



Designation: C224 – 78(Reapproved 2009)

## Standard Practice for Sampling Glass Containers<sup>1</sup>

This standard is issued under the fixed designation C224; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This practice covers the sampling of glass containers (for example, bottles, jars, and so forth) for performing such tests as mechanical strength, dimensions, and other measurable characteristics, and for visual examination.

1.2 *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. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

C147 Test Methods for Internal Pressure Strength of Glass Containers

C149 Test Method for Thermal Shock Resistance of Glass Containers

2.2 *Military Standard:*

MIL-STD 105 E Sampling Procedures and Tables for Inspection by Attributes<sup>3</sup>

### 3. Classification

3.1 For sampling purposes the pertinent characteristics of glass containers are classified as follows:

3.1.1 Grade of annealing (relative annealing stress).

3.1.2 Hydrostatic pressure.

3.1.3 Thermal shock strength.

3.1.4 Visible characteristics readily graded or judged by visual examination, namely, deformities.

3.1.5 Mold characteristics of a structural character (as distinguished from appearance) where the component part or

unit of the manufacturing process that controls the characteristic is the mold or mold cavity (as distinguished from the furnace, feeder, or lehr), namely, capacity, dimensions.

### 4. Number of Specimens

4.1 Unless otherwise specified, the minimum number of specimens for the various classifications of Section 3 is given in Table 1.

### 5. Procedure

5.1 *Continuous Process*—Sampling from a continuous manufacturing process shall be in accordance with a time schedule. For those characteristics affected by the degree of annealing, take the samples from the exit of the lehr (or from packed cases whose continuity in point of time is known). For those characteristics not affected by the degree of annealing, quickly cooled samples may be taken ahead of the lehr.

5.2 *Lot*—Select the sample from a lot by a procedure consistent with the purpose of the sample. For some purposes, the sample may come from the lot as a whole; for other purposes, it may be necessary to sort the lot before sampling. Such sorting may be for the purpose of segregating lots based on style, color, size, manufacturer, or mold designation, as examples. Take the specimens composing the sample according to the principles of random sampling; for instance, do not take all the specimens from the same side or location of the lot. If the containers are packed in cases, remove the cases from the lot at random. Take specimens for evaluation, in turn, at random from these cases. The minimum number of cases to be selected shall be determined in accordance with MIL-STD 105 E (see 5.2.1) or that number required to provide the number of individual containers to be evaluated (see 5.2.2), whichever quantity represents the larger number of cases. If more than one independent evaluation can be performed on the same container, no additional sample is required for the multiple evaluation.

5.2.1 *Minimum Number of Cases Determined in Accordance with MIL-STD*—Determine the number of cases in the lot and use this number as “lot size” for Table 1 of MIL-STD 105 E. Find the corresponding sample size code letter (normally Column II) of Table 1. Using the first and second columns of Table II-A, find the sample size corresponding to this code letter. This sample size will designate the number of cases to be selected at random from the lot. As far as possible,

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee C14 on Glass and Glass Products and is the direct responsibility of Subcommittee C14.07 on Glass Containers.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, <http://www.dodssp.daps.mil>.