

ICS 91.120.30

CCS Q17



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

GB/T 18445-2025

Replacing GB 18445-2012

Cementitious capillary crystalline waterproofing materials

水泥基渗透结晶型防水材料

Issued on: June 30, 2025

Implemented on: January 1, 2026

**Issued by: State Administration for Market Regulation;
Standardization Administration of China**

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1 Scope

GB/T 18445-2025 is the Chinese national standard on cementitious capillary crystalline waterproofing materials, in the field of construction materials and building. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 30 June 2025 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 January 2026. Classification: ICS 91.120.30, CCS Q17. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document specifies the classification and marking, general requirements, technical requirements, test methods, inspection rules, as well as the marking, packaging, storage, transportation and shelf life of cementitious capillary crystalline waterproofing materials. This document applies to powdered cementitious capillary crystalline waterproofing materials - primarily made of Portland cement - mixed with a certain amount of activated chemical additive, for use in waterproofing projects of cement concrete structures.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB 175, Common Portland Cements

GB/T 176, Methods for chemical analysis of cement

GB 8076, Concrete admixtures

GB/T 8077-2023, Methods for testing uniformity of concrete admixtures

GB/T 14684-2022, Sand for construction

GB/T 14685-2022, Pebble and crushed stone for construction

GB/T 17671, Method of testing cements - Determination of strength

GB/T 50081-2019, Standard for test methods of concrete physical and mechanical properties

GB/T 50082, Standard for test methods of concrete physical and mechanical properties

JC/T 474-2008, Water-repellent admixture for mortar and concrete JC/T 547-2017,

Adhesives for ceramic tiles JC/T 681, Mixer for mixing mortars JC/T 841, Alkali-resistant glass fiber mesh JG/T 26, Inorganic building coating for external wall JGJ 63, Standard of water for concrete JGJ/T 70, Standard for test method of basic properties of construction mortar

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 cementitious capillary crystalline waterproofing materials; CCCW Rigid waterproofing materials for cement concrete, which contains activated chemical additives that penetrate the concrete using water as a carrier and, in the presence of water, react with cement hydration products to form water-insoluble crystals that fill capillary pores and micro-cracks, thereby improving the density and impermeability of the concrete.

Note. Cementitious capillary crystalline waterproofing materials are classified into cementitious capillary crystalline waterproofing coating and cementitious capillary crystalline waterproofing admixture according to their application methods.

3.2 cementitious capillary crystalline waterproofing coating A powdered material made primarily of portland cement and quartz sand, with a certain amount of activated chemical additives added, which can be mixed with water to form a slurry that can be brushed or sprayed onto the surface of cement concrete, or can also be pressed into the surface of cement concrete before initial setting by dry spreading.

3.3 cementitious capillary crystalline waterproofing admixture A powdered material made primarily of portland cement and activated chemical additives, which is added during the mixing of cement concrete.

3.4 activated chemical additive Composed of alkali metal salts or alkaline earth metal salts, complex compounds, etc., and can react with the hydration products in cement to form water-insoluble crystalline chemical substances.

3.5 permeability after removal of sample coat The permeability measured after removal of coating, which is a cementitious capillary crystalline waterproofing coating applied on the surface of a reference test piece and cured for 28 days under the specified curing conditions.

3.6 the second permeability The permeability measured at the second permeability test of a permeability test piece of cementitious capillary crystalline waterproofing materials which has been subjected to the first permeability test where test piece is fully immersed and been cured continuously in water for 56 days under standard curing conditions.

3.7 self healing ability The healing phenomenon of a through crack in cement concrete of a certain width under continuous water flow conditions, which characterizes the healing performance of cementitious capillary crystalline waterproofing admixture on cement concrete cracks.

Note. Self healing ability is represented by the healing rate (u).

4 Classification and marking

4.1 Classification According to the method of use, cementitious capillary crystalline waterproofing materials are divided into cementitious capillary crystalline waterproofing coatings (code C) and cementitious capillary crystalline waterproofing admixtures (code A).

4.2 Marking Products are marked in the order of product name code, standard number, and classification. Example. Cementitious capillary crystalline waterproofing coatings conforming to this document shall be marked as shown below. CCCW GB/T18445-2025 C

5 General requirements

The products covered in this document shall not have any harmful effects on human health, ecology, environment, or the performance of cement concrete (especially durability). Safety and environmental protection issues related to their use shall comply with the relevant standards and regulations of our country.

6 Technical requirements

6.1 Cementitious capillary crystalline waterproofing coating The performance of cementitious capillary crystalline waterproofing coating shall meet the requirements of

Table 1.

7.1.1 Raw materials used in the test

7.1.1.1 Reference cement. shall comply with the provisions of GB 8076.

7.1.1.2 Mixing water. shall comply with the provisions of JGJ 63.

7.1.1.3 Sand used for mortar testing. ISO standard sand conforming to GB/T 17671.

7.1.1.4 Fine aggregate for cement concrete testing. medium sand (natural sand) meeting the requirements of Zone 2 in GB/T 14684-2022, with a fineness modulus of 2.6 ~

2.9 and a mud content of less than 1%.

7.1.1.5 Coarse aggregate for cement concrete testing. crushed stone with a nominal particle size of 5 mm ~ 20 mm conforming to GB/T 14685-2022, using a two-stage gradation, of which 5 mm ~ 10 mm accounts for 40% and 10 mm ~ 20 mm accounts for 60%, meeting the requirements of continuous gradation, with needle-like and flaky material content less than 10%, porosity less than 47%, and crushed stone mud powder content less than 0.5%.

7.1.1.6 Standard concrete slab. conforming to the requirements of Appendix A of JC/T 547-2017.

7.1.1.7 Alkali-resistant glass fiber mesh. conforming to 2 mm x 2 mm holes in JC/T 841; nominal unit area mass, 151 g/m² ~ 160 g/m².

7.1.1.8 Water-retaining agent. cellulose ether with a viscosity greater than 20 000 mPa·s.

7.1.2 Mix proportion

7.1.2.1 The reference mix proportions for the reference mortar and reference concrete used in the preparation of cementitious capillary crystalline waterproofing coating tests are as follows:

a) Reference mortar mix proportion. -- Cement. 320 g ~ 340 g; -- ISO standard sand. 1 350 g; -- Water. 260 g; -- Cellulose ether.

0.5 g. The amount of cement used shall be adjusted according to the type and strength grade of cement. Whether to add cellulose ethers depends on the specific needs.

b) Reference concrete mix proportion. -- Cement. 250 kg/m³; -- Fine aggregate for cement concrete. 750 kg/m³; -- Coarse aggregate (5 mm ~ 10 mm) crushed stone for cement concrete. 1 000 kg/m³; -- Water. 250 kg/m³. This mix proportion is for reference only. The mix proportion shall be adjusted according to the availability of raw materials. The 28-day permeability of the reference mortar and reference concrete shall be 0.4+0.0 -

0.1 MPa. The cement content in the reference concrete mix proportion shall not be less