WAC 296-304-04009 Gas welding and cutting. (1) Transporting, moving and storing compressed gas cylinders.

(a) Valve protection caps must be in place and secure. Oil must not be used to lubricate protection caps.

(b) When cylinders are hoisted, they must be secured on a cradle, slingboard or pallet. They must not be hoisted by means of magnets or choker slings.

(c) Cylinders must be moved by tilting and rolling them on their bottom edges. They must not be intentionally dropped, struck, or permitted to strike each other violently.

(d) When cylinders are transported by vehicle, they must be secured in position.

(e) Valve protection caps must not be used for lifting cylinders from one vertical position to another. Bars must not be used under valves or valve protection caps to pry cylinders loose when frozen. Warm, not boiling, water must be used to thaw cylinders loose.

(f) Unless cylinders are firmly secured on a special carrier intended for this purpose, regulators must be removed and valve protection caps put in place before cylinders are moved.

(g) A suitable cylinder truck, chain, or other steadying device must be used to keep cylinders from being knocked over while in use.

(h) When work is finished, when cylinders are empty or when cylinders are moved at any time, the cylinder valves must be closed.

(i) Acetylene cylinders must be secured in an upright position at all times except, if necessary, for short periods of time while cylinders are actually being hoisted or carried.

(2) Placing cylinders.

(a) Cylinders must be kept far enough away from the actual welding or cutting operation so that sparks, hot slag or flame will not reach them. When this is impractical, fire resistant shields must be provided.

(b) Cylinders must be placed where they cannot become part of an electrical circuit. Electrodes must not be struck against a cylinder to strike an arc.

(c) Fuel gas cylinders must be placed with valve end up whenever they are in use. They must not be placed in a location where they would be subject to open flame, hot metal, or other sources of artificial heat.

(d) Cylinders containing oxygen or acetylene or other fuel gas must not be taken into confined spaces.

(3) Treatment of cylinders.

(a) Cylinders, whether full or empty, must not be used as rollers or supports.

(b) No person other than the gas supplier must attempt to mix gases in a cylinder. No one except the owner of the cylinder or person authorized by them must refill a cylinder. No one must use a cylinder's contents for purposes other than those intended by the supplier. Only cylinders bearing Interstate Commerce Commission identification and inspection markings must be used.

(c) No damaged or defective cylinder must be used.

(4) Use of fuel gas. You must thoroughly instruct employees in the safe use of fuel gas, as follows:

(a) Before connecting a regulator to a cylinder valve, the valve must be opened slightly and closed immediately. (This action is generally termed "cracking" and is intended to clear the valve of dust or dirt that might otherwise enter the regulator.) The person cracking the valve must stand to one side of the outlet, not in front of it.

The valve of a fuel gas cylinder must not be cracked where the gas would reach welding work, sparks, flame or other possible sources of ignition.

(b) The cylinder valve must always be opened slowly to prevent damage to the regulator. To permit quick closing, valves on fuel gas cylinders must not be opened more than 1 1/2 turns. When a special wrench is required, it must be left in position on the stem of the valve while the cylinder is in use so that the fuel gas flow can be shut off quickly in case of emergency. In the case of a manifolded or coupled cylinders, at least one such wrench must always be available for immediate use. Nothing must be placed on top of a fuel gas cylinder, when in use, which may damage the safety device or interfere with the quick closing of the valve.

(c) Fuel gas must not be used from cylinders through torches or other devices which are equipped with shut-off valves without reducing the pressure through a suitable regulator attached to the cylinder valve or manifold.

(d) Before a regulator is removed from a cylinder valve, the cylinder valve must always be closed and the gas released from the regulator.

(e) If, when the valve on a fuel gas cylinder is opened, there is found to be a leak around the valve stem, the valve must be closed and the gland nut tightened. If this action does not stop the leak, the use of the cylinder must be discontinued, and it must be properly tagged and removed from the vessel. In the event that fuel gas should leak from the cylinder valve rather than from the valve stem and the gas cannot be shut off, the cylinder must be properly tagged and removed from the vessel. If a regulator attached to a cylinder valve will effectively stop a leak through the valve seat the cylinder need not be removed from the vessel.

(f) If a leak should develop at a fuse plug or other safety device, the cylinder must be removed from the vessel.

(5) Fuel gas and oxygen manifolds.

(a) Fuel gas and oxygen manifolds must bear the name of the substance they contain in letters at least one (1) inch high which must either be painted on the manifold or on a sign permanently attached to it.

(b) Fuel gas and oxygen manifolds must be placed in safe and accessible locations in the open air. They must not be located within enclosed spaces.

(c) Manifold hose connections, including both ends of the supply hose that lead to the manifold, must be such that the hose cannot be interchanged between fuel gas and oxygen manifolds and supply header connections. Adapters must not be used to permit the interchange of hose. Hose connections must be kept free of grease and oil.

(d) When not in use, manifold and header hose connections must be capped.

(e) Nothing must be placed on top of a manifold, when in use, which will damage the manifold or interfere with the quick closing of the valves.

(6) Hose.

(a) Fuel gas hose and oxygen hose must be easily distinguishable from each other. The contrast may be made by different colors or by surface characteristics readily distinguishable by the sense of touch. Oxygen and fuel gas hoses must not be interchangeable. A single hose having more than one gas passage, a wall failure of which would permit the flow of one gas into the other gas passage, must not be used.

(b) When parallel sections of oxygen and fuel gas hose are taped together, not more than 4 inches out of 8 inches must be covered by tape.

(c) All hose carrying acetylene, oxygen, natural or manufactured fuel gas, or any gas or substance which may ignite or enter into combustion or be in any way harmful to employees, must be inspected at the beginning of each shift. Defective hoses must be removed from service.

(d) Hose which has been subjected to flashback or which shows evidence of severe wear or damage must be tested to twice the normal pressure to which it is subject, but in no case less than two hundred psi. Defective hose or hose in doubtful condition must not be used.

(e) Hose couplings must be of the type that cannot be unlocked or disconnected by means of a straight pull without rotary motion.

(f) Boxes used for the stowage of gas hose must be ventilated.

(7) Torches.

(a) Clogged torch tip openings must be cleaned with suitable cleaning wires, drills or other devices designed for such purpose.

(b) Torches must be inspected at the beginning of each shift for leaking shut-off valves, hose couplings, and tip connections. Defective torches must not be used.

(c) Torches must be lighted by friction lighters or other approved devices, and not by matches or from hot work.

(8) Pressure regulators. Oxygen and fuel gas pressure regulators including their related gauges must be in proper working order while in use.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060. WSR 17-18-075, § 296-304-04009, filed 9/5/17, effective 10/6/17; Order 74-25, § 296-304-04009, filed 5/7/74.]