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Standard Practice for Storage Testing of Aerosol Products¹

This standard is issued under the fixed designation D 3090; 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 (€) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

€¹ NOTE—Section 8 was revised editorially in September 1997.

1. Scope

1.1 This practice covers the storage testing of aerosol products.

1.2 There are two major types of storage tests that may be performed on aerosol products:

1.2.1 *Live Storage Tests*, where the valves are actuated and the determinations are made at relatively frequent intervals (the purpose being to simulate consumer use of aerosol dispensers), and

1.2.2 *Dead Storage Tests*, performed to simulate warehouse storage conditions when shelf-life information is sought.

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.* For specific precautionary statements, see Section 4.

2. Significance and Use

2.1 Aerosol products are subjected to storage tests to ascertain the shelf-life of the complete package, and to evaluate the degree of suitability of the valve and container components for their intended uses.

2.2 It is impractical to promulgate a standard procedure for conducting storage tests, since variations will be necessitated by differences in the ultimate objective (for example, the primary interest of one test may be concerned with container suitability or shelf-life of a new product in an existing package, while another test may be concerned with valve evaluation).

2.3 It follows that storage testing must be flexible enough to accommodate the small procedural changes required. Thus, this recommended practice will only set forth those principles to be observed in establishing a definite procedure, in order to allow the individual operator the prerogative of adapting these to satisfy his particular requirements.

3. General Requirements

3.1 Before making any aerosol storage tests, the following should be borne in mind:

3.1.1 Sufficient test specimens should be available to replace any that fail during the test, and to make it possible to extend the storage period if desired.

3.1.2 The test schedule and procedure should be well planned. Only if this is followed, can there be any assurance that important developments have not been missed, and that the results will correlate with other storage test results.

3.1.3 The tests should be performed by competent personnel well qualified in the field. Since most of the data is not obtained by direct measurement and is therefore not entirely objective in nature, it is highly desirable to have the same operator perform all of the tests on a given specimen. This, in addition to 3.1.2, will do much to minimize the effect of the human element.

3.2 Before any specimens are committed to storage, the following should apply:

3.2.1 All pertinent background information concerning the problem should be assembled, so that the test specimen can be intelligently set up.

3.2.2 Tests should be conducted to eliminate defective containers and valves (the frequency of such defects should be recorded). To make this segregation possible, pressure determinations, hot bath, vial leakage, and spray tests should be made on each filled dispenser.

3.2.3 Conditions of filling and handling should as closely as possible approximate those that would be encountered commercially.

4. Safety Precautions

4.1 Aerosol storage tests involve a container, valve, or product of unknown compatibility and performance. For this reason, serious accidents could occur. The operator should employ gloves, safety shield, safety glasses, and apparatus with proper controls.

4.2 If, during a test, container perforations or signs of advanced corrosion are found, or if the product, dispensers, or valves otherwise become unmerchantable, the entire lot of specimens should be destroyed. Continued testing would waste

¹ This practice is under the jurisdiction of ASTM Committee D10 on Packaging and is the direct responsibility of Subcommittee D10.33 on Mechanical Dispensers. This practice was originally developed by the Chemical Specialties Manufacturers Association.

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