



Designation: C 1214 – 94 (Reapproved 2000)

Standard Test Method for Concrete Pipe Sewerlines by Negative Air Pressure (Vacuum) Test Method¹

This standard is issued under the fixed designation C 1214; 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 This test method covers procedures for testing concrete pipe sewerlines, when using the negative air pressure (vacuum) test method to demonstrate the integrity of the installed material and the construction procedures. This test method covers testing of 4 to 36-in. diameter circular concrete pipe sewerlines utilizing gasketed joints.

1.2 Methods described in this test method may also be used as a preliminary test to enable the manufacturer or installer to demonstrate the condition of sewer pipe prior to delivery or backfill. Minimum test times presented in Table 1 are for pipelines. Holding times for testing an individual pipe may have to be increased to allow for the accumulation of leakage when the tested pipe are incorporated into a continuous pipeline.

1.3 A complete metric companion to Test Method C 1214 has been developed—C 1214M; therefore, no metric equivalents are presented in this test method.

NOTE 1—The negative air pressure (vacuum) test criteria presented in this test method are similar to those in general use. The test and criteria have been used widely and successfully in testing smaller diameter pipe. Larger pipe may be accepted more conveniently by visual inspection and individual joint testing.

NOTE 2—It should be understood that no correlation has been found between loss of vacuum and water leakage.

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. See Section 6 for specific safety precautions.*

2. Referenced Documents

2.1 ASTM Standards:

C 822 Terminology Relating to Concrete Pipe and Related Products²

C 924 Practice for Testing Concrete Pipe Sewer Lines by Low-Pressure Air Test Method²

¹ 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.

Current edition approved July 15, 1994. Published September 1994. Originally published as C 1214–92. Last previous edition C 1214–92^{ε1}.

² Annual Book of ASTM Standards, Vol 04.05.

TABLE 1 Minimum Test Time

Nominal Pipe Size, in.	T (Time), min/100 ft	Nominal Pipe Size, in.	T (Time), min/100 ft
4	0.3	21	3.0
6	0.7	24	3.6
8	1.2	27	4.2
10	1.5	30	4.8
12	1.8	33	5.4
15	2.1	36	6.0
18	2.4		

C 969 Practice for Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines²

3. Terminology

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

4. Summary of Test Method

4.1 The sewerline to be tested is plugged. Air is removed from the plugged line by a vacuum pump or vacuum reservoir. The amount of vacuum loss is used to determine the acceptability of the sewerline.

5. Significance and Use

5.1 This is not a routine test. The values recorded are applicable only to the sewer being tested and at the time of testing.

6. Safety Precautions

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

6.2 Access manholes or structures must be ventilated and air quality continuously monitored.

6.3 No one should be allowed in or near the manholes during testing.

7. Preparation of the Sewerline

7.1 Where practical, clean the line prior to testing, wet the pipe surface, and eliminate debris.

NOTE 3—A wetted exterior pipe surface is desirable and will produce more consistent test results. Air may pass through the walls of dry pipe. This can be overcome by wetting the pipe. Usually, moisture absorbed from the backfill is sufficient to cope with this situation. If the problem