



SAFE HANDLING OF COMPRESSED GAS CYLINDERS



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

Please click the next arrow below to continue...

NOTE: This course will take approximately 60 minutes to complete.





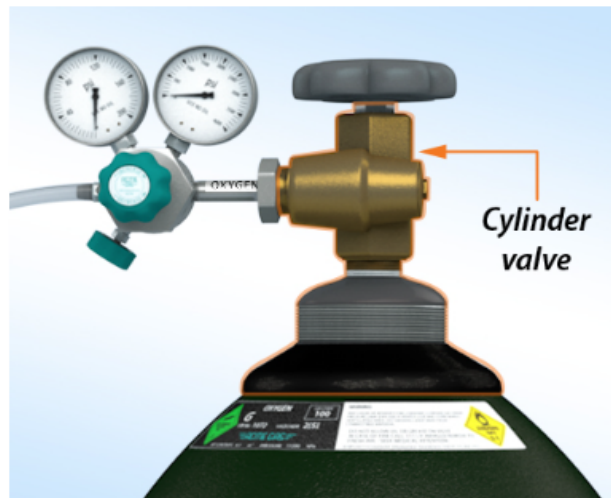
PHYSICAL HAZARDS AND CONTROL MEASURES

HIGH PRESSURE OF CONTENTS

A 5 ft tall cylinder can be pressurized to 2,500 psig (pounds per square inch gauge). The valve attached to the cylinder is relatively fragile compared with the cylinder. If the valve is broken off, the cylinder can become a dangerous projectile, exposing individuals to the contents and presenting an additional explosion risk.

The projectile cylinder can attain a speed over 30 mph in a fraction of a second with sufficient energy to propel the cylinder over $\frac{3}{4}$ of a mile in height.

This could result in property damage (cylinders can go through walls, floors, and ceilings), and injury to personnel from being struck by the cylinder.

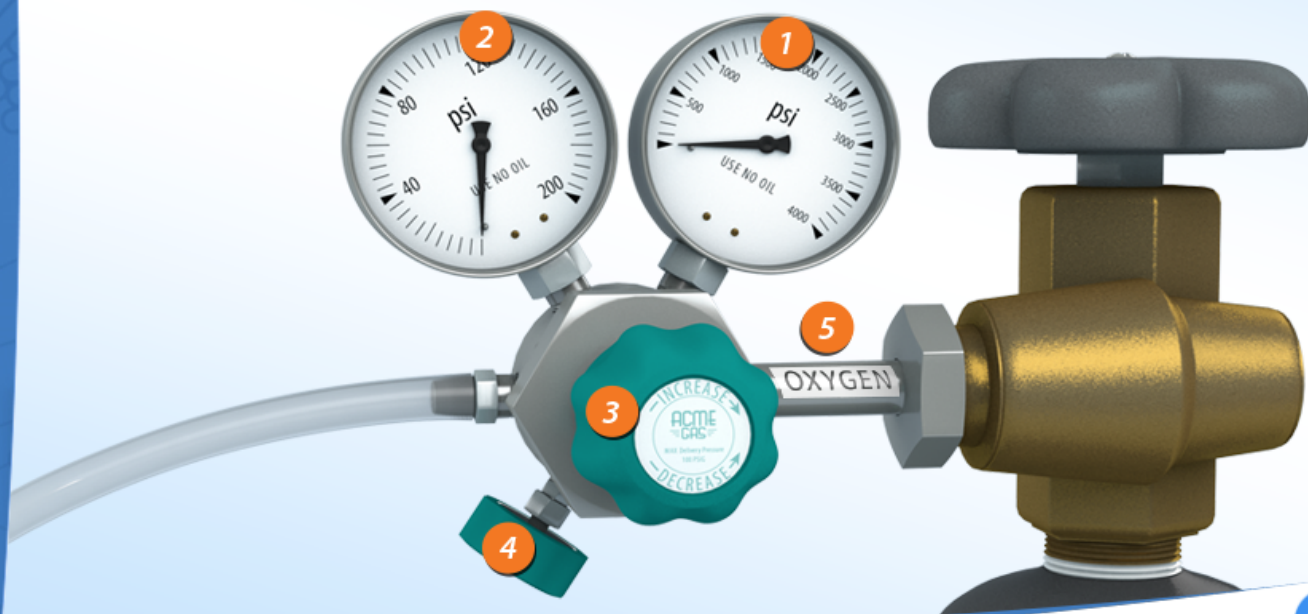




REGULATOR SAFETY

ANATOMY OF THE REGULATOR

A regulator is composed of the following components. Click on each element below.

