

THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

COMPRESSED GAS POLICY

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Division	Vice President for Research and Economic Development – Office of Environmental Health and Safety (OEHS)
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Purpose	This procedure establishes minimum rules to protect the health and safety of The University of Alabama in Huntsville employees required to handle gas cylinders, and to minimize the potential for personal injury and environmental risk.

Policy

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1. PURPOSE

This procedure establishes minimum rules to protect the health and safety of The University of Alabama in Huntsville (“UAH” or “University”) employees required to handle gas cylinders, and to minimize the potential for personal injury and environmental risk.

Although this practice describes specific safety measures to be taken for handling gas cylinders, it is not intended to prevent the use of any additional measures that may be deemed necessary for a particular situation.

2. HAZARDS

POTENTIAL HAZARDS which may be encountered when handling gas cylinders are as follows:

- **PRESSURE** - When the cylinder valve is opened the released gas will expand rapidly. It is known that cylinders with sheared valves can penetrate masonry walls under the force of the escaping gas.
- **TOXICITY** - Some compressed gases can cause physiological harm to personnel exposed to them. The toxicity of the effects is dependent on the gas, its concentration, and the duration of exposure.
- **FLAMMABILITY** - Leaking or otherwise mishandled cylinders of some gases may present fire and explosion hazard.
- **REACTIVITY** - Under certain conditions, heat, etc., the leaking gases may combine with incompatible materials to form toxicants.

3. REQUIREMENTS - EMPLOYEES HANDLING GAS CYLINDERS

Training - Personnel who are required to receive and transport gas cylinders shall minimally receive the following safety training. It is the responsibility of the employee's supervisor to ensure that they receive this training and are updated at least annually.

- Chemical safety training
- Gas cylinder handling training

Personal Protective Equipment - Personnel who are required to receive and transport gas cylinders must wear the appropriate personal protective equipment (PPE). The type of equipment required depends upon the classification of the gas as listed. See Table 1 for Gas Classification and Table 2 for required PPE

Leak Testing - All gas cylinders will be tested for leaks prior to removing cylinders from the delivery vehicle, if possible. Leaking gases can cause a number of hazards, such as oxygen deficient atmosphere, fire, explosion, toxic effects. Therefore, no leaking gas cylinders shall be accepted for delivery in a UAH facility.

Leak Detection Methods:

The preferred and primary method for leak detection is a direct reading instrument with a sensor that uses thermal conductivity different from that of the ambient air for detection, such as the Matheson Leak Hunter Plus Model 8066 or its equivalent. This type of detector is highly sensitive and can locate leaks too small to bubble quickly with a liquid solution leak detector. An alternate method is liquid solution leak detection.

- **Delivery Leak Test Procedure:**
 - With the cylinder on the delivery vehicle, visually inspect the cylinder for cap, proper labels, dents, excessive rust, pitting, or other physical damage. Check to ensure the cylinder has been pressure tested within the prescribed time.
 - Following the calibration and operation procedures for your detector, insert the probe of an operational detector through the cap slots and sample for at least 2 seconds or 2 times the response time, whichever is longer.
 - If the cylinder cap does not have slots (remove the cap) or the cylinder does not have a cap, slowly move the probe around the neck of the cylinder or apply the leak detection solution to likely leak locations, following the directions on the container.
 - If a leak is detected, leave the cylinder on the delivery vehicle for immediate return to the vendor.
 - If the leak prevents the delivery vehicle from leaving, immediately call 911 and evacuate to a safe proximity location to wait on the arrival of emergency responders.

- **Alternate Method:**
 - Apply a leak checking fluid around cylinder outlet connection and/or use a leak-checking device (Leak checking method is selected based on the content of the gas inside the cylinder).
 - If bubbles are observed or a reading is detected on the leak-checking device, STOP and leave the cylinder on the vehicle and follow directions 4 and 5 above.

NOTE: Use the same procedures as during delivery (as in 2 – 5 above) for cylinders suspected to be leaking, except place the cylinder in an appropriate exhausted enclosure such as a gas cabinet or fume hood, visually inspect the cylinder for cap, proper labels, dents, excessive rust, pitting, or other physical damage.

4. RECEIVING GAS CYLINDERS

All personnel receiving compressed gas cylinders must wear the appropriate PPE (see Section 3). A compressed gas cylinder shall be accepted only if its contents are legibly identified by name. Cylinders are identified in several ways:

- Stenciling, labels, or decals on the cylinder body/shoulder.
- Tags attached to the cylinder valve and/or valve protection cap.

