

CHEMICAL HAZARD GUIDELINE

		<h2>COMPRESSED GASES</h2> <p><i>Examples: Nitrogen, Argon, Compressed Air, Oxygen, Hydrogen, Methane, Acetylene, Carbon Dioxide</i></p>	<p>May show</p>  <p>or</p> 
Hazards	Potential Hazards	<ul style="list-style-type: none"> Has the potential to become a rocket or bomb due to its high internal pressure if the cylinder is heated or the valve/cylinder fails. Potential for toxic, flammable, or oxygen deficient atmosphere. Refer to chemical specific Safety Data Sheet (SDS) for hazard information. <i>A lab-specific SOP is needed for particularly hazardous gases, such as carbon monoxide or chlorine. PI approval of lab SOP is required for high-risk gases, such as nitric acid.</i> 	
	Hazard Controls	Purchasing	<ul style="list-style-type: none"> Purchase the smallest cylinders at the lowest concentration practical. Order gas cylinders with a restrictive flow orifice (RFO) to limit gas flow rate leaving cylinder. Order with pressure relief device to allow safe venting if excessive pressure develops.
Storage and Transportation		<ul style="list-style-type: none"> Store upright and secure with sturdy chains or straps (between midpoint & “shoulder”) to a wall, or use a cylinder rack, bench mount, or stand. Keep valves closed (with valve covers on) when not in use. Store separately: <ul style="list-style-type: none"> Full away from empty cylinders (Label as full or empty) Oxidizing gases (such as oxygen) away from flammable gases Post storage area for flammable gases or oxygen with “No Smoking” and “No Open Flames” signs. Do not store near flammable materials. Do not store above 125°F or direct sunlight, or outside of the temperature range specified by the manufacturer. Do not store in cold rooms or other unventilated areas (unless content is compressed air) without EHRS permission. Transport with valve cover on using a cylinder dolly. Secure Cylinder during transport. Use a helper if possible. 	  
Work Practice Procedures		<ul style="list-style-type: none"> Only use fittings, regulators, and lines specified for by manufacturer. Perform periodic leak checks on regulator, fittings and lines. Refilling of cylinders may only be performed by the manufacturer or EHRS approved vendor. 	
Engineering Controls		<ul style="list-style-type: none"> For flammable gases, use a flashback arrestor between regulator and hose (Prevents flame from entering cylinder). Consider a ventilated gas cabinet or chemical fume hood for flammable or irritating gases, depending on quantities used. Monitors may be necessary for particularly hazardous or “high-risk” gases. 	 
Personal Protective Equipment		<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  EYE PROTECTION </div> <div style="text-align: center;">  FACE SHIELD </div> <div style="text-align: center;">  CHEMICAL GLOVES </div> <div style="text-align: center;">  LAB COAT </div> <div style="text-align: center;">  LONG PANTS </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> CLOSED TOED SHOES ARE REQUIRED </div> </div> <p>Note: Always refer to glove manufacturer for chemical specific glove type.</p>	

Other	Waste	Return cylinders to vendor. If vendor cannot be determined, contact EHRS
	Emergencies	<p>In the event of an emergency – Call campus safety at (215) 214-1234 & EHRS at (215) 707-2520.</p> <p>Direct contact – Flush contaminated area with copious amounts of water (eyewash or safety shower) and then seek medical attention.</p> <p>Inhalation – Remove to fresh air and then seek medical attention.</p> <p>Spill/ Release – Close cylinder valve, if possible. If unable to contain, evacuate lab. Contact EHRS for additional assistance or guidance.</p>
	Training	Sign signature on Laboratory-Specific Training Checklist to indicate review.
	Questions	Contact Environmental Health and Radiation Safety (EHRS) at (215) 707-2520