



Kutztown University Policy A&F-003

Compressed Gas Cylinders

A. Purpose

Defines the procedures for handling and storage of compressed gas cylinders.

B. Scope

This policy/procedure has University-wide applicability.

C. Definition(s)

Compressed Gas - gas under pressure, greater than that of the atmosphere. Such gases could be hazardous in nature and others may be inert or harmless.

Lecture Cylinder - a small cylinder of compressed gas, used in a laboratory to perform small scale experiments.

D. Policy & Procedure(s)

General Requirements:

The University shall only use cylinders meeting Department of Transportation regulations for the transportation and storage of compressed gases.

Compressed gas cylinders shall be delivered directly to the university storeroom, except those compressed gases used in the sciences and arts. Compressed gas cylinders will be delivered to the area that ordered the cylinder(s), by the storeroom; gases delivered for the sciences and arts shall be delivered directly to Boehm or Sharadin Art building.

No cylinders shall be recharged by University personnel. This policy applies to the transfer of gas from one cylinder to another.

The gas content of any cylinder may not be changed by University personnel. Also, no compressed gas containers may contain gases capable of combining chemically.

Policy A&F-003

It is illegal to change the stamped marks on any compressed gas cylinder.

Each cylinder shall be labeled according to the Department of Transportation regulations.

All compressed gases shall be used only for their intended purpose. Never use any cylinder that cannot be positively identified.

Specific Requirements

Compressed gas cylinders shall be inspected when they are received from the vendor. Cylinders are required to be marked and/or labeled according to DOT regulations, ensure all cylinders are marked.

No one is to deface or remove markings, labels, decals, tags or stencil marks which have been put on the cylinder by the vendor or manufacturer.

Compressed gas cylinders shall be stored with all valves closed and valve caps in place. Gases shall be stored safely, in accordance with best practices identified by the Compressed Gas Association (<http://www.cganet.com/>).

It is the responsibility of the user of the gas cylinder, to mark the cylinder appropriately when the cylinder is part-full or empty.

Compressed gas cylinders shall be protected from extremes of heat and cold and never allowed to be subjected to open flame.

Tampering with safety relief devices in valves on cylinders shall not be permitted.

No University personnel are permitted to attempt repair or alter cylinders, valves or safety relief devices.

Compressed gas cylinders shall not be used as a roller, support or for any other purpose, except to contain the content as received.

No cylinders are to be repainted by University personnel. All cylinders are to be adequately secured at all times to prevent them from falling.

Cylinders shall be stored in an upright position, unless specific application permits horizontal storage. Cylinders shall be secured at all times, either on a cart designed for such purpose or by utilizing an appropriate rack or chain fastened to a secure surface such as a wall.

Moving Cylinders

Policy A&F-003

Whenever removable caps are provided for valve protection, they shall be kept in place when the cylinder is not in use and being moved.

Cylinders shall never be lifted by the cap.

Cylinders shall never be dropped or permitted to come into violent contact with each other.

Slings, ropes or chains shall not be used to lift or handle any cylinder. Suitable "trucks" or cylinder carts shall be used to move cylinders.

Avoid dragging or sliding cylinders.

All gas cylinders, when being transported, shall be tightly secured to the transporting vehicle through use of chains, straps or other similar device.

Storage of Cylinders

All cylinders shall be stored in accordance with local, state and federal regulations and in accordance with authorities having jurisdiction at the University.

All cylinder storage areas shall be so posted, as to the types of gases being stored.

If gases of different types are being stored at the same location, the cylinders shall be grouped by the types of gas with the groups arranged to take into account the gases contained therein.

Example: Flammable gases should be separate from oxidizing gases.

Full and empty cylinders shall be stored separate. Full and empty cylinders shall be labeled as such. Empty cylinders shall be marked "MT".

No cylinder is to be stored near highly flammable substances such as gasoline, solvents, etc.

Cylinders may be stored in the open as long as safeguards have been provided to shield them from the elements.

Cylinders shall be stored in a location protected from tampering and vandalism. This may require the building of barriers.

Withdrawing Cylinder Content

Only experienced and trained personnel shall handle compressed gases.

Policy A&F-003

Valve caps shall remain in place until cylinder is used or connected to a manifold.

Approved pressure regulating devices shall be used in all cases when gas to be used in a system is to be lower than that in the cylinder.

At no time should connections between regulators and the cylinder be forced. If cylinder threads are damaged, do not use the cylinder and call the vendor for a replacement.

Regulators, gauges, hoses and other appliances used with a gas or particular gas must not be used on cylinders containing gases with a different chemical property.

Cylinder valves should be opened slowly. Wrenches or tools other than those provided by the vendor shall not be used. If a valve will not open easily, notify the vendor you wish to return it and request another cylinder.

Compressed gas shall not be used to remove dust or similar foreign bodies from clothing or any part of the body.

The user shall make sure all connections are tight to prevent leakage of the cylinder content.

Before removing a regulator, the cylinder valve must be closed and the pressure relieved from the regulator device.

Flammable Gas Restrictions

No cylinders are to be stored near highly flammable solvents, combustible waste material, unprotected electrical connections, gas flames, or other sources of ignition.

At no time shall a flame be used to detect a leak. A soapy water solution or approved leak detection solution shall be used.

Inside buildings, stored oxygen and flammable gas cylinders shall be separated by a minimum of twenty (20) feet, or a fire resistive wall shall be provided to a height no less than that of the cylinders.

At no time shall smoking be permitted in any area where flammable gas cylinders are stored. These areas are to be so posted "No Smoking".

General Conditions

Cylinders of compressed gas should be handled as high energy sources and therefore potential explosives.

Policy A&F-003

Rapid release of compressed gas will cause an unsecured hose to whip dangerously and also may build up a static electrical charge which could ignite a combustible gas.

Do not extinguish a flame involving compressed combustible gases, until the source of gas has been shut off; otherwise, it can re-ignite and cause an explosion.

Never use oil or grease on valves or regulator devices used on oxygen cylinders. It may cause an explosion.

Always use safety glasses when handling or using compressed gases.

E. References

American Chemical Society, Safety in Academic Chemistry Laboratories, August 15, 1979.

John Wiley & Son, Safe Storage of Laboratory Chemicals, David Pipitone, 1984.

Compressed Gas Association, 4221 Walney Road, 5th Floor, Chantilly VA 20151-2923 Phone: 703-788-2700 - Fax: 703-961-1831 Web: <http://www.cganet.com/>

NOTE: Any questions regarding the use, storage or handling of compressed gas cylinders should be directed to the Office of Environmental, Health and Safety, by phone at Extension 34050 or email - helms@kutztown.edu.

F. Effective Date

February, 1989

Amended 4/8/03 by EH&S Specialist

Revised 8/20/07

G. Last Review

August, 2009

August, 2010

August, 2012

August, 2013