Regulator Leak Testing, Maintenance, and Use

Regulator maintenance instructions:

- When not in use, store the regulator in a clean, dry, and safe place.
- Inspect and test at least every 6 months after first use.
- Have only qualified repairmen service, test, and clean the regulator. Brown university faculty, students, or staff are not authorized to make regulator repairs or to conduct regulator maintenance. If you have questions regarding regulator maintenance please contact EHS at 3-1737.
- The gauge lenses are made from Polycarbonate - Use only soapy water to clean, then wipe dry using soft cloths. DO NOT USE SOLVENTS.
- Use thread sealants that are compatible with the gas being used.

Procedures for attaching a pressure reducing regulator to a compressed gas cylinder:

- Turn the regulator's adjustment screw out (counter-clockwise) until it feels loose.
- Stand behind the cylinder with the valve outlet facing away from you.
- Observe the high-pressure gauge on the regulator from an angle, do not pressurize a gauge while looking directly at the glass or plastic faceplate.
- Open the valve handle on the compressed gas cylinder S-L-O-W-L-Y, until you hear the space between the cylinder valve gently fill the gas. (You can also watch the pressure rise on the high-pressure gauge. If you turned the regulator's adjustment screw back properly, there should be no gas flow out of the regulator or pressure rise on the low-pressure gauge.)
- If you are using a nontoxic, nonflammable gas, you can ensure purity by shutting off the cylinder valve and gently cracking the CGA connection at the cylinder valve. (Generally, three pressurizations with venting will ensure the interior of the connection has a clean, representative sample of the gas in the compressed gas cylinder. For toxic or flammable gases, you can purchase special venting regulators that can be safely vented to a fume hood or vented gas cabinet.)
When you are ready to use the compressed gas cylinder, fully open the cylinder valve until you feel it stop. Then, close it one-quarter turn. (A fully open valve that has no play in it can confuse a person who is checking to see if it is open. Many accidents have been recorded by people trying to open a previously fully opened valve by using a large wrench).

How to perform a functional test of a regulator and check for internal leaks before use:

- Close the regulator by turning the adjusting key counterclockwise.
- Close cylinder valve.
- Drain downstream line.
- The low pressure gauge will indicate zero. The cylinder (high pressure) gauge will read full pressure. Any pressure drop will indicate leakage. Repair before use, or replace with a properly functioning unit.
- A gauge should read zero when all the pressure is removed. If it does not, it may be damaged. Locate and correct the cause of the damage and replace the gauge.

Shutdown and removal of regulator from cylinder:

- Close downstream valves.
- Close supply valve on the cylinder or line.
- Bleed off gases - oxygen first - then close downstream valves.
- Turn pressure adjusting key counterclockwise until free.
- Remove regulator from cylinder.