The receiver shall confirm that all of these forms of identification agree and correspond to what was ordered. If they do not, the cylinder shall not be accepted. Under no circumstances shall identification markings or tags be obliterated or removed from any compressed gas cylinder. All compressed gas cylinders must be inspected prior to acceptance. Below is a list to be used when receiving cylinders. If the answer to any of the questions is no, then the cylinder shall not be accepted:

- Is the valve cap in place?
- Upon removal of the cylinder cap, are the tamper seals (shrink wrap) and/or valve cap securely in place?
- Is the cylinder leak tight, giving off no odors, issuing no visible vapors or hissing sounds?
- Is the product identified by name?
- Do all forms of identification on the cylinder agree?
- Is the cylinder and valve free from damage in the form of dents, gouges, burn marks or corrosion?

Once accepted, a cylinder status tag (Figure 4) shall be affixed to the cylinder(s) and the cylinder(s) shall then be transported with care to prevent damage to the cylinder or the cylinder valve. The cylinder status tag will go on the valve. Cylinders should be segregated for empty and full. The cylinder cap must be kept tightly in place at all times except when in use. Transport the cylinder only with the supplier's truck. The cylinder must be adequately secured within the truck. Do not smoke while handling or transporting gas cylinders. Cylinders shall be moved by means of an approved hand truck or cart. Cylinders shall never be dragged, rolled, or slid even for short distances. (Hand movement is allowed between the cart and cabinet). Once the cylinders are at its designated delivery area, the cylinder(s) must be secured by a restraint system (i.e. strap, rack and chain) restraint system (i.e. strap, rack, chain).

At the discretion of the OEHS, cylinders with height: diameter aspect ratio equal to or less than 2.1:1 may be exempted from complying with Section 5. Dollied cylinders (DOT 4L and similar) that are used to contain and transport liquid nitrogen are exempted from requiring a gas cylinder cart for transport. Gas cylinders which are less than 25" in height (i.e. acetylene, MAP gas, oxygen, SCBA) are exempted from restraint requirements

provided that they are stored upright and in such a manner to prevent tipping over. SCBA cylinders may be stored on their sides provided that they are restrained from rolling. The cylinder valve cover must remain in place at all times during storage. If at any time a cylinder is found to be or suspected of leaking, refer to Section 9.

5. TRANSPORTING GAS CYLINDERS

Cylinder valve covers must remain in place at all times during transportation. Personnel transporting the cylinders are required to wear all of the appropriate protective equipment for the task and type of gas (see Table 2.0). Gas cylinder carts (specialized hand trucks) must be used for transport. Individuals may only handle one cart at a time and the carts shall be pushed ahead rather than pulled by the employee. The gas cylinder is not to be removed from its cart until the cylinder that it is replacing is leak checked and disconnected. If the disconnected cylinder is found to be leaking, STOP, refer to Section 9.

When removing Dichlorosilane cylinders from a shipping crate, the crate must be moved to the chemical dock for storage until the next Dichlorosilane cylinder is returned to that crate for shipping.

Gas cylinders which are less than 25" in height are exempted from requiring a gas cylinder cart for transport, provided that all the following conditions are met:

The person transporting the cylinder is wearing the appropriate PPE, as described in Table 2.

The cylinder is not handled in a rough manner, the cylinder is not too heavy for the transporter to easily lift, and only one cylinder is carried at a time, small welding gas cylinders, MAP gas cylinders, propane cylinders and refrigerant cylinders. If a cart is used to transport these cylinders, care needs to be taken to ensure that the cylinder is properly restrained in/on the cart. In the case of SCBA cylinders, a maximum of 2 SCBA cylinders may be carried at one time.

Due to the possibility of slow leaks, do not transport compressed gas cylinders in passenger elevators where freight elevators are available. If there are no freight elevators in the building, you and/or the person transporting the cylinder shall prohibit entry of passengers in the elevator with the cylinder. The person accompanying the cylinder must block the elevator doors at each floor between the start and final floors with a "Temporarily Out of Service" sign before placing the cylinder inside the elevator. Toxic, corrosive, oxygen displacing and depleting gases are forbidden to be transported in an elevator with personnel. Two people are required for transporting toxic or corrosive gases. One person is designated as the loader and the second person is designated as the unloader. The loader secures the cylinder in the elevator and pushes the button for

the delivery floor. He then steps out of the elevator and takes the stairs to the unloading floor. Prior to loading, the unloader is required to block the doors of the elevator between the start and final floors of the trip with “Temporarily Out of Service” signs and required to be in place wearing appropriate PPEs to receive the cylinder at its destination floor. If at any time a cylinder begins to tip over to fall, DO NOT ATTEMPT TO CATCH IT AS IT WILL RESULT IN SERIOUS INJURY. Let it fall.

