



Standard Test Methods for Waste Glass as a Raw Material for Glass Manufacturing¹

This standard is issued under the fixed designation E688; 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 These test methods give the various tests for assessing the compliance of glass recovered from wastes for use as a raw material for glass manufacturing.

1.2 The test methods combine visual examinations with both chemical and physical tests. A flow chart of the testing sequence is included in this test method (see Fig. 1).

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.3.1 *Exception*—The values given in parentheses are for information only.

1.4 *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 hazard statements, see 5.3, 5.5, Section 6, 11.1.1 and 12.3.2.

2. Referenced Documents

2.1 *ASTM Standards:*²

C169 Test Methods for Chemical Analysis of Soda-Lime and Borosilicate Glass

C566 Test Method for Total Evaporable Moisture Content of Aggregate by Drying

C702 Practice for Reducing Samples of Aggregate to Testing Size

C729 Test Method for Density of Glass by the Sink-Float Comparator

D1068 Test Methods for Iron in Water

D1193 Specification for Reagent Water

D2576 Method of Test for Metals in Water and Waste Water

by Atomic Absorption Spectrophotometry (Withdrawn 1979)³

D4129 Test Method for Total and Organic Carbon in Water by High Temperature Oxidation and by Coulometric Detection

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

E105 Practice for Probability Sampling of Materials

E122 Practice for Calculating Sample Size to Estimate, With Specified Precision, the Average for a Characteristic of a Lot or Process

3. Significance and Use

3.1 These test methods provide a means for determining whether waste glass is suitable for use as a raw material for glass manufacturing.

4. Apparatus

4.1 The following various items of equipment required may be purchased from most laboratory supply houses:

4.1.1 *Aspirator.*

4.1.2 *Balance.*

4.1.3 *Burner*, Fisher (Meker) type.

4.1.4 *Crucible*, porcelain or other ceramic.

4.1.5 *Crucible*, platinum.

4.1.6 *Flask*, filtering, with side tube, 2000-ml.

4.1.7 *Funnel*, Büchner, approximately 171 mm in diameter.

4.1.8 *Funnel*, approximately 150 mm in diameter, filtering.

4.1.9 *Furnace*, 540°C or 1000°F.

4.1.10 *Clamps*, tubing, screw compressor.

4.1.11 *Magnet*, C-shaped, Alnico.

4.1.12 *Magnifier*, 5 $\times$, 10 $\times$.

4.1.13 *Oven*, 110°C or 230°F.

4.1.14 *Scales*, triple-beam.

4.1.15 *Sieves*, U.S. Standard Series—50 mm (2 in.), 6.3 mm ($\frac{1}{4}$ in.), 1.18 mm (No. 16), 850 μ m (No. 20), 425 μ m (No. 40), 250 μ m (No. 60), 106 μ m (No. 140), conforming to Specification E11.

4.1.16 *Sink-Float Standard*, sp gr 2.65.

4.1.17 *Triangle*, platinum.

¹ These test methods are under the jurisdiction of ASTM Committee D34 on Waste Management and are the direct responsibility of Subcommittee D34.03 on Treatment, Recovery and Reuse.

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² 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.

³ The last approved version of this historical standard is referenced on www.astm.org.