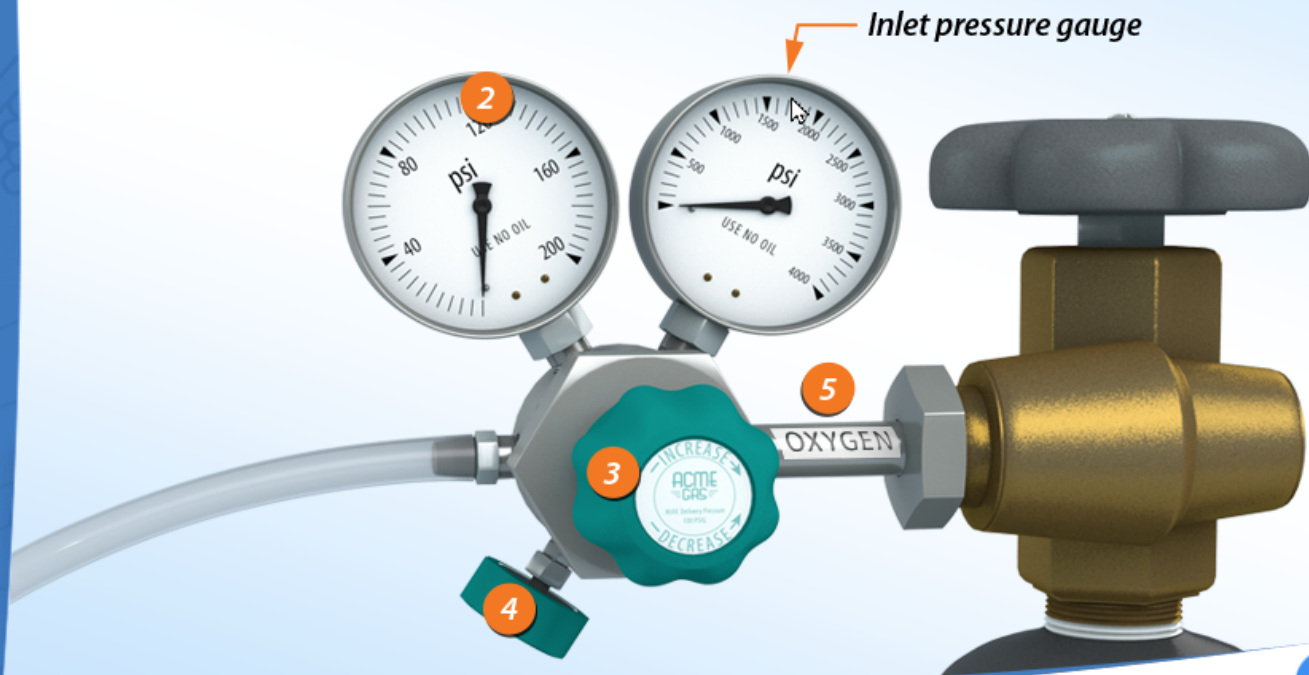




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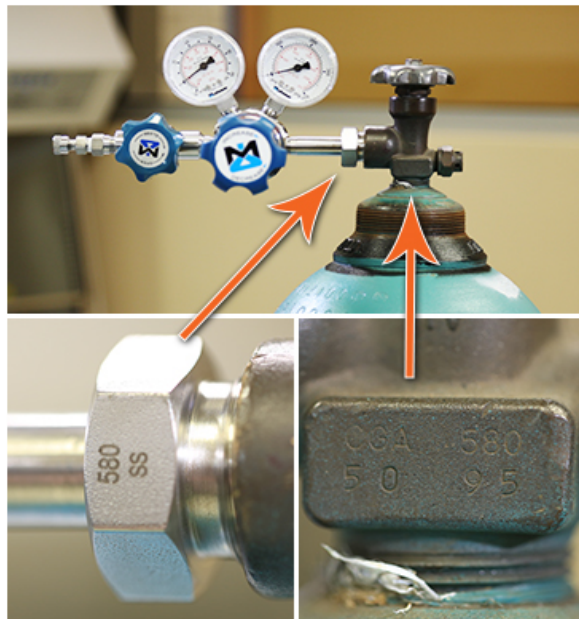
REGULATOR SAFETY

REGULATOR SELECTION

Selecting the correct type of regulator for the type of gas is critical to your safety.

The Compressed Gas Association (CGA) specifies the required fittings for connecting gas cylinders to regulators. Each connection has a numerical designation and a listing of gases with which it may be used. For example, the CGA fitting reference number CGA-580 is for non-flammable, non-oxidizing gases such as argon, helium, and nitrogen. CGA-590 is for compressed air, and CGA-540 is for oxygen.

To select the regulator for your laboratory work, match the CGA reference number on the regulator to the CGA reference number on the cylinder. The CGA reference number may not be on the cylinder label.



Click for
Jobaid

Click for [CGA fitting reference](#) jobaid



REGULATOR SAFETY

TEMPORARY SHUTDOWN

There are important safety recommendations for shutting down the regulator. There are two types of regulator shutdown: temporary and extended shutdown.

Temporarily shutdown your system when you will not be using it for thirty minutes or less. For temporary shutdown, simply close the regulator outlet flow valve.



Click for [shutting down the regulator](#) jobaid





REGULATOR SAFETY

EXTENDED SHUTDOWN

Click on each circle below



When you will not be using the system for a longer period of time (more than 30 minutes), follow the extended shutdown procedure.

For extended shutdown:

1. Slowly close the cylinder valve completely by hand unless a vendor supplied tool is provided. Contact your laboratory supervisor if you cannot close the valve. Shut down any additional gas supplies that may be supplying gas to the system.
2. Open the regulator outlet flow valve to drain the contents of the regulator through the system in use. Both regulator gauges should descend to zero.
3. Open the regulator control valve to release all pressure
4. Once the contents are drained, close the regulator control valve and the outlet valve.

Note: You must purge some hazardous gas systems via a ventilation mechanism to remove the excess gas from the laboratory. Refer to your laboratory SOP for this procedure.



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Thank you!