

Gaseous Chlorine

Introduction: Chlorine is a greenish-yellow, non-flammable gas about 2.5 times heavier than air. Chlorine is toxic, irritating to the skin, eyes, nose, and mucous membranes and can be fatal. Following are guidelines for assuring the safe handling of chlorine:

- **Know** escape plans from areas where there might be a chlorine emission. Remember to move uphill and upwind.
- **Never** store combustible or flammable materials near chlorine containers. Never apply heat directly to a chlorine container.
- **Never** attempt to weld an "empty" chlorine pipeline without purging it with air first. If there is a leak, at least two people should make the repairs.
- **Keep** breathing apparatus stored outside the chlorine area. Spraying water on leaking containers will make the leak worse.
- **When** entering an equipment area, take shallow breaths until you are sure that there is not a chlorine gas leak.
- **Rely** on chlorination equipment to dispose of chlorine gas. Chlorine containers should be secured by chains or chocks
- **Eyewashes, showers, oxygen,** and self-contained breathing apparatus or canister type respirators should be available.

For 100 and 150 Pound Chlorine Cylinders:

- **Never** expose a cylinder to heat.
- **Never** tamper with a fusible plug.
- **Always** keep the hood in place, except when the cylinder is being used.
- **Never** lift a cylinder by its hood.
- **Never** connect more than one cylinder discharging liquid to a common manifold.
- **Never** drop or knock over a cylinder.

Safety rules for ton chlorine containers:

- **Never** tamper with a fusible plug.
- **Do not** move with equipment rated under two-ton capacity.
- **Do not** connect liquid valves of two or more containers to a common manifold.
- **Never** expose a container to excessive heat.
- **Store** containers in separate, marked areas protected from heat sources.
- **Do not** use or store containers where fumes could spread to other areas.

Health Precautions: Only handle chlorine in well-ventilated areas with access to eyewash, showers, oxygen, and approved respirator.

Personal Protective Equipment: Full face shield or non-ventilated chemical goggles, chemically resistant rubber gloves, apron or jacket, long sleeves and trousers. Do not wear open shoes or sneakers.

Health Effect: Low concentrations may cause burning in the eyes, nose and throat; can cause redness in the face; sneezing, and coughing. High concentrations can cause tightness in the throat and chest, leading to pulmonary edema. 1000 PPM is rapidly fatal.

Inhalation: Remove victim from contaminated area. Keep victim warm in a reclined position with head and shoulders elevated. Give artificial respiration, if necessary. Administer oxygen as soon as possible. Call the paramedics, an ambulance, or a physician immediately.

Skin Contact: Shower the victim. Remove all contaminated clothing. Wash affected area with soap and water.

Eye Contact: Irrigate the eyes with water for 15 minutes, holding the eyelids wide apart. Call the paramedics, an ambulance, or a physician immediately. Irrigate the eyes for a second 15-minute period if paramedics or physician is not immediately available.

Changing Cylinder Safety: Turn valve stem clockwise to close valve. Allow float in flow meter to drop to zero. Indicator on front of gas feeder should indicate no gas. Wait approximately one minute. Float should remain at zero. If float flutters or does not drop to zero, make certain valve is closed before proceeding. Turn off ejector and make certain the gas supply indicator stays in the "No Gas" position by turning the "Reset" knob. If the indicator resets, then either the gas pressure is still present, or there is an air leak in the system. Refer to instruction manual if an air leak is evident. Loosen gas feeder yoke screw. Remove gas feeder from valve. Replace gas cylinder. Remove old lead gasket. Inspect and clean mating surfaces of gas feeder and valve. Install new unused lead gasket. Position gas feeder on new gas cylinder and tighten yoke screw. Do not tighten excessively. Crack open gas cylinder valve and reclose quickly. Check for leaks. If leaks exist, turn on the ejector and repeat the previous steps taken to correct the leaks. Open the gas cylinder valve approximately ¼ turn only, and leave the cylinder wrench on the valve. Turn on the ejector.

Conclusion: Chlorine need not be a serious hazard when employees are properly trained in its handling. Always follow these safety guidelines.

NOTICE: These guidelines do not supersede local, state, or federal regulations and must not be construed as a substitute for, or legal interpretation of, any OSHA regulations.

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