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

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**Concrete Admixtures
(English Translation)**

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1 Scope

This Standard specifies the terms, definitions, requirements, test procedures, inspection rules, package, exit-factory, storage and return of admixtures used in concrete.

This Standard is applicable to high performance water reducer (accelerating, standard and retarding reducers), high efficiency water reducer (standard and retarding reducers), ordinary water reducer (accelerating, standard and retarding reducers), air- entraining water reducer, pumping admixture, early strength admixture, retarder and air-entraining admixture, eight in total.

2 Normative References

The following standard contains provisions which, through reference in the following text, constitute provisions of this standard. For dated reference, subsequent amendments (excluding correction) to, or revisions of, any of these publications do not apply. However, parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. For undated references, the latest edition of the normative document referred to applies.

GB/T176 Method for Chemical Analysis of Cement

GB/T 8074 Method for Cement Surface Area Testing Blaine Method

GB/T 8075 Definition, Classification, Nomenclature and Terms of Concrete

Admixtures

GB/T 8077 Method for Concrete Admixture Uniformity Test

GB/T 8170 Rules of Rounding off for Numerical Values & Expression and

Judgment of Limiting Values

GB/T 14684 Building Sand

3 Terms and Definitions

For the purpose of this standard, the following terms and definitions AND those established in GB/T 8075 apply.

3.1 High performance water reducer

It is superior to high efficiency water reducer in the following aspects. higher water-reducing rate, better slump keeping performance, less dry shrinkage and a certain performance of air entraining.

3.2 Reference cement

The cement that meets the requirements in Appendix A of this Standard and is specially used to inspected concrete admixture performance.

4 Codes

The following types of admixtures are represented by the following codes.

5.1 Performance indexes of test concrete

Performance of concrete added with admixture shall meet the requirements listed in Table 1.

5.2 Uniformity indexes

Uniformity index shall meet requirements of Table 2.

6.1.1 Cement

Cement specified in Appendix A of this Standard is adopted.

6.1.2 Sand

Medium sand which meets the requirements of Area II in GB/T 14684; but the fineness modulus is 2.6 ~ 2.9 and silt content is less than 1 %.

6.1.4 Water

It shall meet the technical requirements for water consumption of concrete mixing specified in JGJ 63.

6.1.5 Admixtures

The admixtures that need to be inspected.

6.2 Mixing proportion

Reference concrete mixing proportion is designed according to JGJ 55. The proportion of test concrete added with non-air-entraining admixture shall be the same with that of cement, sand and crushed-stone of the corresponding reference concrete. Mixing proportion design shall meet the following provisions.

6.3 Concrete mixing

Adopt the single-lay-shaft forced blender with nominal capacity of 60L and that meets the requirements stipulated in JG 3036. The mixing amount of blender shall neither be less than 20L nor greater than 45L.

6.4.1 Sample preparation

Concrete sample is prepared and cured according to GB/T 50080; however, concrete pre-curing temperature is $(20 \pm 3) ^\circ\text{C}$.

6.4.2 Test items and sample amount

Test items and amount are listed in Table 3.

6.6.1 Compressive strength ratio measurement

Compressive strength ratio is represented by the ratio of compressive strengths BETWEEN concrete added with admixture AND same-duration of reference concrete. It is calculated according to Formula (9), accurate to 1%.

6.7.1 Chloride ion content measurement

Chloride ion content is measured according to GB/T 8077 or the method specified in Appendix B of this Standard. For arbitration, the methods stated in Appendix B are applied.

6.7.2 Measurement of solid content, total alkali amount, water content, density, fineness, pH value and sodium sulfate content

It shall be measured according to GB/T 8077.

7.1.1 Spot-sample and mixing-sample

Spot-sample refers to a sample obtained from the product in one-time production.

Mixing-sample refers to the sample that is obtained after three or more spot-samples are mixed equivalently and evenly.

7.1.2 Lot number

Manufacturer shall number the products by lot according to output and manufacturing equipment condition. Each lot number of admixture, with the same type and whose mixing proportion is greater than 1% (including 1%), is 100t; and each lot number of admixture, whose mixing proportion is less than 1%, is 50t.

7.2 Samples and reserved-sample

Samples taken from each lot shall be thoroughly and evenly mixed, which shall be divided into two equal-portions. In which, one portion is tested according to the items listed in Table 1 and Table 2, and the other is sealed and conserved for half a year.

authorities for retest or arbitration.

7.3.1 Exit-factory inspection

Items of exit-factory inspection of each lot of admixtures are inspected according to the items specified in Table 4 and based on different varieties.

7.3.2 Type inspection

Type inspection items include all performance indexes in Chapter 5. Under any of the following conditions, type inspection shall be carried out.

7.5 Retest

Retest shall be carried out with sealed and reserved samples. If user-organization requires for on-site sampling, then the requirements shall be specified in procurement contract in advance, and mixing-sample shall be taken on-site when both personnel from the manufacturer and user-organization are present.

8.1 Product instructions

When products leave the factory, product instructions shall be provided; it shall include the following content at least.