

# Working with compressed gas

Canadian Centre for Occupational  
Health and safety

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# Cylinder safety devices

- Safety- or Pressure-relief valves
    - Part of cylinder. Valve opens if cylinder pressure exceeds safety limit. Gas released until pressure drops to safety limit
  - Rupture discs
    - Burst at certain pressure, releasing gas. Cannot be reclosed
  - Fusible plugs
    - Temperature, not pressure, activates it. Used when heat could initiate explosive chemical reaction.
- \*Not all cylinders have safety device. Toxic gas ones don't. When involved in fire, area must be evacuated

# Substitution

- Contact chemical supplier to find out about substitutes
- E.g. propylene, propane can be substituted for acetylene as fuel gas for cutting and welding

# What to do when receiving cylinders

- Inspect. Ensure they are undamaged, properly labelled.
- Check if giving off odors, visible fumes or hissing sound
- Check if cylinder was last tested within the required time (usually 5 or 10 years, some as low as 3 or as long as 12 yrs)
- Check if cylinder labels are intact, match other markings on cylinder

# What to do when receiving cylinders (cont'd)

- Leave valve cap secure until to be used
- Inspect valve by looking through ports in the valve cap
- Do not accept dirty, rusted or damaged valves and fixtures

# How to transport cylinders

- Always transport with valve caps in place
- Pulling cylinders by valve caps, rolling them on sides or dragging or sliding can cause damage
- Rolling on their bottom edge (“milk churning”) maybe acceptable for short distances

# How to transport cylinders (cont'd)

- Never lift with magnets or chain or wire rope slings
- Transport with specially built hand carts
- Transport device should have way of securing cylinders

# Storage

- Well-ventilated and dry
- Fire-resistant, supply with suitable firefighting equipment (e.g. sprinklers)
- Away from electrical circuits and ignition sources (e.g. sparks, flames, hot surfaces)
- Labeled with suitable warning signs
- Store full cylinders separately from empty ones



# Storage Temperature

- Store in dry, cool areas, out of direct sunlight, away from steam pipes, boilers or other heat sources
- Follow supplier's recommendations. To prevent pressure buildup, keep temperature below 125F (52C), but above -20F (-29C).

# Using and discharging cylinders

- Remove dirt or rust. Grit, dirt, oil, or dirty water can cause gas leaks
- Never open a damaged valve
- Do not lubricate cylinder valves, fittings, regulator threads, or apply jointing compounds and tape. Use only lubricants and sealants recommended by supplier

# Using and discharging cylinders (cont'd)

- Open valves slowly. Rapid opening result in rapid compression of gas in high pressure passages leading to the seats
  - Lead to temperatures high enough to burn out the regulator and valve seats
- Close cylinder valve when not in use. Do not stop flow by only backing off the regulator