

**NIST Handbook 133, “Checking the Net Content of Packaged Goods,” 2018 edition****Chapter 3. Test Procedures – For Packages Labeled by Volume**

Editorial correction to step 5.

**b. Test Procedure for Cylinders Labeled by Volume**

1. Follow Section 2.3.1. “Define the Inspection Lot.” Use a “Category A” sampling plan in the inspection; select a random sample.
2. Determine the temperature of the cylinders in the sample. Place the thermometer approximately halfway up a cylinder in contact with the outside surface. Take the temperature of three cylinders selected at random and use the average temperature of the three values.
3. Using the appropriate pressure gage, measure the pressure of each cylinder in the sample.
4. Determine the cylinder nominal capacity from cylinder data tables or from the manufacturer. (These tables must be obtained in advance of testing.)
5. **The SCF/CF volume of compressed gases (e.g., oxygen, argon, nitrogen, helium, or hydrogen) shall be determined using NIST Standard Reference Database 23 “Reference Fluid Thermodynamic and Transport Properties Database” (REFPROP). (See [www.nist.gov/std/srd/REFPROP](http://www.nist.gov/std/srd/REFPROP).) (Note: Weights and measures officials should contact the NIST Office of Weights and Measures at (301) 975-4004 or [owm@nist.gov](mailto:owm@nist.gov) for access to the database.)** ~~Using NIST Technical Note 1079 “Tables of Industrial Gas Container Contents and Density for Oxygen, Argon, Nitrogen, Helium, and Hydrogen” (available on-line at [65Twww.nist.gov/pml/wmd/65T](http://65Twww.nist.gov/pml/wmd/65T)), determine the value (SCF/CF) from the content tables at the temperature and pressure of the cylinder under test.~~
6. Multiply the cylinder nominal capacity by the value (SCF/CF) obtained from the content tables. This is the actual net quantity of gas.
7. Subtract the labeled net quantity from the actual net quantity to determine the error.