

Translated English of Chinese Standard: GB/T40376-2021

www.ChineseStandard.net → Buy True-PDF → Auto-delivery.

Sales@ChineseStandard.net

GB

NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA

ICS 91.100.10

CCS Q 11

GB/T 40376-2021

Cement based binder for interior decoration

室内装修用水泥基胶结料

Issued on: August 20, 2021

Implemented on: March 1, 2022

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

Table of Contents

Foreword	3
1 Scope	5
2 Normative references	5
3 Terms and definitions	6
4 Composition and materials	6
5 Strength grades	9
6 Technical requirements	9
7 Test methods	11
8 Inspection rules	12
9 Packaging, marking, transportation, and storage	15

Cement based binder for interior decoration

1 Scope

This document specifies the composition and material, strength grade, technical requirements, test methods, inspection rules, packaging, marking, transportation, and storage of cement-based binder for interior decoration (hereinafter referred to as cement-based binder).

This document applies to cement-based binder.

2 Normative references

The following documents contain the provisions which, through normative reference in this document, constitute the essential provisions of this document. For the dated referenced documents, only the versions with the indicated dates are applicable to this document; for the undated referenced documents, only the latest version (including all the amendments) is applicable to this document.

GB/T 176 Methods for chemical analysis of cement

GB/T 203 Granulated blast furnace slag used for cement production

GB/T 1346 Test methods for water requirement of normal consistency, setting time and soundness of the Portland cement

GB/T 1596 Fly ash used for cement and concrete

GB/T 2419 Test method for fluidity of cement mortar

GB/T 2847 Pozzolanic materials used for cement production

GB/T 5483 Natural gypsum

GB 6566 Limits of radionuclides in building materials

GB/T 6645 Granulated electric furnace phosphorous slag used for cement

GB/T 9774 Sacks for packing cement

GB/T 12573 Sampling method for cement

GB/T 17671 Test method of cement mortar strength (ISO method)

The cement-based binder is a hydraulic cementitious material suitable for interior decoration projects, which is ground from Portland cement clinker added with specified mixed materials and an appropriate amount of gypsum; calculated by the mass fraction, the number of mixed materials added shall not exceed 70%; if necessary, redispersible polymer powder and/or cellulose ether can be added to adjust the performance.

4.2 Materials

4.2.1 Portland cement clinker

The raw materials, which mainly contain calcium oxide, silicon dioxide, aluminum oxide, and iron oxide, are grinded into the fine powder in appropriate proportions; and are burnt to partial melting, so as to obtain a hydraulic cementitious substance with calcium silicate as the main mineral component. Thereinto, the calcium silicate mineral content (mass fraction) shall be not less than 66%, and the mass ratio of calcium oxide to silicon dioxide shall be not less than 2.0.

4.2.2 Gypsum

4.2.2.1 Natural gypsum

It shall comply with the provisions of GB/T 5483.

4.2.2.2 Industrial by-product gypsum

It shall comply with the provisions of GB/T 21371.

4.2.3 Granulated blast furnace slag or granulated blast furnace slag powder

The quality coefficient of the granulated blast furnace slag, the mass fraction of titanium dioxide, the mass fraction of manganese oxide, the mass fraction of fluoride, the mass fraction of sulfide, and the content of glass body shall comply with the provisions of GB/T 203 or the provisions of GB/T 18046.

4.2.4 Fly Ash

Loss on ignition, water content, the sulfur trioxide mass fraction, the free calcium oxide mass fraction and stability, and calcium sulfite hemihydrate content of fly ash, and total mass fraction of silicon dioxide, aluminum oxide, and iron oxide shall comply with the provisions of GB/T 1596.

The limit of ammonium ion content in fly ash shall comply with the provisions of GB/T 39701.

4.2.5 Pozzolanic blending materials

The type of pozzolanic blending material, pozzolanic feature test, loss on ignition, and

sulfur trioxide content shall comply with the provisions of GB/T 2847.

