



Designation: C1618M – 19

## Standard Test Method for Concrete Sanitary Sewer Pipe by Negative (Vacuum) Air Pressure (Metric)<sup>1</sup>

This standard is issued under the fixed designation C1618M; 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 test method covers procedures for testing of precast concrete pipe sections, prior to delivery, where maximum field leakage rates are specified.

1.2 Tests described in this standard are intended to be used at the point of manufacture of the concrete pipe and are not intended for testing installed pipe (for field tests see Practices C969 and C1214). The user of this specification is advised that individual or multiple pipe sections may be tested for the purpose of testing the pipe barrel and additionally the joints in straight alignment when multiple pipe sections are tested.

1.3 Test times are based on leakage rates and therefore are proportional only to the pipe diameter and are constant for any length of test pipe or pipeline.

1.4 Test times tabulated and the rate of air loss in this standard are based on successful testing of installed pipelines. However, since air and water have different physical properties, retests of some pipelines not meeting field air tests have been successful when tested with water. The leakage rates of 0.0017 CFM/ft<sup>2</sup> and 0.0003 CFM/ft<sup>2</sup>, were determined empirically as the maximums for pipe to meet the 50 and 200 gal/(in. of internal diameter) (mile of sewer) (24h) test rates, respectively

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

NOTE 1—The availability of this test procedure for concrete pipe varies from location to location. Check with local supplier(s) for availability and recommendations.

1.6 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use. See Section 6 for specific safety precautions.*

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee C13 on Concrete Pipe and is the direct responsibility of Subcommittee C13.09 on Methods of Test.

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*1.7 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:*<sup>2</sup>

C822 Terminology Relating to Concrete Pipe and Related Products

C969 Practice for Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines

C1214 Test Method for Concrete Pipe Sewerlines by Negative Air Pressure (Vacuum) Test Method

### 3. Terminology

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

### 4. Summary of Test Method

4.1 The pipe to be tested shall be sealed at the outer ends with suitable airtight bulkheads. The change in the internal pressure during a specified time is used to determine the acceptability of the pipe.

### 5. Significance and Use

5.1 This is a quality test control performed at the manufacturing plant to establish that the finished, shippable pipe meets the leakage limits stated in the specifications.

### 6. Safety Precautions

6.1 The user of this specification is advised of the following:

6.1.1 This test may be dangerous if a pipe is not prepared properly and proper procedures are not followed.

6.1.2 No one should be allowed near the ends of the pipe or test bulkheads during the test.

<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