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

GB/T 14902-2012

Replacing GB/T 14902-2003

Ready-mixed concrete

预拌混凝土

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1 Scope

GB/T 14902-2012 is the Chinese national standard on ready-mixed concrete, 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 31 December 2012 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 September 2013. Classification: ICS 91.100.30, CCS Q13. 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 Standard specifies the terms and definitions, classification, performance grades and markings, raw materials and mixing ratios, quality requirements, preparation, test methods, inspection rules, ordering and delivery of ready-mixed concrete. This Standard is applicable to ready-mixed concrete produced in mixing plants (towers). This Standard does not include

the pouring, vibrating and curing of concrete after delivery.

2 Normative References

The following documents are indispensable to the application of this document. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB 175 Common Portland Cement

GB 200 Moderate Heat Portland Cement, Low Heat Portland Cement, Low Heat Portland Slag Cement

GB/T 1596 Fly Ash Used for Cement and Concrete

GB 8076 Concrete Admixtures

GB/T 9142 Concrete Mixers

GB 10171 Concrete Mixing Plant (tower)

GB 13693 Portland Cement for Road

GB/T 17431.1 Lightweight Aggregates and Its Test Methods - Part 1: Lightweight Aggregates

GB/T 18046 Ground Granulated Blast Furnace Slag Used for Cement and Concrete

GB/T 18736 Mineral Admixtures for High Strength and High Performance Concrete

GB/T 20491 Steel Slag Powder Used for Cement and Concrete

GB 23439 Expansive Agents for Concrete

3 Terms and Definitions

The following terms and definitions are applicable to this document.

3.1 Ready-mixed Concrete Ready-mixed concrete refers to concrete produced in mixing plants (towers) and delivered to the place of use by transportation equipment, and in the state of mixtures at the time of delivery.

3.2 Ordinary Concrete Ordinary concrete refers to concrete whose dry apparent density is 2,000 kg/m³ ~ 2,800 kg/m³.

3.3 High Strength Concrete High strength concrete refers to concrete whose strength grade is not lower than C60.

3.4 Self-compacting Concrete Self-compacting concrete refers to concrete that can flow and compact under its own weight without vibrating.

3.5 Fiber Reinforced Concrete Fiber reinforced concrete refers to concrete mixed with steel fiber or synthetic fiber as the reinforcing material.

3.6 Lightweight-aggregate Concrete Lightweight-aggregate concrete refers to concrete prepared with lightweight coarse aggregate, light sand or ordinary sand, and with a dry apparent density of not greater than 1,950 kg/m³.

3.7 Heavy-weight Concrete Heavy-weight concrete refers to concrete prepared with heavyweight aggregate, for example, barite, and with a dry apparent density of greater than 2,800 kg/m³.

3.8 Recycled Aggregate Concrete Recycled aggregate concrete refers to concrete prepared with all or part of recycled aggregate as the aggregate.

3.9 Delivery Place Delivery place refers to the place for the delivery of the ready-mixed concrete

4.3 Markings

4.3.1 The markings of the ready-mixed concrete shall comply with the following sequence:

- a) The code of conventional products or special products; conventional products can be exempted from marking;
- b) The type code of special concrete products; when there are multiple types, they can be simultaneously marked;
- c) Strength grade;
- d) Slump control target value, followed by the slump grade code in brackets; self-compacting concrete shall adopt the expansion control target value, followed by the expansion grade code in brackets;
- e) Durability grade code; for the chloride ion penetration resistance and carbonization resistance, followed by the design value in brackets;
- f) Serial No. of this Standard.

4.3.2 Examples of marking Example 1: ordinary concrete prepared with general-purpose Portland cement, river sand (or artificial sand or sea sand), stone, mineral admixtures, admixtures and water; strength grade: C50; slumps: 180 mm; frost resistance grade: F250; electric flux QS of chloride ion penetration resistance: 1,000 C, shall be marked as:

Example 2: lightweight aggregate fiber reinforced concrete prepared with general-purpose Portland cement, sand (or ceramic sand), ceramsite, mineral admixtures, admixtures, synthetic fibers and water; strength grade: LC40; slumps: 210 mm; penetration resistance grade: P8; frost resistance grade: F150, shall be marked as:

5.1 Cement

5.1.1 Cement shall comply with the stipulations of GB 175, GB 200 and GB 13693.

5.1.2 The entry of cement shall provide exit-factory inspection reports, for example, certificate of quality; inspection shall also be carried out. The inspection items and inspection batches shall comply with the stipulations of GB 50164.

5.6 Fiber

5.6.1 The steel fiber and synthetic fiber used in concrete shall comply with the stipulations of JGJ/T 221.

5.6.2 The entry of steel fiber and synthetic fiber shall provide exit-factory inspection reports, for example, certificate of quality; inspection shall also be carried out. The inspection items and inspection batches shall comply with the stipulations of JGJ/T 221.

5.7 Mixing Ratios

5.7.1 The design of mixing ratios of ordinary concrete shall be executed by the supply-side in accordance with the stipulations of JGJ 55; the design of mixing ratios of lightweight aggregate concrete shall be executed by the supply-side in accordance with the stipulations of JGJ 51; the design of mixing ratios of fiber reinforced concrete shall be executed by the supply-side in accordance with the stipulations of JGJ/T 221; the design of mixing ratios of barite concrete shall be executed by the supply-side in accordance with the stipulations of GB/T 50557.

5.7.2 The designed mixing ratios shall be adjusted in accordance with the engineering requirements, then, the construction mixing ratios shall be determined.

6 Quality Requirements

6.1 Strength The strength of concrete shall satisfy the design requirements. The evaluation of the inspection shall comply with the stipulations of GB/T 50107.

6.2 Slumps and Slump Loss Through Time The allowable deviation between the actual measured value of concrete slumps and the control target value shall comply with the stipulations of Table 8. The slump control target value of conventional pumping concrete should not be greater than 180 mm, and shall satisfy the construction requirements; the slump loss through time should not be greater than 30 mm/h. The slumps of special concrete products shall satisfy the stipulations of relevant standards and construction requirements.

6.6 Durability The durability of concrete shall satisfy the design requirements. The evaluation of the inspection shall comply with the stipulations of JGJ/T 193.