4.2.6 Granulated electric furnace phosphorus slag or granulated electric furnace phosphorus slag powder

The quality coefficient of granulated electric furnace phosphorus slag and the mass fraction of phosphorus pentoxide shall meet the requirements of GB/T 6645, and the sulfur trioxide content, loss on ignition, and glass body content of granulated electric furnace phosphorus slag powder shall meet the requirements of GB/T 26751.

4.2.7 Granulated blast furnace titanium slag

The quality coefficient, titanium dioxide content, manganese oxide content, fluoride content, and sulfide content of the granulated blast furnace titanium slag shall comply with the provisions of JC/T 418.

4.2.8 Ferro-nickel slag powder

The loss on ignition, sulfur trioxide content and stability of ferro-nickel slag powder shall comply with the provisions of JC/T 2503.

4.2.9 Limestone and sandstone

The methylene blue value of limestone and sandstone shall not be greater than 1.4 g/kg.

4.2.10 Shale

The organic carbon content of shale shall not be more than 0.5%.

4.2.11 Kiln dust

It shall comply with the provisions of JC/T 742.

4.2.12 Cement grinding aids

Grinding aids are allowed to be added during the grinding of cement-based binder, and the amount added shall not exceed 0.5% of the mass of cement-based binder. Grinding aids shall comply with the provisions of GB/T 26748.

4.2.13 Redispersible polymer powder

When the cement-based binder is homogenized, it is allowed to add redispersible polymer powder, and the added amount does not exceed 0.5% of the mass of the cement-based binder. The redispersible polymer powder shall meet the requirements of GB/T 29594.

4.2.14 Cellulose ethers

7 Test methods

7.1 Sulfur trioxide and chloride ions

The test shall be carried out according to GB/T 176.

7.2 Water-soluble chromium (VI)

The test shall be carried out according to GB 31893.

7.3 Leachable heavy metal content

The test shall be carried out according to GB/T 30810.

7.4 Setting time and stability

The test shall be carried out according to GB/T 1346.

7.5 Liquidity loss rate over time

The test shall be carried out according to the Marshall method in JC/T 1083; thereinto, the water-to-cement ratio shall be 0.55, and the standard water-reducing agent shall not be added.

7.6 Strength

The test shall be carried out according to GB/T 17671. The water consumption of cement mortar shall be determined on the basis that the water-to-cement ratio is 0.50 and the fluidity of the mortar is not less than 180 mm. When the water-to-cement ratio is 0.50 and the fluidity of the mortar is less than 180 mm, the water-to-cement ratio shall be adjusted in increments of 0.01 so that the fluidity of the mortar is not less than 180 mm.

The fluidity test of the mortar shall be carried out according to GB/T 2419, and the mortar shall be prepared according to GB/T 17671.

7.7 Bleeding rate

The test shall be carried out according to the test method of the bleeding of cement mortar in JC/T 2153.

7.8 Tensile bond strength

The test shall be carried out according to JGJ/T 70, and the raw materials and proportions shall be the same as 7.6.

7.9 Dry shrinkage

The test shall be carried out according to JC/T 603.

7.10 Radioactivity

The test shall be carried out according to GB 6566.

7.11 Methylene blue value

The test shall be carried out according to Appendix A of GB/T 35164-2017.

7.12 Organic carbon content

The test shall be carried out according to GB/T 35151.

8 Inspection rules

8.1 Numbering and sampling

Cement-based binder shall be numbered and sampled according to the same strength grade when exiting the factory (or before exiting the factory). The bagged cement-based binder and the bulk cement-based binder shall be numbered and sampled separately. Each numbering is a sampling unit. The ex-factory numbering of the cement-based binder shall be stipulated according to the annual production capacity as follows:

- If the annual production capacity is more than 60×10^4 t, the amount under a numbering is no more than 1000 t;
- If the annual production capacity is 30×10^4 t~ 60×10^4 t, the amount under a numbering is no more than 600 t;
- If the annual production capacity is 10×10^4 t~ 30×10^4 t, the amount under a numbering is no more than 400 t;
- If the annual production capacity is less than 10×10^4 t, the amount under a numbering is no more than 200 t.

