Designation: D3094 – 00 (Reapproved 2005)

Standard Test Method for Seepage Rate of Aerosol Products[1]

This standard is issued under the fixed designation D3094; 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 test method covers the determination of approximate mass loss due to valve seepage rate[2] of aerosol products by the collection and measurement of gases seeping through the valve and into a special eudiometer tube, over a relatively short time period.

1.2 It can be shown that the average refrigeration-filled aerosol product seeps to the extent of approximately 3.0 mL when the corresponding mass loss is 0.10 oz (2.9 cm^3)/year. This figure is partially based on air content and is subject to variations according to filling conditions. This test method is not considered dependable when applied to pressure-filled, unpurged aerosol products.

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 and health practices and determine the applicability of regulatory limitations prior to use.*

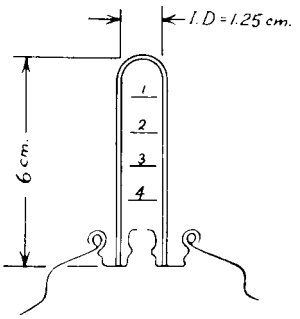
2. Significance and Use

2.1 This test method affords a more rapid answer to the ever-present problem of mass loss during storage. It is of particular value in determining the effectiveness of valve stake and clinch seal elastomers in contact with new formulations. This test method may also be used to evaluate new valves with standard mixtures.

3. Apparatus

3.1 *Bath*, constant-temperature, equipped with a thermoregulator sufficient to maintain water at 80 ± 2°F (26 ± 1°C). The tank should be of sufficient proportions to accommodate the necessary number of test specimens in an upright position, so that each specimen is surrounded by approximately 1 in. (25 mm) of water.

3.2 *Eudiometer Tubes* (Fig. 1 and Fig. 2), custom-ordered or hand-made, with an internal volume of 5.0 mL net (allowing for any part of the valve that might protrude into the tube). It is convenient to calibrate in 1, 2, and 3-mL divisions.



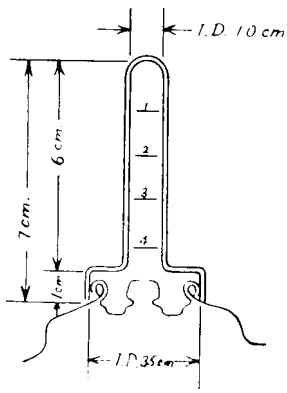
NOTE 1—The dimensions are approximate, and subject to the geometry of the valve.

FIG. 1 Suggested Tube for Evaluation of Valve and Staked Seals

NOTE 1—For tests involving many dispensers, small test tubes and vials have been successfully substituted for the tubes in Fig. 1 and Fig. 2.

4. Test Specimens

4.1 Test specimens shall be prepared in accordance with production methods wherever possible, making certain that the clinch diameter and the depth of clinch below the curl of the mounting cup are in agreement with the specifications. New



NOTE 1—The dimensions are approximate, and subject to the geometry of the valve.

FIG. 2 Suggested Tube for Evaluation of Valve, and Staked and Clinched Seals

[1] This test method is under the jurisdiction of ASTM Committee D10 on Packaging and is the direct responsibility of Subcommittee D10.33 on Mechanical Dispensers. This test method was originally developed by the Chemical Specialties Manufacturers Assn.

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[2] Data on the theoretical development of seepage concepts has been filed at ASTM Headquarters as RR:D-10-1000.