6. DELIVERING CYLINDERS TO THE PURCHASER

Upon arrival at the delivery destination, the purchaser must receive the cylinder and sign the receipt. In the absence of the purchaser or a designated agent of the purchaser, the cylinder must be returned to the vendor’s storage facility and the purchaser will incur any associated delivery cost. A second attempt of delivery will be made upon request. The purchaser must ensure that the cylinder is safely secured and is appropriately labeled as full, in use, or empty. Never leave compressed gas cylinders outside the lab or in the corridor unattended.

7. INSTALLING OR REMOVING GAS CYLINDERS

Whenever installing or removing a gas cylinder containing toxic, corrosive, flammable, pyrophoric, or irritants the "Buddy System" must be used. Two people wearing PPE must be working together and one person must be located outside of the hazard area ready to respond in an emergency. Personnel installing or removing compressed gas cylinders (and the Buddy) are required to wear the appropriate PPE (see Table 2). Only personnel who have been trained on cylinder changes are qualified to do so.

Supervisors must provide correct installation instructions and training for installation. Precautions must be taken when installing a gas cylinder containing toxic, corrosive, flammable, pyrophoric or irritants, to restrict unauthorized access in the immediate area. Only employees performing the cylinder change are allowed in the restricted area. When performing a cylinder change in a laboratory that can be restricted by closing a door(s), the door(s) shall be closed and a sign posted on the door(s) that states that there is a "Danger Gas Cylinder Change in Progress Entrance is Not Permitted". When performing a cylinder change in an area which cannot be restricted by use of a door, the area must be roped off with caution tape and a sign indicating "Danger Gas Cylinder Change in Progress Entrance is Not Permitted." The size of the restricted area shall be based upon the judgment of the persons performing the cylinder change. Factors which are to be considered include: physical layout of the area, associated hazards of the gas, space needed to perform the cylinder change, and general room ventilation.

8. RETURNING THE USED CYLINDER

The user must leak test and replace its valve outlet cover and keep the used cylinder secured. The "IN SERVICE" section of the cylinder status tag shall be removed, so only the "EMPTY" section remains. The cylinder status tag shall be attached to the outside of the cylinder cap so that the tag is visible. Contact CRS to arrange the vendor pick up. While removing the EMPTY cylinder follow the same procedures as specified in Section 5.0 (TRANSPORTING COMPRESSED GAS CYLINDERS)

9. LEAKING GAS CYLINDERS

There should be no reason to transport a leaking cylinder into a UAH building. All cylinders shall be leak tested prior to removal from the delivery vehicle. If a cylinder is found to be leaking, attempt to relocate it into an exhausted gas cabinet or hood within the nearest room, if it is safe to do so. Wear the appropriate PPE as specified in Table 2.

If a leaking cylinder is detected during receipt. DO NOT ACCEPT. If it is safe to do so, locate the cylinder within an exhausted cabinet. If it is on a delivery vehicle, leave it on the vehicle. Only handle the cylinder if you have been trained in emergency response. If the gas is hazardous evaluate the threat posed by the risk and move and/or isolate the delivery truck to a safe distance. If this is not possible or the threat is immediately dangerous to health and safety evacuate to a safe distance away from the cylinder. Call 911, state your name, problem, gas type, location, and telephone number that you can be reached. Police will contact the appropriate emergency responders. Emergency

responders will stabilize the cylinder. Remain in the nearest safe or assembly area until the all-clear is provided by the Building Emergency Coordinator.

Upon discovery of a non-hazardous leaking gas cylinder the cylinder should be relocated near a fume hood or to a well-ventilated area, tagged as “Defective Cylinder” and the vendor contacted immediately for pick-up. In all cases the following departments must be notified upon discovery of a leaking cylinder:

- Office of Environmental Health & Safety
- Department chair, PI or supervisor

10. STORAGE AND HANDLING OF SPECIALTY GASES

A continuously mechanically ventilated hood or other continuously mechanically ventilated enclosure is required for the storage and use of lecture sized bottles of the following types of gases:

- Gases that have health and hazard ratings of 3 or 4.
- Gases that have a health hazard rating of 2 without physiological warning properties
- Pyrophoric gases.

