

ICS 91.100.10

CCS Q 11



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

GB/T 12573-2008

Replacing GB/T 12573-1990

Sampling method for cement

水泥取样方法

Issued on: June 30, 2008

Implemented on: April 1, 2009

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine;
Standardization Administration of the PRC**

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Foreword

This standard replaces GB 12573-1990 "Sampling method for cement". As compared with GB 12573-1990, main changes of this standard are as follows: - MODIFY the standard from mandatory standard into recommended standard; - ADD the normative references (Chapter 2 of this version); - DELETE the material requirements of the vessels used to store sample (

3.6.1 of 1990 version;

9.1 of this version); - MODIFY the Appendix A "Division sample physical and chemical properties test" of 1990 version into the Appendix B "28d compressive strength homogeneity test" of this version, and USE the cement 28d compressive strength homogeneity for indication; - INCREASE the frequency of homogeneity test from cement 28d compressive strength variation factor greater than 6% to greater than 3.0% (A.2.4 of 1990 version; B.2.3 of this version). Appendix A of this standard is informative, AND Appendix B is normative. This standard was proposed by the China Building Materials Federation. This standard shall be under the jurisdiction of the National Cement Standardization Technical Committee (SAC/TC 184). The drafting organizations of this standard. Building Materials Industry Technical Supervision Research Center, China Building Materials Science Research Institute, Yunnan State-Owned Cement Honghe Co., Ltd. The main drafters of this standard. Gan Xiangchen, Jin Fujin, Zhao Tingting, Chen Bin, Jiang Lizhen, Liu Chen, Wu Xu. This standard was first released in December 1990, AND this is the first revision. Sampling method for cement

1 Scope

China's national method for sampling cement - a short standard that governs a great deal of money, because every cement test result and every acceptance decision rests on whether the sample was representative. It specifies the terms and definitions, the sampling tools, the sampling locations, the sampling procedure, the quantity to be taken, and the preparation, packaging, marking and storage of the sample. Cement is a bulk powder that segregates, and it segregates by the property that matters: the fine fraction moves differently from the coarse in a silo, on a conveyor and in a tanker, so a sample taken from the wrong place or at the wrong moment can be finer or coarser than the material it is supposed to represent, and the strength result will follow. That is why a sampling standard exists as a document in its own right rather than as a clause in the test methods. It sets where the sample is taken from - the discharge stream rather than the static heap wherever possible, and at intervals through the delivery rather than at one moment - the number and size of the increments, how they are combined and reduced to a laboratory sample without introducing a new bias, and the tools that may be used. It also sets what happens to the sample afterwards, which matters more for cement than for most materials: the container must be airtight, because cement takes up moisture and carbon dioxide from the air and begins to hydrate and carbonate on the shelf, so a sample stored in a paper bag for a fortnight tests as a different cement from the one that was delivered. The provisions on the retained sample are the ones that settle disputes: a sealed portion held by both parties is what makes a later re-test meaningful. Issued on 30 June 2008 and in force since 1 April 2009, it replaces GB/T 12573-1990.

This standard specifies the terms and definitions, sampling tools, sampling locations, sampling procedures, sampling amount and sample preparation and testing of exit-factory cement. This standard applies to the sampling of the exit-factory cement.

2 Normative references

The provisions in following documents become the provisions of this Standard through reference in this Standard. For the dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this Standard; however, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB 175 Ordinary Portland cement

GB/T 4131 Nomenclature and terminology of cement

3 Terms and definitions

The terms and definitions as defined in GB 175 and GB/T 4131 AND the following terms and definitions apply to this standard.

3.1 Manual sampling It refers to use of manual sampler to collect the cement sample.

3.2 Automatic sampling It refers to use of automatic sampler to collect the cement sample.

3.3 Lot It refers to a batch of unit products which are produced under the same conditions AND collected for the purposes of sampling inspection.

3.4 Lot number It refers to the code representative of the lot.

3.5 Unit sample It refers to the appropriate amount of cement sample which is taken from the same location.

3.6 Composite sample It refers to sample which is formed by mixing thoroughly all the unit samples which are taken from different locations from the same lot number.

3.7 Laboratory sample It refers to the sample which is taken from the composite sample AND used for the purposes of exit-factory cement quality testing.

3.8 Retained sample It refers to the sample which is taken from the composite sample AND used for the purposes of re-testing arbitration.

3.9 Division sample It refers to the unit sample taken from one lot number in the order of 1/10 which is used for homogeneity test.

3.10 Common cement It refers to the cement which is used for general civil engineering.

4 Sampling tools

4.1 Manual sampler Manual sampler can be designed and manufactured accordingly, AND the common manual sampler is as shown in Appendix A.

4.2 Automatic sampler Automatic sampler can be designed and manufactured accordingly, as shown in Appendix A.

5 Sampling locations

Sampling shall be carried out at a representative location AND shall not be sampled in a polluted environment. Generally it is sampled in the following locations.

- a) In cement delivery pipelines;
- b) Bagged cement yard;
- c) Bulk cement unloading yard or cement transport equipment.

6.1 Manual sampling

6.1.1 Bulk cement When the depth of the obtained cement does not exceed 2 m, USE the bulk cement sampler to take sample from each lot number. By rotating the sampler inner tube control switch, INSERT it to a certain depth of the cement at an appropriate location; CLOSE it and PULL it out carefully; PLACE the sample taken into the vessel which complies with the requirements of 9.1. AND the unit sample taken for each time shall be as consistent with each other as possible.

6.1.2 Bagged cement From each lot number, randomly TAKE not less than 20 bags of cement; USE the bagged cement sampler to take sample; INSERT the sampler into the cement bag along the diagonal line direction; USE the thumb to press the air hole and carefully PULL out the sampling tube; PLACE the sample taken into the vessel which complies with the requirements of 9.1. AND the unit sample taken for each time shall be as consistent with each other as possible.

6.2 Automatic sampling USE the automatic sampler to take sample. This device is generally installed as close to the cement packing machine as possible OR in the pipeline of the bulk vessel, to take sample from the cement flow, AND place the sample taken into the vessel which complies with the requirements of 9.1.

7 Sampling volume

7.1 The sampling volume of the composite sample shall comply with the relevant cement standards.

7.2 The sampling volume of the division sample shall comply with the following requirements.

- a) Bagged cement. TAKE at least 6 kg from one bag for every 1/10 number;
- b) Bulk cement. TAKE at least 6 kg within 5 minutes for every 1/10 number.

8 Sample preparation and testing

8.1 Composite sample MAKE the unit sample of cement which is taken from each lot number pass the

0.9 mm square hole sieve; MIX it thoroughly; DIVIDE the sample to the fixed volume as required by the relevant standards in one time or several times; equally DIVIDE it into the laboratory sample and retained sample. The laboratory sample is tested in accordance with the requirements of the relevant standards. AND the retained sample is stored as specified in Chapter 9 for the purpose of arbitration. AND it is not allowed for the sample to be mixed with debris or caking.

8.2 Division sample The 10 divisions taken from each lot number shall pass through a 0.9 mm square hole sieve, respectively, AND they shall not be mixed. It shall be subject to