The sampling method shall be carried out according to GB/T 12573. The samples can be taken continuously, or the same quantity of samples can be taken from more than 20 different parts, with a total amount of at least 12 kg. When the capacity of transportation means for the bulk cement-based binder exceeds the number of tons under a numbering specified by the factory, the number of tons under the number is allowed to exceed the specified number of tons for a sampling unit.

8.2 Inspection of cement-based binder

8.2.1 Factory inspection

The content of the inspection report shall include the factory inspection items such as the implemented standard and the ex-factory number of the cement-based binder, as well as, the types and added content of gypsum and grinding aids, the types and added content of redispersible polymer powder and cellulose ether, and other technical requirements agreed upon in the contract.

When requested by the buyer, the manufacturer shall send all inspection results except the content of leachable heavy metals, 28 d strength, tensile bond strength, and dry shrinkage within 10 days from the date of the consignment of the cement-based binder. Test results of leached heavy metal content, 28 d strength, tensile bond strength, and dry shrinkage shall be supplemented within 35 days.

8.6 Delivery and acceptance

8.6.1 At the time of delivery, the quality acceptance of cement-based binder can be based on physical samples and the inspection results, or the manufacturer's inspection report of the cement-based binder with the same number. The method of acceptance shall be agreed upon by the buyer and the seller, and shall be indicated in the contract or agreement. If there is no written contract or agreement, or the acceptance method is not indicated in the contract or agreement, the manufacturer shall notify in writing before consignment; after the buyer's approval, the words "The manufacturer's inspection report of the cement-based binder with the same number is used as the basis for acceptance" shall be indicated on the dispatch bill.

8.6.2 When the inspection results of the physical samples are taken as the basis for acceptance, the buyer and the seller shall jointly take and seal the sample before consignment or at the place of delivery. Sampling shall be carried out in accordance with the provisions of GB/T 12573; the mass of the sample shall be 24 kg, and it shall be split into two equal parts. Among them, one is kept by the seller for 40 d, and the other is inspected by the manufacturer according to the items and methods specified in this document.

Within 40 days, if the buyer believes that the quality of the product does not meet the requirements of this document, but the manufacturer has objections, then the two parties shall send another sample kept by the seller to a third-party cement quality supervision and inspection agency recognized by both parties for arbitration inspection. The arbitration inspection of the stability of the cement-based binder shall be completed within 10 days from the date of sampling.

8.6.3 When the manufacturer's inspection report of the cement-based binder with the same number is used as the basis for acceptance, the manufacturer takes the sample from the cement-based binder of the same number before consignment or during delivery, the two parties jointly seal the sample, and then the seller keeps the sample for 90 days; or the two parties recognize the sealed sample of the cement-based binder with the same number that is sampled, sealed and preserved for 90 days by the manufacturer-

This is an excerpt of the PDF (Some pages are marked off intentionally)

Full-copy PDF can be purchased from 1 of 2 websites:

1. <https://www.ChineseStandard.us>

- SEARCH the standard ID, such as GB 4943.1-2022.
- Select your country (currency), for example: USA (USD); Germany (Euro).
- Full-copy of PDF (text-editable, true-PDF) can be downloaded in 9 seconds.
- Tax invoice can be downloaded in 9 seconds.
- Receiving emails in 9 seconds (with download links).

2. <https://www.ChineseStandard.net>

- SEARCH the standard ID, such as GB 4943.1-2022.
- Add to cart. Only accept USD (other currencies - <https://www.ChineseStandard.us>).
- Full-copy of PDF (text-editable, true-PDF) can be downloaded in 9 seconds.
- Receiving emails in 9 seconds (with PDFs attached, invoice and download links).

Translated by: Field Test Asia Pte. Ltd. (Incorporated & taxed in Singapore. Tax ID: 201302277C)

About Us (Goodwill, Policies, Fair Trading...): <https://www.chinesestandard.net/AboutUs.aspx>

Contact: Wayne Zheng, Sales@ChineseStandard.net

Linkin: <https://www.linkedin.com/in/waynezhengwenrui/>

----- The End -----