OSHA: Compressed Gas Safety Overview



Key Takeaways:

– Understanding all the hazards of cylinder dispensing and control components and contents
– Comprehending identification labels and markings on compressed gas cylinders
– Knowing the practices to safely use compressed gas cylinders and their components
– Recognizing safe methods of moving and storing compressed gas cylinders

Course Description

Compressed gas cylinders are especially hazardous, both because of the contents of the cylinders and gas pressure within the cylinders. A compromised cylinder raises the worries about how the container may behave and the potential harm of whatever chemical is stored inside.

Typically these cylinders are heavy and full of pressurized, dangerous gas – compressed gas cylinder work means being aware of an inherently dangerous situation, and understanding the complexities to mitigate for. Perhaps the most recognizable, feared scenario surrounding compressed gas tanks involves the rapid loss of pressurization, turning the vessel into a missile-like device with ballistic properties. This happens when the cylinder has ruptured in some fashion, which is why the federal Office of Compliance once referred to pressurized cylinders as “the loaded weapon in your workplace.”

To recognize the hazards of compressed gas cylinders, you must first recognize every specific part of the cylinder and understand how they work. Every compressed gas cylinder poses the risk of an explosion when the metal pressure vessel fails. The misuse or abuse of the cylinder or valve while it is under pressure is a common factor of that scenario. Other important factors to this scenario include the sudden release of pressure from the cylinder, as mentioned above.

There are also compressed gas cylinders that contain many types of gases. Many common gases that are used in pressure cylinders include those that are combustible, flammable and/or explosive, poisonous, or that are corrosive, reactive, or inert. Each compressed gas cylinders also could contain gases that have multiple of these characteristics. Crucially, everyone needs to know what is inside a cylinder, so accurate labeling, marking, and dating are each critical precautions for safety.

Here are some basics around working with compressed gas cylinders.

Safety comes first. Make sure only properly trained personnel with the needed personal protective equipment handle compressed gas cylinders because the release of these gases risks injury or death from fire, explosion or exposure. When using compressed gases, you must be trained in the safe use of pressurized systems and the materials they contain. It is also a good idea to be trained on all parts of your company’s Hazard Communication Program and in the hazards and precautions around the materials you are using.

Always read the label before working with a compressed gas cylinder. Take the time to understand what you’re working with. The gases in any compressed gas cylinder need to be clearly identified. Simply don’t accept a cylinder that does not legibly identify the contents; it’s not safe.

Gases may be identified through stencils or stamps on the cylinder. Their identification can also be on a label solidly attached to the cylinder. Tag systems available commercially are also useable for identification.

You cannot rely on the color of a cylinder for identification because cylinder colors may vary with supplier, and because these containers are reused. In addition, do not rely on the cylinder cap label because the caps are interchangeable. In the case that the cylinder label becomes unclear, mark it “contents unknown” and send the cylinder back to the supplier – it’s just safer that way. Convenience is not worth the problems for you when working with a vendor.

You should take two basic precautions before working with a compressed gas cylinder. First, work in a well-ventilated area. Second, equip the cylinder with the correct regulator; inspect the regulator and cylinder valves for grease, oil, dirt, or solvent, and either clean what you find or do not use the contaminated component.

It is important to remember oxygen is not compressed air. In no case should you use oxygen as a substitute for compressed air with pneumatic tools, in oil heating burners, to start internal combustion engines, to blow out pipelines, to dust off clothing or equipment, or to create pressure for ventilation. Never smoke around oxygen and fuel gases because a fire could result.

Take care to store compressed gas cylinders in a well-ventilated, cool, dry area. Make sure stored cylinders are protected from unauthorized access and are protected from the elements. Optimal storage locations are away from direct sunlight, where internal temperature will not exceed 125 degrees Fahrenheit.