Filling of CO_2 Cylinders

Catalina Cylinders recommends that trained personnel fill CO_2 cylinders. CGA pamphlets G-6; *Carbon Dioxide* and G-6.3*; Carbon Dioxide Cylinder Filling and Handling Procedures* and 49CFR 173.304; *Charging of Cylinders with Liquefied Compressed Gas* should be referenced, or included in, the training process and the following items incorporated into any CO_2 cylinder filling procedure.

1. Perform an external inspection of the cylinder and valve as noted in Catalina Cylinders' technical support document, *Inspection of CO_2 Cylinders Prior to Each Fill*.
2. Never fill a damaged cylinder, a cylinder with a damaged valve, or a cylinder with a valve safety relief device that appears to be altered.
3. Never fill or "top off" a partially filled CO_2 cylinder.
4. Position the cylinder to be emptied of its remaining contents. If the cylinder is not equipped with a dip tube the cylinder should be inverted. Rotate the cylinder so the valve port is facing away from all personnel and equipment.
5. After moving or positioning the cylinder for emptying, allow a few minutes for any residual CO_2 charge to settle before emptying the cylinder. Slowly open the valve, emptying any remaining charge and other contents (i.e. moisture, contamination, corrosion, etc.) from the cylinder. Close the valve.
6. If any content other than the CO_2 charge, including any unusual odor, is discharged from the cylinder when emptying the cylinder, the cylinder should not be filled and should be subjected to further inspection and followed by internal cleaning.
7. Place the cylinder on a calibrated scale. The scale should be able to measure the weight of the cylinder to 3 significant digits (i.e. XX.X lbs. or X.XX lbs. depending on the size of the cylinder).
8. Secure the connection (filling) hose to the valve.
9. Record the weight of the connected empty cylinder to 3 significant digits.
10. Add this weight to the CO_2 charge weight marked on the crown of the cylinder. This will be the target fill weight at the end of the fill.
11. Open the valve slowly and fill the cylinder slow enough to accurately monitor the scale as to not exceed the target fill weight.
12. Stop the fill by closing the cylinder valve when the cylinder on the scale has reached the target fill weight.
13. With the hose still connected, verify the final weight is the same as the target fill weight.
14. If the cylinder has been overfilled, discharge the overfill immediately – do not wait.

Never overfill a CO_2 cylinder. Never fill a CO_2 cylinder with a charge greater than the target fill weight marked on the crown of the cylinder. Overfilling a CO_2 cylinder, even by a slight amount, can cause the safety release device to actuate and discharge CO_2 unexpectedly. Unexpected discharge of CO_2 gas through the safety relief device has been known to cause accidents, sometimes leading to personnel injury or property damage.

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