



SIGNIFICANT ASPECT CONTROL SHEET

Significant Aspect	Storage of gas bottles (oxygen acetylene etc.)
Aspect owner and team	Foreman – Workshop and Site

Condition N = normal operation A = abnormal operation and E = emergency situation

Impact (6.1.2)	Cause	N	A	E
Emission	Puncture degradation or gas release to atmosphere due to faulty gas bottle mechanism, valve etc.	X		X

Legal Requirements (6.1.3) <i>link below.</i>
MIOSHA Construction Safety Standards: <ul style="list-style-type: none"> Rules 721, 722, 723 Rules 1850, 1851, 1852 Compressed Gas Association (CGA) Pamphlet P-1 National Fire Protection Association (NFPA) 55 (free, but log-in required)

Operational Control procedure for this aspect (8.1)
Controls <ol style="list-style-type: none"> 1. Compressed Gas Cylinders shall be handled and stored as required by their hazard class and MIOSHA Rules 721, 722, and 723. (See Appendix 1)

Emergency Planning procedure for this aspect (8.2)
Fire precautions <ol style="list-style-type: none"> 1. All combustibles and sources of ignition prohibited from close location to stored gas cylinders. 2. Vehicles transporting flammable compressed gas shall be adequately ventilated. 3. In the event of fire, call 911 or as directed by project, owner, or plant personnel.

EMS Records for this aspect

Site safety inspection reports specifically related to 8.1 and 8.2.

Toolbox talk/ aspect awareness and training record, hard copy site or departmental file as required.



Record of Revisions				
Issue No.	Date	Approver(s)	Description	Consequence
1				
2				
3				
4				
5				
6	6/2/20	Dave Jones	Placed in QEMS Wiki page. Add Change Control table with Consequence of Change and Approver column per QP01 - 6.1.10.2.	Wiki provides better way of communicating QEMS to employees. Meets change control requirements of ISO 9001, Section 6.3.



APPENDIX 1

DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS
DIRECTOR'S OFFICE
CONSTRUCTION SAFETY STANDARDS

Part 7 – Welding and Cutting

CYLINDERS

R 408.40721. Cylinders manufacturing, labeling, periodic testing, and marking.

Rule 721.

- (1) A cylinder shall be manufactured, labeled, and periodically tested in accordance with the specifications of the Federal Department of Transportation requirements published in 49 C.F.R. Part 178, Subpart C, "[Specification for Cylinders](#)," which are adopted by reference in R408.40709.
- (2) A cylinder shall be legibly marked with either the chemical or trade name. Marking shall be by stenciling, stamping, or labeling and shall not be tampered with or be readily removable. Whenever practical, the marking shall be located on the shoulder of the cylinder.

R 408.40722. Storage.

Rule 722.

- (1) An oxygen cylinder shall be stored not less than 20 feet from fuel gas cylinders or any highly combustible material, such as, but not limited to, oil, grease, excelsior, flammable gas, or a source of ignition, or shall be separated from the material by a noncombustible wall not less than 5 feet high which has a fire resistance rating of 30 minutes.
- (2) A cylinder shall be stored away from any source of heat more than 125 degrees Fahrenheit.
- (3) A cylinder, whether full or empty, in storage or during shipment, or with the regulator removed, shall have the valve closed and the cap connected in place if a cap is provided in the design, or shall be otherwise protected.
- (4) Where different gases are stored, they shall be grouped by types. Groupings shall separate the fuel gases from the oxidizing gases as specified in subrule (1) of this rule.
- (5) A storage area for cylinders shall be well ventilated.
- (6) A cylinder shall not be stored in basements or pits.
- (7) Where a liquid or gaseous oxygen system is used to supply gaseous oxygen for welding and cutting and the system has a storage capacity of more than 20,000 cubic feet, measured at 14.7 psia and 70 degrees Fahrenheit, including unconnected reserves at the site, the system shall be as prescribed in National Fire Protection Association Standard NFPA 50, "Standards for Bulk Oxygen Systems at Consumer Sites," 1974 edition, which is adopted by reference in R 408.40709.

R 408.40723. Cylinders generally.

Rule 723.

- (1) A chain, bracket, or other restraining device shall be used at all times to prevent cylinders from falling.
- (2) A cylinder shall stand valve end up at all times.
- (3) A cylinder shall not be dropped, dragged, rolled on its side, or struck violently.

Rule 723. (Continued)

- (4) When using a crane or hoisting device, a cylinder shall be lifted only by cradles or enclosed platforms. An electromagnet, hook, rope, or sling shall not be used.
- (5) A frozen or ice-clogged valve shall be thawed either by warm air or warm water and shall be dried before using. Boiling water or a flame shall not be used. Force shall not be applied to a valve or cap to loosen a cylinder frozen in place.
- (6) Gases shall not be mixed within a cylinder except by the supplier. Only the owner of the cylinder, if the owner is qualified, or a person trained, qualified, and authorized by the owner, shall refill a cylinder. The contents of a cylinder shall be used only for those purposes intended by the supplier.
- (7) A cylinder shall not be placed where it will become a part of the electrical circuit by accidental grounding or where it may be burned by an electric welding arc. A cylinder shall not be placed so that hot slag or flame can reach it unless the cylinder is protected by a fire-resistant shield. An electrode shall not be tapped against a cylinder to strike an arc.
- (8) A regulator, gauge, or hose shall not be interchangeable between fuel gas, oxidizing gas, or inert gas. Connections for compressed gas cylinders shall be as prescribed in American National Standard Institute Standard ANSI/ASA B57.1, 1965 edition, "Compressed Gas Cylinder Valve Outlet and Inlet Connections," which is adopted by reference in R 408.40709.
- (9) A cylinder valve shall be opened slightly for an instant and then closed before connecting to a regulator or manifold to clear the valve of dust and dirt. The employee opening the valve shall stand to one side of the outlet, not in front of it. The employee shall not open the valve near a source of ignition. Pressure to a regulator shall be introduced by slowly opening the cylinder valve. An acetylene cylinder valve shall only be opened enough to allow proper working pressure, but shall not be opened more than 1 1/2 turns of the spindle.
- (10) Acetylene shall not be utilized or piped, except in cylinder manifolds, at a pressure in excess of 15 psig.
- (11) A cylinder to which a regulator is attached shall not be moved unless secured to a hand or powered truck designed or equipped for this purpose.
- (12) A cylinder valve must be closed in any of the following situations:
 - a) When moving the cylinder.
 - b) When the work is finished or is left unattended during the lunch period, overnight, or any other prolonged period.
 - c) When the cylinder is empty.
 - d) When the regulator is removed.
- (13) A cylinder without fixed handwheels shall have keys, handles, or nonadjustable wrenches on valve stems while in service. A multiple cylinder installation shall require only 1 key or handle for each manifold. A hammer shall not be used to open a cylinder valve or loosen a cap.
- (14) A cylinder, whether full or empty, shall not be used as a roller or support.
- (15) A damaged or a leaking cylinder, a cylinder with a valve stuck open, or a valve in need of repair shall be taken outdoors away from sources of ignition, tagged with a warning sign, and the manufacturer or distributor notified. Complete removal of the stem from the cylinder valve shall be avoided.
- (16) Nothing shall be placed on top of the cylinder.