



Standard Test Methods for Concrete Pipe, Manhole Sections, or Tile¹

This standard is issued under the fixed designation C 497; 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.

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

1. Scope

1.1 These test methods cover testing of concrete pipe, manhole sections, and tile. The test methods described are used in production testing and acceptance testing to evaluate the properties provided for in the specifications.

1.2 The test methods appear in the following order:

	Section
External Load Crushing Strength	4
Flat Slab Top	5
Core Strength	6
Absorption	7
Hydrostatic	8
Permeability	9
Manhole Step	10
Cylinder Strength	11
Gasket Lubricant	12
Joint Shear	13
Alkalinity	14
Gasket Measurements	15

1.3 The test specimens shall not have been exposed to a temperature below 40°F for the 24 h immediately preceding the test.

1.4 If any test specimen fails because of mechanical reasons such as failure of testing equipment or improper specimen preparation, it shall be discarded and another specimen taken.

1.5 Specimens shall be selected in accordance with the specifications for the type of pipe or tile being tested.

1.6 A complete metric companion to Test Methods C 497 has been developed—C 497M; therefore, no metric equivalents are presented in these methods.

1.7 *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.*

¹ These test methods are under the jurisdiction of ASTM Committee C13 on Concrete Pipe and are the direct responsibility of Subcommittee C13.09 on Methods of Test.

Current edition approved Sept. 10, 2003. Published December 2003. Originally approved in 1962. Last previous edition approved in 2003 as C 497 – 03.

2. Referenced Documents

2.1 ASTM Standards:²

- C 31 Practice for Making and Curing Concrete Test Specimens in the Field
- C 39 Test Method for Compressive Strength of Cylindrical Concrete Specimens
- C 42 Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
- C 617 Practice for Capping Cylindrical Concrete Specimens
- C 670 Practice for Preparing Precision and Bias Statements for Test Methods for Construction Materials
- C 822 Terminology Relating to Concrete Pipe and Related Products
- C 1231 Practice for Use of Unbonded Caps in Determination of Compressive Strength of Hardened Concrete Cylinders
- D 2240 Test Method for Rubber Property-Durometer Hardness
- E 4 Practices for Force Verification of Testing Machines

3. Terminology

3.1 *Definitions*—For definitions of terms relating to concrete pipe, see Terminology C 822.

4. External Load Crushing Strength Test by the Three-Edge Bearing Test Method

4.1 *Summary of Test Method*—The test specimen is tested in a machine designed to apply a crushing force upon the specimen in a plane through the vertical axis extending along the length of the specimen.

4.2 *Significance and Use*—The crushing test shall be either a quality control test performed to establish that the finished, shippable pipe has sufficient strength to withstand the crushing

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.