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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 47546-2026

Test methods for the performance of pervious concrete

透水混凝土性能试验方法

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Table of Contents

4 Specimen preparation
4.1 Test Equipment
4.3 Specimen Size and Quantity
4.4 Sampling and Laboratory Preparation
4.5 Specimen Molding
4.6 Specimen Curing
5 Apparent density test of freshly mixed permeable concrete
5.1 Test Equipment
5.2 Test Procedure
6 Uniformity Test of Freshly Mixed Permeable Concrete
6.1 Test Equipment
6.2 Test Procedure
6.2.5 Repeat steps
7 Connectivity Porosity Test
7.1 Test Equipment
7.2 Test Procedure
8 Permeability coefficient test
8.1 Test Equipment
8.2 Test Procedure
9 Permeability Coefficient Test
9.1 Test Equipment
9.2 Test Procedure
10 Permeability retention rate test
10.1 Test Equipment
10.2 Test Procedure
10.2.8 Repeat steps
11 Compressive strength test
11.2 Test Procedure
12 Flexural Strength Test
12.2 Test Procedure
13 Corrosion Resistance Test
13.1 Test Equipment

13.2 Test Procedure

14 Freeze-thaw resistance test

14.1 Test Equipment

14.2 Test Procedure

20 Less than 0.15 25

Foreword

GB/T 47546-2026 | Test methods for performance of pervious concrete

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13 National Standards of the People's Republic of China Test methods for permeable concrete performance Published on 2026-04-

30 Implemented on August 1, 2026 State Administration for Market Regulation The State Administration for Standardization issued a statement.

1.Scope This document describes the test methods for the performance of permeable concrete, including specimen preparation, apparent density of fresh permeable concrete, and other parameters. Soil homogeneity, interconnected porosity, permeability efficiency coefficient, permeability coefficient, permeability retention rate, compressive strength, flexural strength, erosion resistance, and frost resistance. Performance testing, test data rounding, and test reports. This document applies to performance testing of permeable concrete.

4.1 Test Equipment

4.1.1 The maximum capacity of the electronic scale should be 60kg, and the scale division value should be 2g.

4.1.2 The maximum range of the electronic balance should be 3 kg, and the scale division should be

0.1 g.

4.1.3 The tamping rod shall comply with the requirements of JG/T 248.

4.1.4 The mold shall conform to the requirements of JG/T 237.

4.1.5 Forced mixers shall comply with the provisions of JG/T 244.

4.1.6 The excitation force level of the plate vibrator should be (9000 ± 900) N, and the vibration frequency should be (50 ± 10) Hz.

4.2 Standard Test Conditions The relative humidity of the test environment should not be

less than 50%, and the temperature should be $(20 \pm 5)^{\circ}\text{C}$; the temperature of the materials, test equipment, containers and auxiliary equipment used should also be within acceptable limits. The temperature should be consistent with the laboratory temperature.

4.3 Specimen Size and Quantity

4.3.1 The size and quantity of specimens for permeable concrete performance tests shall conform to the provisions of Table 1.

4.3.2 The number of freeze-thaw test specimens and control specimens shall be determined based on the number of freeze-thaw cycles, and the specimen quality error shall not exceed $\pm 2\%$.

4.4 Sampling and Laboratory Preparation

4.4.1 The sampling of permeable concrete mixture shall comply with the following provisions.

a) Sampling of the same batch of permeable concrete mix shall be conducted from the same batch (or truckload) of permeable concrete. The sample size should be greater than the test sample size. The amount required for the test is

1.5 times the required amount, and not less than 20L.

b) Sampling of permeable concrete mixture should be performed at three different locations within the same batch or truckload of concrete, and samples should be taken from each location. Mix thoroughly; the time interval between the first and last sampling should not exceed 15 minutes.

4.4.2 The preparation of permeable concrete mixtures in the laboratory shall comply with the following provisions.

a) The permeable concrete mixture is mixed using a forced mixer. Before mixing, the mixer is thoroughly cleaned, and a small amount of the same mixture is pre-mixed. Alternatively, a slurry with the same water-cement ratio can be coated onto the inner wall of the mixer.

b) The weighing deviation of aggregates is $\pm 0.5\%$; the weighing deviation of cement, admixtures, water, and additives is $\pm 0.2\%$.

c) Cement, admixtures, and powdered additives should be dry-mixed thoroughly in a container. Liquid additives should be mixed thoroughly with the mixing water first to prepare... It forms a homogeneous mixed aqueous solution.

d) First, put all the aggregates into the mixer, add half of the mixed aqueous solution or water and stir for 30 seconds, then add the mixed powder into the mixer. Add the remaining half of the mixed aqueous solution or water, and stir for another 30 seconds. The permeable concrete mixture should be stirred... Uniform.

e) The amount of permeable concrete mixture to be mixed at one time shall not be less than 1/4 of the nominal capacity of the mixer, and shall not exceed the nominal capacity of the mixer, and shall not be less than... At 20L.

f) After stirring, the mixture should be molded into specimens within 30 minutes (before initial setting).

4.5 Specimen Molding

4.5.1 Before the specimens are formed, the mass of each specimen is calculated based on the mix proportion.

4.5.2 During molding, it is advisable to weigh out the appropriate mass of the mixture and fill it into the mold in three layers. The first layer should be filled to half the height of the mold, the second layer... Fill the mold to 3/4 full with material, then fill the third layer to 10mm above the mold. During the first two layers of tamping, ensure a 100mm x 100mm x 100mm permeable slab. Each layer of concrete was tamped 16 times, with one tamping at each of the four corners, two tappings on each side, and four tappings in the plane. 100mmx100mmx400mm permeable concrete... Each layer of concrete specimen was tamped 52 times, including once at each of the four corners, 11 times on each of the long sides, twice on each of the short sides, and 22 times in the plane. During tamping, the tamping... The rods should be kept vertical, and the insertion points should be evenly distributed at equal intervals within the plane. After the third layer of material is loaded, a plate vibrator should be used for vibration for 30 seconds. Then smooth the surface of the specimen.

4.6 Specimen Curing

4.6.1 After the specimens are molded, their surfaces should be covered with plastic film and cured under standard test conditions for 24 hours. After curing, they should be numbered and demolded. After demolding, they should... Immediately place it in a standard curing room with a relative humidity of not less than 95% and a temperature of $(20 \pm 2)^{\circ}\text{C}$ for curing.

4.6.2 The curing time for specimens with interconnected porosity, permeability efficiency coefficient, permeability coefficient, and permeability retention rate should not be less than 7 days.

4.6.3 The curing time for specimens used in compressive strength, flexural strength, erosion resistance, and freeze-thaw resistance tests should be 28 days. For freeze-thaw tests, randomly selected specimens should be used. The specimens were divided into two equal batches, one batch as freeze-thaw specimens and the other batch as control specimens, and were placed in a standard curing room for curing.

4.7 Specimens drained The specimen, after being immersed in water for (24 ± 0.5) hours,