• Carcinogen</li> <li>• Mutagenicity</li> <li>• Reproductive Toxicity</li> <li>• Respiratory Sensitizer</li> <li>• Target Organ Toxicity</li> <li>• Aspiration Toxicity</li> </ul>	<p><b>Flame</b></p>  <ul style="list-style-type: none"> <li>• Flammables</li> <li>• Pyrophorics</li> <li>• Self-Heating</li> <li>• Emits Flammable Gas</li> <li>• Self-Reactives</li> <li>• Organic Peroxides</li> </ul>	<p><b>Exclamation Mark</b></p>  <ul style="list-style-type: none"> <li>• Irritant (skin and eye)</li> <li>• Skin Sensitizer</li> <li>• Acute Toxicity (harmful)</li> <li>• Narcotic Effects</li> <li>• Respiratory Tract Irritant</li> <li>• Hazardous to Ozone Layer (Non-Mandatory)</li> </ul>
<p><b>Gas Cylinder</b></p>  <ul style="list-style-type: none"> <li>• Gases Under Pressure</li> </ul>	<p><b>Corrosion</b></p>  <ul style="list-style-type: none"> <li>• Skin Corrosion/ Burns</li> <li>• Eye Damage</li> <li>• Corrosive to Metals</li> </ul>	<p><b>Exploding Bomb</b></p>  <ul style="list-style-type: none"> <li>• Explosives</li> <li>• Self-Reactives</li> <li>• Organic Peroxides</li> </ul>
<p><b>Flame Over Circle</b></p>  <ul style="list-style-type: none"> <li>• Oxidizers</li> </ul>	<p><b>Environment (Non-Mandatory)</b></p>  <ul style="list-style-type: none"> <li>• Aquatic Toxicity</li> </ul>	<p><b>Skull and Crossbones</b></p>  <ul style="list-style-type: none"> <li>• Acute Toxicity (fatal or toxic)</li> </ul>

**Other Label Information:**

- NFPA 704 Diamond



**Do not move or manipulate any chemicals in the work space. If items need to be re-located, contact the facility manager.**

Last revised by: Keane Leitch Revision date: 10/14/2013	Chemical, Biological & Physical Hazard Awareness Page 2 of 6
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## Recognizing Physical Hazards:

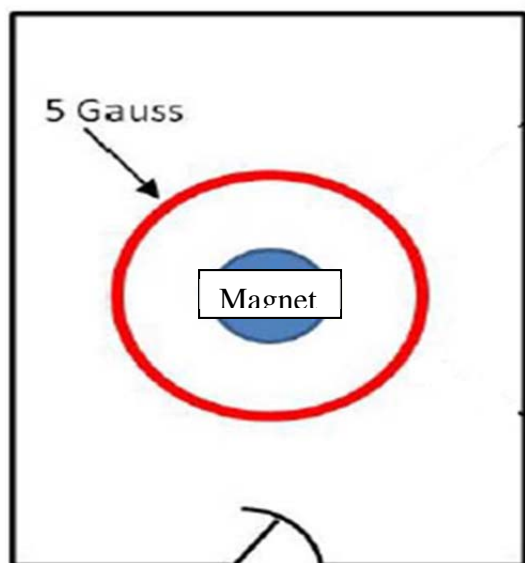
### Superconducting Magnets



Magnet systems can exert large attractive forces on magnetic materials or equipment brought into close proximity. The strength of the magnetic field increases with proximity to the magnet. The exerted force may be large enough to move tools or equipment uncontrollably towards the magnet system resulting in entrapment of limbs or body parts or permanent damage to watches, calculators and credit cards. Additionally, these fields may interfere with functioning of implanted medical devices such as pacemakers or prosthetics.

The entrance to magnet use areas area posted with a HASP sign and additional signage indicating the presence of strong magnetic fields. Within the room, the 5 gauss line is marked on the floor either with red or red and white checkered tape.

### Magnet Signage



Staff should always assume that the magnet is at field and exercise the following precautions:

- **Do not** bring ferromagnetic objects into the magnet room.
- **Do not** venture beyond the 5-gauss line
- **Do not** place any equipment within the 5-gauss line.
  - As much as practicable, **use only non-magnetic equipment** in the space

Some magnet spaces have “pits” in the floor that allow for the dewar to be removed and work conducted on the magnet system. These “pits” are permit required confined spaces.

## Cryogen Transport Dewars & Cryogenic Liquids



Superconducting magnets use liquid nitrogen and liquid helium as cooling agents, and a boil-off of liquid cryogenics is expected during the normal operation of the magnet system. Although these gases are inert, if generated in large enough quantities, in a poorly ventilated space, they can create dangerous circumstances by displacing the oxygen in the room. Additionally, contact with liquid or vapor can produce "cold burns" on unprotected skin.

**Do not move or manipulate any cryogenic liquid dewars present in the space.**

Magnet spaces may be equipped oxygen sensors, warning lights indicating a low oxygen atmosphere and emergency exhaust ventilation.





### Class 3B and 4 Lasers & Laser Systems

Class 3B and 4 laser lasers pose a moderate hazard as exposure to an unshielded or un-attenuated beam can cause burns to the eyes and skin. At high power, these lasers also pose a fire hazard.

Entrances to laser use areas area posted as follows:

- a HASP sign
- a “DANGER” sign indicating the presence of a Class 3B or Class 4 laser or laser system, the type of lasing material, and the power
- Entryway barriers or protective curtains
- A laser warning light used to indicate the operating status of the laser.

### Laser Signage



**Do not enter any space where the laser warning light indicates that the laser is on. Contact the facility manager if there is any uncertainty as to the operating status of the laser.**

### Biological Hazards



Areas where biohazards are present are marked with the universal biological hazard sign. This sign is used to indicate the presence of material of biological origin which may be infectious or contain genetically modified organisms.

**Do not handle nor manipulate any materials with a biohazard label. Report any punctures or laceration injuries resulting from contact with sharps (needles, scalpels, glassware) in these areas and seek follow-up evaluation with a primary care provider.**

### Emergency Response

In case of emergency, individuals may dial 911 from any campus phone or 607- 255-1111 from a cell phone.

- Areas within the PSC are also equipped with Push-to-talk panels that connect the caller directly to Barton Hall call center. These are located near stairwells and exits and may be silver or yellow in color.
- **Fires**
  - Research spaces are generally equipped with Class B, C extinguishers which can be used to extinguish fires resulting from ignition of flammable liquids or gases and energized electrical equipment. Some spaces are also equipped with yellow Class D extinguishers which are used to extinguish fires resulting from combustible metals.



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- **Chemical Spills**
  - If a chemical spill occurs, cease all work and immediately vacate the area.
  - Notify the facility manager and safety manager
  - If the spill occurs after hours, contact Cornell Call Center by dialing 911 or 607-255-1111.
- **Health Related Emergencies**
  - Contact Cornell Call Center by dialing 911 or 607-255-1111.
  - if needed, an Automated External Defibrillator (AED) is located in Goldie's Cafeteria on the first floor of the Physical Sciences Building beneath the television.



**Contact Information:**

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