

# TOOLBOX TALKS

A Quality Service Contractors Publication for Members

July 2015



## Chlorine Safety

Exposure to concentrated amounts of chlorine can be toxic and cause irritation to the skin, eyes, nose and mucous membranes. Chlorine need not be a serious hazard if the people working with it are properly trained in its handling. The following are some guidelines for assuring the safe handling of chlorine.

1. Provide proper instruction and supervision to workers responsible for chlorine equipment.
2. Provide proper and approved self-contained breathing apparatus in areas where chlorine is stored or used.
3. Keep all breathing apparatus stored outside the chlorine area.
4. Prepare escape plans from areas where there might be a chlorine emission. Remember to move uphill and upwind.
5. Never store combustible or flammable materials near chlorine containers.
6. Never apply heat directly to a chlorine container.
7. Never attempt to weld an "empty" chlorine pipe line without purging it with air first.
8. Install safety showers and eye wash stations near chlorine equipment.
9. If there is a leak, at least two persons should make the repairs.
10. Never spray water on leaking containers; it can make the leak worse.
11. When entering an equipment area, take shallow breaths until you are sure that there is not a chlorine gas leak.
12. Rely upon chlorination equipment for direct disposal of chlorine gas.
13. Secure chlorine containers with chains, chocks, or trunnions.

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### Safety Rules for Chlorine Cylinders and Containers

#### 100 and 150 Pound Cylinders

1. Never expose a cylinder to heat.
2. Never tamper with a fusible plug.
3. Always keep the hood in place, except when the cylinder is being used.
4. Never lift a cylinder by its hood.
5. Do not connect two or more cylinders discharging liquid valves of two or more containers to a common manifold.
6. Never drop or knock over a cylinder
7. Do not move filled containers with equipment rated under two-ton capacity.

#### Ton Containers

1. Never expose a container to excessive heat.
2. Never tamper with a fusible plug.
3. Do not move filled ton containers with equipment rated under two-ton capacity.
4. Do not connect liquid valves of two or more containers to a common manifold.
5. Store containers in separately marked areas protected from heat sources.
6. Do not use or store containers near air intakes or basements where fumes could spread to other areas.

### Chlorine Data Sheet Description

Chlorine gas is greenish-yellow, non-flammable, and about 2.5 times heavier than air.

### Hazards

Chlorine can be toxic and cause irritation to skin, eyes, nose, and mucous membranes. Liquid chlorine can cause severe irritation and blistering of skin.



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### Health Precautions

Use chlorine only in well ventilated areas. Eyewashes, showers, and oxygen should be available. Self-contained breathing apparatus or canister type respirators should also be accessible.

### Personal Protective Clothing

When using chlorine, personal protective clothing should include:

1. full face shield or non-ventilated chemical goggles;
2. chemically resistant rubber gloves;
3. apron or jacket; and
4. long sleeves and trousers.
5. open shoes and sneakers should be prohibited when handling chlorine.

### Heath Effect

**Low concentrations:** burning in the eyes, nose, and throat, redness in the face, sneezing and coughing.

**High concentrations:** tightness in throat and chest-pulmonary edema. 1000 Parts Per Million (PPM) is rapidly fatal.

### First Aid Inhalation

1. Remove victim from contaminated area.
2. Keep victim warm in a reclined position with head and shoulders elevated.
3. Give artificial respiration, if necessary.
4. Give oxygen as soon as possible.
5. Call emergency personnel or a physician immediately.

### Skin Contact

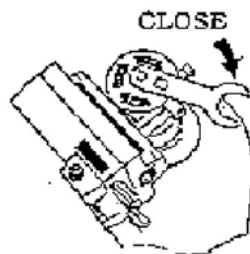
- Shower victim, removing all contaminated clothing.
- Was affected area with soap and water.

### Eye Contact

- Irrigate eyes with water for 15 minutes, holding eye lids wide apart.
- Call emergency personnel or a physician immediately.
- Irrigate for second 15-minute period if emergency personnel or physician is not immediately available.

### Instructions to hang near Chlorinator, Sulfonator or Ammoniator Cylinders

- Turn valve stem clockwise to close cylinder 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, valve may not be closed tightly. 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, either gas pressure is still present or there is an air leak in the system. Refer to the instruction manual if an air leak is evident.



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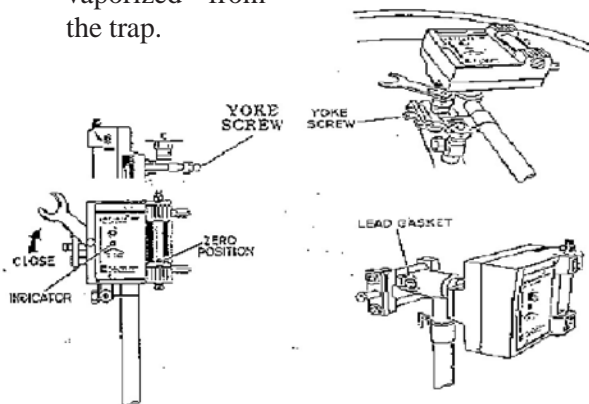
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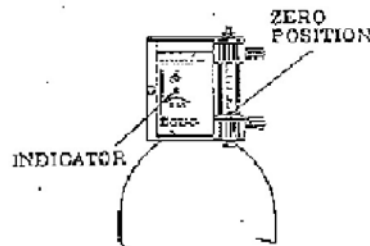
- Loosen gas feeder yoke screw. Remove gas feeder from valve.
- Replace gas cylinder
- Remove old lead gasket. Inspect and clean mating surfaces of gas feeder and valve. Install new unused lead gasket.
- Position gas feeder on new gas cylinder and tighten yoke screw. Do not tighten excessively.
- Crack open gas cylinder valve and re-close quickly. Check for leaks. If leaks exist turn on ejector and repeat steps number (2), (3), and (4) and correct leaks.
- *Leak test solutions: Chlorinator/Sulfonator-Ammonia, Ammoniator-Bleach.*
- Open gas cylinder valve approximately 1/4 turn only and leave cylinder wrench valve.
- Turn on ejector.

### Instructions To Hang Near Changing Ton Containers

- Turn valve stem clockwise to close ton contain valve.  
Allow float in flow meter to drop to zero. Indicator on front of gas feeder should show red indicating *no gas*. All liquid must be vaporized from the trap.



- Wait approximately one minute. Float should remain at zero. If float flutter or does not drop to zero, valve may not be closed tightly. 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, either gas pressure is still present or there is an air leak in the system. Refer to the instruction manual if an air leak is evident.
- Loosen gas feeder yoke screw. Remove gas feeder from valve.
- Replace ton container, make sure the full container is oriented with the valves in the vertical position, one valve above the other.
- 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.
- Be sure heater is plugged in and operating.



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