9000.04	Compressed Gas Standard Operating Procedure	

This procedure is for internal use only and does not enlarge an employee's civil liability in any way. The procedure should not be construed as creating a higher duty of care, in an evidentiary sense, with respect to third party civil claims against employees. A violation of this procedure, if proven, can only form the basis of a complaint by this department for non-judicial administrative action in accordance with the laws governing employee discipline.

Related Policies:

Applicable HI Statutes:

I. PURPOSE

Hawai'i Fire Department (HFD) recognizes that the presence and use of compressed gasses in the workplace can involve safety or health hazards. To reduce risks and injuries associated with compressed gas accidents, proper storage, care and handling of compressed gas cylinders must be recognized, adhered to, and corrected in a timely fashion. Each employee is responsible for his or her own safety and health, while HFD will provide as safe a workplace as possible while in compliance with all applicable laws and regulations.

II. REFERENCES

- National Fire Protection Association (NFPA) Code 99: Health Care Facilities Code
- NFPA Code 55: Compressed Gasses and Cryogenic Fluids Code
- NFPA. (2018). (rep.). *Medical Gas Cylinder Storage* (TR, Vol. USFA, Ser. 107)
- FDA publicresources.org (2000, October). Hidden Danger: Oxygen Regulator Fires. https://youtu.be/u6tGX5nqKGo
- Pollak, Andrew N. (2021). Emergency Care and Transportation of the Sick and Injured (12th ed.). American Academy of Orthopedic Surgeons.
- Compressed Gas Association Regulations (GCA P-1-1965)
- Airgas Cylinder Identification General Information

III. APPLICABILITY

These procedures shall apply to all uniformed personnel within the Hawai'i Fire Department.

IV. POLICY

- HFD will provide compressed gas tanks and cylinders that are in a safe and in-service condition
- HFD will utilize external vendors to provide compressed gas supplies and will not perform on-sight refilling
- HFD will comply with compressed gas storage, signage, and labeling requirements
- HFD personnel shall inspect, handle, store and use compressed gas tanks or cylinders following procedures established in this policy (Hereafter the use of "tank(s)" shall refer to a compressed tank or cylinder regardless of size)
- HFD personnel will take immediate action to correct identified compressed gas hazards in a timely and safe fashion

V. PROCEDURES

A. Handling
- Never handle compressed tanks, regulators, valves, or fittings with oily or greasy hands, gloves, or rags.
- Petroleum-based products (including oil, grease, etc.) or readily flammable materials (including tape) are not permitted to be stored or come in contact with compressed gas tanks, regulators, valves or fittings.
- Prior to applying any regulator, perform a visual inspection of a tank to ensure there are no obvious cracks, dents, gouges, etc. or damage to the tank that may reasonably compromise the reliability or strength of the tank.
- Inspect the hydrostatic test date located on the tank to verify test date is current and valid. Tanks without a current test shall not be used and returned to HFD EMS Branch.
- Tanks shall not be stood on their base and left unsupported.
- Prior to applying any regulators, valves or fittings to any tank, the tank valve should be slightly opened and closed **SLOWLY** to clear any particles of dust, dirt, debris or contaminants away from the valve opening.
- Use of approved yoke washer, "O-ring" seal gaskets, regulators, valves or fittings are to be utilized. DO NOT use more than 1 yoke washer or "O" ring in combination at the same time.
- When applying or changing regulators, personnel should use caution when tightening to avoid over-tightening, cross-threading, or in a manner that could cause seal damage.
- Any tank, cylinder, regulator, valve, gasket, hose or fitting that appears damaged or defective should be immediately taken out of service or as soon as practical and returned to HFD EMS Branch.
- If extra or replacement yoke washers are needed, contact HFD EMS Branch.

B. Storage
- Compressed gas should be stored in a cool, dry, clean place, and protected from extreme temperatures greater than 130 degrees.
- Compressed gas storage areas must be protected from the likelihood of being struck by vehicles.
- Compressed gas must be stored at least 20 feet from any heat source that includes combustibles or flammables.
- All full or empty tanks shall be secured properly to protect and prevent against falling with security chains, straps or other securing devices.
- When in storage or not in use HFD personnel must ensure tank safety caps are in place on tanks that are designated to accept a safety cap over the valve assembly.
- In all situations, the tank head and regulator are to be protected.
- Size K oxygen tanks shall be stored against the wall and secured with fastening devices (chains, straps, etc.) in a designated area that prevents them from falling.
- For HFD vehicles that carry compressed gas, tanks need to be secured in a manner that they cannot become projectiles in case of a sudden vehicle stop.

They can be secured in a protective case and stored in a cabinet or secured with seat belts, straps or pins securing it properly and labeled full or empty.

- Tanks that are "in service" but not currently "in use", should be turned off and purged of residual oxygen in the system,
- Compressed gas tanks should be used in the order that they are received to rotate them

C. Labels and Signage
   - Compressed gas storage areas shall comply with NFPA 99 regulations. Minimum should include:
     - Type of gas being stored (i.e. oxygen)
     - Warning sign(s) indicated the presence of compress gas tanks
     - No smoking signs
     - Signage that reminds personnel to utilize chains, straps or other storage/security devices.

D. Warning
   - *All tanks shall be treated as if they were full regardless of regulator readings*
   - *All tanks present a risk of rupture or other mishap if the valve is damaged*