At a minimum, a continuously mechanically ventilated gas cabinet is required for the above gases in cylinders that exceed a lecture-bottle size.

Maximum allowed usage and storage of compressed gases are set for laboratory work areas by Fire Codes and standards such as NFPA 45 and 55.

Class	Labs less than 500sq.ft	Labs greater than 500sq.ft
Liquefied flammable gas	1.2 scf	0.0018 ft ³ per sq.ft of lab space
Flammable gas	6.0 scf	0.012 ft ³ per sq.ft of lab space
Oxidizing gas	6.0 scf	0.012 ft ³ per sq.ft of lab space
Toxic gas	0.3 scf	0.0006 ft ³ per sq.ft of lab space
Corrosive gas	0.3 scf	0.0006 ft ³ per sq.ft of lab space

Examples of flammable gases include acetylene, hydrogen, methane etc. Follow the below guidelines while working with flammable gases:

1. Flammable gases must be stored in well-ventilated areas away from flammable liquids, combustible materials, oxidizers, open flames, sparks and other sources of heat or ignition. A distance of 20 feet or a noncombustible barrier having a fire rating of at least 1/2 hour is the minimum separation requirement.
2. All piping and equipment associated with flammable gas systems must be grounded and bonded.

3. Do not use flammable gases near ignition sources (except for welding gases).
4. Have a portable fire extinguisher (carbon dioxide or dry chemical type) readily available for fire emergencies.
5. Use spark-proof tools when working with, or on, a flammable compressed gas cylinder or system.
6. Post a warning sign (image) on access doors to areas where flammable gases are stored and used.
7. Manifold systems must be designed and constructed by trained personnel. Consultation with the gas supplier and EH&S before installing manifolds is required.
8. In an emergency involving a flammable gas leak, fire or explosion, leave the lab immediately. Do not attempt to extinguish burning gas if the flow of product cannot be shut off immediately and without risk.

Oxidizing gas: a gas that can support and accelerate combustion of other materials. Examples include oxygen, chlorine, fluorine, and nitrous oxide. Follow the below guidelines to work safely with oxidizer gases:

1. Oxidizers shall be stored separately from flammable gas containers or combustible materials. A distance of 20 feet or a noncombustible barrier at least 5 feet high having a fire rating of at least 1/2 hour is the minimum separation requirement.
2. Do not use oil or other hydrocarbon products to clean any equipment used with oxidizer gases.
3. Gauges and regulators for oxygen use should be labeled with a warning statement - "Oxygen - Use No Oil".

Toxic gases are those having a health hazard (HH) rating of 3 or 4, as defined by NFPA 704. The toxic effects of a substance can be either acute or chronic. Examples include arsine, phosphine, hydrogen sulfide, phosgene, and nitrous oxide. Follow the below guidelines while working with toxic gases:

1. Store all toxic gases with a health hazard rating of 3 or 4 in continuously, mechanically ventilated gas cabinets, or other exhausted enclosures. Exhausts must be vented directly to outside. Lecture bottles of toxic gases must be kept in fume hoods.
2. Review the Safety Data Sheets (SDS) to determine safety use guidelines.
3. Limit the work to under a fume hood only and avoid contact with skin and eyes
4. PPE must be used at all times while working with toxic gases
5. A gas detection system with visible and audible alarms to detect the presence of leaks, etc. must be installed for all toxic and highly toxic gases with hazard rating 3 or 4 (in compliance with NFPA 55 Guidelines). Signage for monitoring systems must be posted outside the door(image)
6. Emergency power must be provided for the gas cabinet exhaust, system shut offs, monitoring, alarms, and associated components
7. Gas detection and alarm system must be serviced and maintained according to manufacturer's guidelines
8. An emergency response procedure must be in place and everyone working in the area must be trained on the procedures.

