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

GB 2938-2008

Replacing GB 2938-1997

**Low heat expansive cement
(English Translation)**

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Table of Contents

Foreword	
1 Scope	
2 Normative references	
3 Terms and Definitions	
4 Material requirements	
4.1 Blast furnace slag	
4.2 Gypsum	
4.3 Portland cement clinker	
4.4 Aids	
4.5 Additive Material	
5 Intensity level	
6 Technical Requirements	
6.1 Trioxide	
6.3 Setting Time	
6.4 Stability	
6.5 Strength	
6.6 Heat of hydration	
6.7 Coefficient of linear expansion	
6.8 Chloride	
6.9 Alkali content	
7 Test methods	
7.1 Sulfur trioxide (SO ₃), sodium oxide (Na ₂ O) and potassium oxide (K ₂ O)	
7.3 Setting time and soundness	
7.4 Heat of hydration	
7.5 Coefficient of linear expansion	
7.6 Strength	
7.7 Chloride	
8 Inspection Rules	
8.1 Number and sampling	
8.2 Cement factory	
8.3 Determine the rules	
8.4 Test Report	

Foreword

The standard Chapter 5, Section 6.1 through 6.8, Chapter 8 is mandatory, the rest are recommended.

This standard replaces GB 2938-1997 "Low heat expansive cement." this standard compared with GB 2938-1997 The main changes are as follows.

- Strength cement grade to grade (1997 edition Chapter 5; Chapter 5 of this edition);
- Increased chloride limit requirement that cement the chloride ion content of not more than 0.06% (edition 6.8);
- Cement strength test method by the GB/T 17671 "cement mortar strength test method (ISO method)" instead of GB/T 177-1985 "Cement mortar strength test methods" (1997 Version 6.4; 7.6 edition);
- Test method preserves the heat of hydration of cement GB/T 2022-1980 "Determination of cement hydration heat (direct method)", while increasing the GB/T 12959-1991 "Determination of cement hydration heat (heat of solution method)", using the direct method of arbitration (1997 Version 6.5; this Version 7.4).

The standard proposed by China Building Materials Federation.

This standard by the National Standardization Technical Committee cement (SAC/TC184) centralized.

1 Scope

This standard specifies the low thermal expansion of the definition of micro cement, material requirements, strength level, technical requirements, test methods, inspection rules, packaging, Labeling, transport and storage.

This standard applies to low thermal expansive cement production, testing and acceptance.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 176 cement chemical analysis method (GB/T 176-1996, eqv ISO 680:1990) GB/T 203 for cement granulated blast furnace slag GB/T 1346 cement standard consistency water, setting time and soundness test method (GB/T 1346-2001, eqv ISO 9597).

1989)

GB/T 2022 Determination of cement hydration heat (direct method) GB/T 5483 gypsum and anhydrite (GB/T 5483-1996, eqv ISO 1587. 1975) GB/T 8074 cement specific surface area measuring method (Blaine method) GB 9774 cement packaging bags GB/T 12573 cement sampling method GB/T 12959 Determination of cement hydration heat (heat of solution method) GB/T 17671 cement mortar strength test method (ISO method) (GB/T 17671-1999, idt ISO 679. 1989) JC/T 313 expansive cement expansion test method Chemical analysis of JC/T 420 cement raw material chloride ions JC/T 667 cement grinding aids

3 Terms and Definitions

The following terms and definitions apply to this standard.

In granulated blast furnace slag as a main component, adding the right amount of Portland cement clinker and gypsum, low heat of hydration and having a ground made of micro-expansion Performance cement matrix, called Low heat expansive cement, codenamed LHEC.

4.1 Blast furnace slag

In line with GB/T 203 provisions of Excellence for granulated blast furnace slag.

4.2 Gypsum

Natural gypsum. meet Class A or Class G for more than two gypsum or anhydrite GB/T 5483 regulations.

Industrial by-product gypsum. industrial production to calcium sulfate as a byproduct main component. When using industrial by-product gypsum should be tested, certified Ming on the performance of cement harmless.

4.3 Portland cement clinker

By the mainly containing CaO, SiO₂, Al₂O₃, Fe₂O₃ material, and an appropriate proportion of finely pulverized till the partial melting of the resulting calcium silicate-based to hydraulic binder material mineral composition. Wherein the mass fraction of the mineral calcium silicate is not less than 66%, calcium oxide and silicon oxide by mass is not less than 2.0. Clinker intensity level required to achieve 42.5 above; free calcium oxide content (mass fraction) shall not exceed 1.5%; MgO content (mass Volume fraction) should not exceed 6.0%.

4.4 Aids

Allow cement grinding aids added, the amount should not exceed 0.5% by mass of cement, grinding aids should be consistent with JC/T 667's Provisions.

4.5 Additive Material

By the supply and demand sides agreed to allow adding a small amount to improve the performance of cement expansion Additive Material.

5 Intensity level

Low heat expansive cement strength rating of 32.5.

6.1 Trioxide

Sulfur trioxide content (mass fraction) should be 4.0% to 7.0%.

6.2 The specific surface area the specific surface area of not less than 300m²/kg.

6.3 Setting Time

Initial setting no earlier than 45min, the final setting shall not be later than 12h, but also by the production units and the use of units agreed.

6.4 Stability

Boiling cooking method should test qualified.

6.5 Strength

Compressive strength and flexural strength of cement every age should not be less than the values in Table 1.

Table 1 cement grade and age strength

power level

32.5

Flexural strength/MPa 7d 28d 5.0 7.0 Compressive strength/MPa 7d 28d 18.0 32.5

6.6 Heat of hydration

Each age heat of hydration of cement should not be greater than the value in Table 2.

Table 2 age heat of hydration of cement

power level