



B&R Compliance Associates LLC
Regulatory Update Bulletin

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**Content Verification (Specified Settled Pressure)
What can reasonably be expected?**

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Issue

There are a number of problems in obtaining an accurate measurement of cylinder pressure when filling cylinders with non-liquefied gases. This article describes the variations that can occur during the filling process. In addition it identifies the variability in the specified settled pressure that fillers can reasonably expect.

Factors that cause variations in achieving a specified settled pressure

- Personnel – training, experience, and diligence
- Methods – rate of filling, thermodynamic factors, temperature measurement techniques, filling procedures, etc.
- Materials – gas supply, cylinder, and cylinder valve
- Equipment – filling equipment and measuring devices
- Environment – temperature, ventilation, and altitude

Current Industry Position

The compressed gas industry follows U.S. Department of Transportation (DOT) and Transport Canada (TC) regulations that specify filling requirements for compressed gases. Industry practice is to fill compressed gas cylinders to achieve a specified settle pressure that does not exceed the authorized service pressure at reference temperature in accordance with DOT and TC regulations.

Over the years, the compressed gas industry has developed fill processes to address the factors listed above. Variations in specified settle pressure due to these factors can be compensated for but not entirely eliminated.

Cylinder filling regulations require that a cylinder' authorized service pressure not be exceeded; however, filling cylinders with a non-liquefied gas to a settled pressure that is \pm 3% of the authorized service pressure is safe.

It is incumbent upon each filling facility to implement quality assurance systems for assuring the authorized service pressure is achieved during the filling process.

For more information on this subject, or any other medical gases compliance issue please contact Ron Ball at (317) 297-8518, or ron.ball@brcompliance.com.