



Designation: D3070 – 18

Standard Practice for Rapid Pressure Determination of Pressurized Products¹

This standard is issued under the fixed designation D3070; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers rapid pressure determination for pressurized products.

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Significance and Use

2.1 This practice is a rapid technique for quality control, formula development, etc., where speed is necessary and a high degree of accuracy is not essential.

3. Apparatus

3.1 *Pressure Gage*, stainless steel construction, with a range from 0 to 160 psi (0 to 1.1 MPa), and preferably with one number graduations. The gage should be attached to a 1/8-in. Hoke needle valve, with all of the connections leak proof. Attach an adaptor to the needle valve to fit the aerosol valves on the cans to be tested (Fig. 1).

NOTE 1—Take care that there are no leaks in the gage apparatus. This can be checked by occasionally making a measurement with the attachment under water.

3.1.1 Care should be taken to clean the gage daily by repeated injection and venting of an approved cleaning solution

containing a bacteriostat. After cleaning, rinse the gage and apparatus with clean water and purge them with the prepressurizing gas prior to use.

3.1.2 For nonfood products, the gage apparatus may be cleaned between product uses by forcing suitable solvents into the gage, then venting it. This should be repeated several times until the gage is free of contamination.

NOTE 2—When changing from chlorinated solvents to water-base products, and vice versa, the above is particularly important to avoid possible contamination.

3.1.3 Use a separate gage apparatus for food products only.

3.2 *Water Bath*, constant-temperature, accurate to at least $\pm 1^\circ\text{F}$ ($\pm 0.5^\circ\text{C}$).

4. Reagents

4.1 *Pressurizing Gas*:

4.1.1 For nonfood products the following are recommended:

4.1.1.1 *Carbon Dioxide* (CO_2).

4.1.1.2 *Compressed Air*.

4.1.1.3 *Nitrogen* (N_2).

4.1.2 For food products the following are recommended:

4.1.2.1 *Carbon Dioxide* (CO_2).

4.1.2.2 *Nitrogen* (N_2).

4.1.2.3 *Nitrous Oxide* (N_2O).

NOTE 3—Suitable pressurizing gases for food products should be limited to those that are not liquefiable at the temperatures and pressures used. Compressed air is not recommended because of its oxygen content.

5. Sampling

5.1 Normal production or laboratory samples shall be used for this test.

6. Calibration

6.1 A suitable standard check, accurate to ± 0.5 psi (3.4 kPa), should be set up in the laboratory for quick calibration of the test gage.

6.2 Gages in constant use should be checked approximately once each week, or at any time after the gage has been subjected to accidental shock, such as dropping.

¹ This practice is under the jurisdiction of ASTM Committee D10 on Packaging and is the direct responsibility of Subcommittee D10.33 on Aerosol Products. Originally developed by the Chemical Specialties Manufacturers Assn.

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