9. Standard Operating Procedures (SOPs) shall be developed when using Highly Toxic gases. These SOPs shall include emergency response, and training for all involved employees
10. Only trained employees are allowed to work with highly toxic gases
11. Container Storage Areas must be clearly posted with the hazard signs (image)

Examples of corrosive gases: hydrogen bromide, hydrogen chloride and ammonia
Cylinders of corrosive or unstable gases should be returned to the vendor when the expiration date of the maximum retention period has reached. In the absence of this date, a 36-month interval should be used. In the case of hydrogen chloride and hydrogen fluoride the cylinder should be returned to the vendor after 2 years. Special precautions for the use of corrosive gases:

1. Use only under an approved fume hood.
2. Always use required PPE and avoid contact with skin and eyes
3. An emergency shower and eyewash must be installed within 50 feet where corrosive gases are used and the path to the fixture must not be hindered with obstructions.
4. An emergency response procedure must be in place and everyone working in the area must be trained on the procedures.
5. Post warning signs on the door.

Inert gases are non-combustible, non-flammable, and non-reactive to many materials. Examples include argon, helium, nitrogen, and neon. Precautions include:

1. Inert gases also displace oxygen and can produce a localized oxygen-deficient atmosphere, and therefore should not be used in enclosed or confined spaces without proper ventilation.
2. Always check for leaks and ensure equipment is in proper working order.

Cryogenic liquids rapidly freeze human tissue and cause many common materials to crack or fracture under stress. All cryogenic liquids vaporize generating large volumes of gases, and may create oxygen-deficient atmosphere. Examples include liquid nitrogen, and helium. For more information, refer to UAB Cryogenic Liquid Guidelines. Safety Precautions:

1. Use appropriate personal protective equipment when working with cryogenic liquids, including insulated gloves, goggles and a face shield.
2. Never allow an unprotected part of the body to touch uninsulated pipes or containers of cryogenic material. In the event of any skin contact with cryogenic liquids, do not rub the skin. Place the affected part in a warm water bath.
3. Store cylinders or dewars containing cryogenic liquids in well-ventilated areas. A leak or venting from the container could cause an oxygen deficient atmosphere

Table 1 – Gas Classification

GAS NAME	SYMBOL	TOXIC	CORROSIVE	OXIDIZER	PYROPHORIC	FLAMMABLE	CRYOGNIC	INERT
Acetylene	C ₂ H ₆					X		
Ammonia	NH ₃		X			X		
Argon	Ar							X
Arsine	AsH ₃	X				X		
Boron Trichloride	BCl ₃		X					
Boron Trifluoride	BF ₃		X					
Carbon Dioxide	CO ₂							X
Carbon Monoxide	CO	X				X		
Carbon Tetrafluoride	CF ₄							X
Chlorine	Cl ₂	X	X	X				
Chloroform	CHCl ₃	X						
Diborane	B ₂ H ₆	X			X	X		
Dichlorosilane	H ₂ SiCl ₂	X	X			X		
Difluoromethane	CH ₂ F ₂					X	X	
Disilane	Si ₂ H ₆				X	X		
Decacarbonylirhenium	Re-2(CO) ₁₀	X						
Dodecacarbonyltriruthenium	Ru ₃ (CO) ₁₂	X						
Ethylene	C ₂ H ₄					X	X	
Fluorine (5% in Helium)	F ₂	X	X					
Forming Gas (Hydrogen/Nitrogen mixture)	H ₂ N ₂							X
Freon 11 (Trichlorofluoromethane)	CCl ₃ F							X
Freon 12 (Dichlorodifluoromethane)	CCl ₂ F ₂							X
Freon 14 (Tetrafluoromethane)	CF ₄							X
Freon 22 (Chlorodifluoromethane)	CHClF ₂							X
Freon 23 (Trifluoromethane)	CHF ₃							X
Freon 113 (Trichlorotrifluoromethane)	CCl ₂ FCF ₃							X

Freon 115 (Chloropentafluoroethane)	C2ClF5								X
Freon 116 (Hexafluoroethane)	C2F6								X
Germane	GeH4	X			X	X			
Helium	He								X
Hexafluoro-1,3-butadiene	C4F6	X				X			
Hydrogen	H2					X			
Hydrogen Bromide	HBr	X	X						
Hydrogen Chloride	HCl		X						
Hydrogen Fluoride	HF		X						
Hydrogen Sulfide	H2S	X				X			
Liquid Nitrogen	LN2						X	X	
Liquid Oxygen	LO2			X			X		
Methane	CH4					X			
Methyl Chloride	CH3Cl					X			
Methylene Fluoride	CH2F2					X			
Methyl Fluoride	CH3F					X			
Methylsilane	CH3SiH3				X	X			
Neon	Ne								X
Nitrogen	N2								X
Nitrogen Trifluoride	NF3		X	X					
Nitrous Oxide	(NO)			X					X
Octafluorocyclobutane	C4F8	X							
Octafluorocyclopentene	C5F8	X							
Octane	C8H16					X			
Oxygen	O2			X					X
Ozone	O3	X	X	X					
PDE-100	CF4 & O2								X
Phosphine	PH3	X			X	X			
Propane	C3H8					X			
Silane	SiH4				X	X			
Silicon Tetrafluoride	SiF4		X						
Silicon Tetrachloride	SiCl4		X						
Sulfur Hexafluoride	SF6								X
Tetramethylcyclotetrasiloxane	C4H16O4Si4					X			
Trimethylsilane	C3H10Si					X			

