

## **Safety Short: Use and Storage of Compressed Gas Cylinders at UAB**

### Use and Storage of Compressed Gas Cylinders

Compressed gas cylinders of all shapes and sizes are used all over campus for everything from welding to research. There are two types of hazards associated with the use, storage and handling of compressed gas cylinders: the chemical hazard associated with the cylinder contents (corrosive, toxic, flammable, etc.) and the physical hazards represented by the presence of a high pressure vessel in the laboratory.

Some cylinders can be pressurized up to 2,200 pounds per square inch (psi). If the cylinder is improperly secured and falls so that the valve is damaged, it can release all that pressure very suddenly through a hole no bigger than a pencil. This creates a very dangerous and destructive missile.

The Department of Occupational Health and Safety has revised the policy on the use and storage of compressed gas cylinders to be effective on May 31, 2005. The new policy does not permit vendors or UAB Shipping and Receiving to leave a cylinder in an area that does not have the proper securing device. This can be a wall fixture with a chain or strap, or a bench-top clamp with a chain or strap. Arrangements are being made for Shipping and Receiving to have the bench-top device available at the time a tank is delivered, however, the cost of the device is the responsibility of the laboratory or department ordering the compressed gas.

**If you order compressed gas cylinders**, please be courteous. Make arrangements for someone to be present to receive the delivery. The empty cylinder should already be disconnected, be secured and have the valve protection cap in place before the delivery personnel arrive. Vendors have been instructed not to leave any cylinders unsecured, not to connect or disconnect cylinders, and not to transport cylinders without valve protection caps. Cylinders left unsecured and unattended will not be exchanged.

A copy of the policy is attached. Please call OH&S at 934-2487 if you have any questions. Thank you for your cooperation.

Title: <b>USE AND STORAGE OF COMPRESSED GAS CYLINDERS</b>				
Effective Date:	2/07/2007	Reviewed:	1/2/2008	Revised:
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Approved: <i>Max Richard</i> <hr/> Max Richard, MPH, Assistant Vice President, Occupational Health and Safety				

## USE AND STORAGE OF COMPRESSED GAS CYLINDERS

It is the policy of UAB that special precautions be taken to assure the safe use and storage of compressed gas cylinders in all areas of campus and the Medical Center to minimize the risk of tanks falling or rolling in a manner that could cause the sudden release of high-pressure contents creating a high-speed projectile and the potential for injury and property damage.

This policy does not supersede existing federal, state or local applicable codes but is a supplement to clarify specific UAB requirements for safe handling and storage of compressed gas cylinders. Some hazardous materials may require additional precautions. This policy shall apply to all areas of the University where compressed gas cylinders are used or stored.

1. All compressed gas cylinders are required to be clearly labeled as to the contents and any associated hazards. Deteriorated or corroded labels must be replaced.
2. All cylinders without adequate labeling to identify contents shall be labeled as "Contents Unknown" and returned to supplier. Color coding is not a reliable method of determining contents.
3. Compressed gas cylinders shall be transported on wheeled carts equipped with straps or chains to secure the cylinder to the cart. Rolling or dragging cylinders is not recommended due to the possibility of damage to the cylinder and injury to personnel.
4. Cylinder valve protection caps shall remain in place at all times other than when cylinders are connected for use and secured.
5. All compressed gas cylinders must be secured upright and in place to prevent falling by using approved chains, straps, stands or carts. When delivering new cylinders, if the cylinder can not be safely secured using an approved method the delivery personnel SHALL NOT leave the cylinder.
6. Delivery personnel may not leave tanks unsecured at any time. Tanks must not be left unsecured at the delivery truck or on the truck lift gate, etc.
7. It is the responsibility of the users of the compressed gas cylinders to connect and disconnect cylinders for pickup and delivery. Delivery personnel shall not connect or disconnect cylinders.

8. Cylinders not required for current use should be stored outside of the work area in a protected, fenced, outdoor storage area. If stored indoors, cylinders should be stored in well ventilated areas away from sources of heat and ignition. The area must be secured from unauthorized access with appropriate signage on the outside to inform emergency personnel of potential hazards. Storage rooms must meet the Code requirements of *NFPA 55 Standard for Storage, Use and Handling of Compressed and Liquefied Gases in Portable Containers*.
9. Cylinders shall not be stored in corridors.
10. Automatic pressure regulators or reducing valves shall be used on all gas cylinders to maintain a uniform gas supply at the correct pressure. Only regulators listed by agencies such as *Underwriters Laboratories®* or Factory Mutual should be used. Use only the appropriate, designated regulator for the specific gas to be used.
11. Regulators for oxygen or fuel gas cylinders shall be equipped with a high pressure (cylinder pressure) and a low pressure (delivery pressure) gauge, a flow control valve, and a delivery adjustment screw.
12. Do not use oil around oxygen gauges, valves or connectors. Follow suppliers recommendations for cleaning of the cylinder outlet fittings and openings.
13. Close the cylinder valve when the equipment is not in use or unattended overnight.
14. Cylinders containing toxic or flammable gases must be stored in an approved storage area. The use of the smallest possible cylinder of toxic or flammable gases is recommended.
15. Cylinders containing oxidizing gases, such as oxygen and nitrous oxide, shall be stored separately from flammable gases or liquids in accordance with *NFPA 55 Standard for Storage, Use and Handling of Compressed and Liquefied Gases in Portable Containers*.
16. Empty cylinders shall be so identified and stored separately from full or partially full cylinders.
17. Compressed gas cylinders shall be used only for their intended purposes.