This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

Designation: C497M – 17

# Standard Test Methods for Concrete Pipe, Manhole Sections, or Tile (Metric)[1]

This standard is issued under the fixed designation C497M; 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 U.S. 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 | 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 4°C 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 These methods are the metric companion of Test Methods C497.

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 consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

1.8 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

## 2. Referenced Documents

2.1 *ASTM Standards:*[2]

C31/C31M Practice for Making and Curing Concrete Test Specimens in the Field

C39/C39M Test Method for Compressive Strength of Cylindrical Concrete Specimens

C42/C42M Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete

C617 Practice for Capping Cylindrical Concrete Specimens

C670 Practice for Preparing Precision and Bias Statements for Test Methods for Construction Materials

C822 Terminology Relating to Concrete Pipe and Related Products

C1231/C1231M Practice for Use of Unbonded Caps in Determination of Compressive Strength of Hardened Cylindrical Concrete Specimens

D2240 Test Method for Rubber Property—Durometer Hardness

E4 Practices for Force Verification of Testing Machines

## 3. Terminology

3.1 *Definitions*—For definitions of terms relating to concrete pipe, see Terminology C822.

## 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 method shall be either a quality control test performed to establish that the finished, shippable pipe has sufficient strength to withstand the

[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.

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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.

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