Safely Handle Compressed Gas Cylinders Cheat Sheet

by [deleted] via cheatography.com/2754/cs/16631/

Introduction

The Compressed Gas Association publishes an excellent reference3 as well as a large number of pamphlets on specific gases with detailed information. We will not attempt to cover all the different classes of compressed gases, as that is beyond the scope of this article. What follows are recommended, condensed, general safe-h-andling rules. We strongly encourage anyone who handles cylinders regularly to become very familiar with these.

The requirements for manufacture of cylinders are detailed in Title 49 Code of Federal Regulations, Part 178, Specifications for Packaging, referenced below for those who like to get into the details.2 But for our purpose, we just want to point out the important markings that all cylinders should have permanently stamped on the shoulder. These should show the Department of Transportation specification:

☐ the proper service pressure (in gauge pounds per square inch),
☐ the manufacturer's symbol and serial number,
☐ the owner's symbol, and, most important for safety,
☐ the date of the initial qualification test & any subsequent tests.
☐ Cylinders need to be retested every five years of service.
☐ In addition to the permanent markings, the cylinder should also have an identifying label on the shoulder indicating the cylinder's contents.

Source: http://www.labmanager.com/lab-health-and-safety/2016/0-6/how-to-safely-handle-compressed-gas-cylinders

Develop written safe-handling procedures

Depending on the specific gas used, safety procedures can become quite complex. For example, extremely hazardous gases may require dedicated ventilated storage cabinets, safety interlocks, and elaborate alarm systems.

Consult experts for assistance, if necessary.

When accepting full cylinders

Before accepting or receiving compressed gas cylinders, perform a quick inspection.

☐ All cylinders should be shipped with regulators removed and safety caps in place.
☐ Check cylinders for heavy rust or pitting and refuse any questi-onable ones.
☐ Check the certification date(s).
☐ Finally, make sure all cylinders have a durable label that cannot be easily removed and that clearly identifies the contents.

When moving cylinders - Transport with care.

Since vendors usually move cylinders from the supply truck to our storage area, we need to focus on moving them from the storage room directly to the laboratory. Please do not perform this haphaz-ardly or with a cavalier attitude.

☐ When transporting, ensure all cylinders are properly secured. Compressed gas cylinders should be transported only using wheeled carts designed for this purpose.
☐ Make sure safety caps are in place and cylinders are secured to the cart. Common methods include chains, straps, and specialty clamps.
☐ When moving multiple cylinders do not allow them to bang against or strike each other.
☐ Finally, become familiar with the route you will travel and be sure to remove all potential obstacles. If lift gates or ramps are used, enlist a spotter or helper before moving cylinders.

When using cylinders

☐ Double-check the contents to ensure the material is what you think it is and what the label says it is.
☐ Ensure all cylinders are secured in the work area before making connections. Common methods include chains, straps, and specialty clamps.
☐ Install a proper regulator when in use, and when not in use remove the regulator and install safety caps.
☐ Maintain adequate ventilation and temperature control for the use area.
☐ Finally, close the valve and purge or release the pressure in the system as appropriate and follow your written standard operating procedures at the end of each use.

Cylinder storage

☐ Designate a dedicated area for compressed gas cylinder storage, particularly in large facilities and those with high-volume use.
☐ Segregate cylinders according to fire codes and compatibility. It is important to store by compatibility with proper separation between hazard classes. Be sure to check local fire codes, which specify distances and quantities allowed.
☐ Secure cylinders to prevent tipping, falling, and knocking together.
☐ Ensure regulators are removed and safety caps are installed.
☐ Maintain good ventilation and temperature control.
☐ Lock and secure the area against theft and vandalism.
☐ Locate the cylinder storage area away from emergency exits.
☐ Finally, clearly mark all empty cylinders and segregate these from full cylinders. Empty cylinders should be moved and handled with the same care as full ones and returned to the

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