



Designation: D345 – 02 (Reapproved 2010)

# Standard Test Method for Sampling and Testing Calcium Chloride for Roads and Structural Applications<sup>1</sup>

This standard is issued under the fixed designation D345; 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.

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

## 1. Scope

1.1 This test method covers sampling of solid and liquid forms of calcium chloride, and sieve analysis of solid form calcium chloride. Referee procedures for chemical analysis are covered in Test Methods E449.

1.2 A rapid method of chemical analysis is shown in Appendix X1. This rapid method is not to be used for determining chemical compliance of calcium chloride with specification requirements, such as in Specification D98.

1.3 The values stated in SI units are to be regarded as the standard.

1.4 *This standard does not purport to address 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>

- C136 Test Method for Sieve Analysis of Fine and Coarse Aggregates
- D98 Specification for Calcium Chloride
- D140 Practice for Sampling Bituminous Materials
- E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves
- E449 Test Methods for Analysis of Calcium Chloride

## 3. Significance and Use

3.1 This test method describes procedures to be used for sampling calcium chloride, and for determining grading of

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.31 on Calcium and Sodium Chlorides and Other Deicing Materials.

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

solid forms of calcium chloride for comparison with the requirements of a specification, such as Specification D98.

## 4. Apparatus

4.1 *Sampling Equipment:*

4.1.1 *Sampling Tube*—Metal tube, approximately 25 to 40 mm (1 to 1½ in.) diameter, and of appropriate length (500 mm (20 in.), minimum) for sampling solid-form calcium chloride.

4.1.2 *Sampling Bottle*—Sampling devices such as described in Practice D140 for sampling liquid calcium chloride.

4.1.3 *Sampling Containers*—Glass bottles or semi-rigid plastic containers with covers with airtight seal for protecting the samples from time of sampling until the samples are used in testing. The containers for solid-form calcium chloride shall have wide mouths or openings for solid-form calcium chloride.

4.2 *Sieves*, with the size openings required for the test, shall conform to the requirements of Specification E11.

4.3 *Balances*, having a capacity of at least 250 g, shall be readable to 0.1 g, and shall be accurate to 0.1 g or 0.1 % of the test load, whichever is greater, at any point within the range of use.

## 5. Sampling

5.1 *Solid-Form Calcium Chloride:*

5.1.1 *Package Shipments*—Select not less than three containers at random from the shipment. For drums, sample each of the containers by scraping aside the top layer to a depth of approximately 25 mm (1 in.) and taking 0.5 kg (1 lb) samples by means of a sampling tube or other method that will ensure a sample that is representative of a cross section of the materials in the container to a depth of at least 150 mm (6 in.). For bags, take 0.5 kg (1 lb) samples by means of a sampling tube penetrating at least 300 mm (1 ft) into the bag. For small containers with capacity not more than 5 kg (10 lb), use the entire contents of the container.

5.1.2 *Bulk Shipments*—Select samples from at least three locations in the shipment. Scrape aside the top layer to a depth of approximately 300 mm (1 ft). Using a sampling tube, obtain a sample extending from the cleared surface to at least 50 % of the depth of the material in the container, or a depth of