Tungsten Hexafluoride	WF6	X	X					
Xenon	Xe							X

TABLE 2 – REQUIRED PPE

REQUIRED PPE	SHIPPING/RECEIVING	TRANSPORTING	INSTALLING
<u>Toxics</u> (OSHA permissible Exposure Limit (PEL) <500 ppb)	Safety glasses / steel-toes shoes / gloves, leather	Safety glasses / steel-toes shoes	SCBA or airline respirator w/SKA-PAK / steel-toes shoes / gloves, chemical-resistant / arm- guards / apron or chemical resistant smock.
<u>Corrosives</u>	Safety glasses / steel-toes shoes / gloves, leather	Safety glasses / steel-toes shoes	SCBA or airline respirator w/SKA-PAK / steel-toes shoes / gloves, chemical-resistant / arm-guards / apron or chemical resistant smock.
<u>Pyrophorics</u>	Safety glasses / steel-toes shoes / gloves, leather	Safety glasses / steel-toes shoes	SCBA or airline respirator w/SKA-PAK / steel-toes shoes / flame retardant gloves / Nomex flame resistant hood/ flame resistant coat
<u>Flammables</u>	Safety glasses / steel-toes shoes / gloves, leather	Safety glasses / steel-toes shoes	SCBA or airline respirator w/SKA-PAK / steel-toes shoes / flame retardant gloves / Nomex flame resistant hood/ flame resistant coat
<u>Cryogenics</u>	Safety glasses / steel-toes shoes / gloves, leather	Safety glasses / steel-toes shoes / gloves, cold-retardant	Safety glasses / steel-toes shoes / gloves, cold-retardant / apron, cold retardant / face-shield
<u>Inerts</u>	Safety glasses / steel-toes shoes / gloves, leather	Safety glasses / steel-toes shoes	Safety glasses / steel-toes shoes

APPENDIX 1 – CYLINDER TAGS

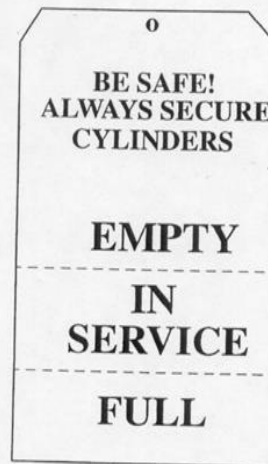


FIGURE 4

APPENDIX 2 - DEFECTIVE CYLINDER TAGS

CAUTION

Deliver Top Copy To Chemical Clerk

**DEFECTIVE
DO NOT USE**

Gas Type _____

Cylinder No. _____

Manufacturer _____

Cylinder Pressure _____

Defect Reason _____

Print Name _____

Date _____ Dept. No. _____

426 521

REFERENCES

1. Compressed Gas Association: (<http://cganet.com>) CGA P-1, 2000. Safe Handling of Compressed Gases in Containers
2. NFPA 45 Standard on Fire Protection for Laboratories Using Chemicals, 2015 Edition
3. NFPA 55 Standard for the Storage, Use, and Handling of Compressed Gases and Cryogenic Fluids in Portable and Stationary Containers, Cylinders, and Tanks, 2015 Edition
4. OSHA 29 CFR 1910.101 Compressed Gases – General Requirements (<http://www.osha.gov>)
5. DOT 49 CFR 173 Hazardous Materials Transportation (<http://hazmat.dot.gov/>)
6. UAB Compressed Gas Safety Guidelines (<https://www.uab.edu/ehs/images/docs/gen/usestoragecompressedgascylinders.pdf>)

Review The Director of the Office of Environmental Health and Safety (OEHS) will be responsible for the review of this policy every five years (or whenever circumstances require.)