

Controls on Filling Carbon Dioxide Cylinder Packages

EIGA members have recently reported several incidents with carbon dioxide cylinder packages, including both single cylinders and bundles of cylinders. The bursting of the cylinder is caused in most cases due to overfilling, in particular for small cylinder sizes, typically less than 5 litres.

In many cases it could be demonstrated that by following one or more of the practices listed below the burst of a cylinder can be avoided:

- Check the stamped tare weight and do not fill a cylinder where the measured tare weight deviates from the stamped tare weight;
- Use of valves with a burst disc with the correct bursting pressure (test pressure of the cylinder);
- Where a bursting disk is not fitted with a valve, there shall be additional procedures in place to ensure no overfilling, this can include control of filling temperature to ensure the temperature of the carbon dioxide is above 0 C;
- Following the filling ratios [kg/l] as listed in P200 of the ADR to ensure the correct filling weight is not exceeded;
- Use of calibrated filling scale with the lowest tolerances;
- Guarantee a shut off closing mechanism when the cylinder is filled to the defined tare weight to avoid further carbon dioxide being filled into the cylinder;
- It is recommended to have a random verification of the weight of filled cylinders; and
- No storage of the filled cylinder in direct sunlight.

Additional guidance can be found in EIGA Doc 64 *Use of Residual Valves*, Doc 67 *CO₂ cylinders at users' premises* and Doc 91 *Use of Pressure Relief Devices for Gas Cylinders*.

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