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混凝土外加剂应用技术规范
Code for utility technical of concrete admixture

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Jointly issued by the **Ministry of Construction, P. R. China**
State Bureau of Quality Supervision, Inspection and Quarantine

Ministry of Construction, P. R. China

Proclamation

No. 146

**Proclamation of the Ministry of Construction on issuing the
“*Code for Applied Technology of Concrete Additive*”**

Now approve the “*Code for Applied Technology of Concrete Additive*” as the national standard numbered GB 50119-2003, and this code will be implemented from 1st September 2003. Of the code, clauses 2.1.2, 6.2.3, 6.2.4, and 7.2.2 are compulsory ones, must be strictly executed. The former standard “*Code for Applied Technology of Concrete Additive*”, GBJ 119-88, is simultaneously abolished.

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Ministry of Construction, P. R. China

25th April 2003

Preface

As the required in the “*Notice on the Plan to Work Out and Revise Engineering Construction National Standards in 1998*”, the document JB [1998] No. 94, issued by the Ministry of Construction, the Code Work-out Group has completed the revise of the former national standard “*Code for Applied Technology of Concrete Additive*”, GBJ 119-88, based on widely investigating, carefully summarizing practical experiences, using foreign advanced standards for reference, and extensively asking for suggestions and opinions.

The main technical content in this code includes: 1. General principles; 2. Basic stipulation; 3. Water-reducing additive and high-effective water-reducing additive; 4. Air entraining additive, and air entraining and water-reducing additive; 5. set retarder, set retarding and water-reducing additive, and retarding and high-effective water-reducing agent; 6. Hardening accelerator, and hardening accelerating and water-reducing additive; 7. Anti-freezing additive; 8. Expanding additive; 9. Pumping aid; 10. Water repellent; 11. Flashly setting additive; Appendix A. Test method of adaptability of concrete additive to cement; Appendix B. Test method of the expansion rate and the dry shrinkage rate of the shrinkage-compensating concrete; Appendix C. Test method of vertical expansion rate of the expanding mortar for grouting; and explanation on usage of terms in this code.

The main content revised includes: 1. Applied technologies of 10 additives in the former code have been revised in this code, and applied technologies of 4 additives including set retarding and high-effective water-reducing additive, pumping aid, water repellent, flash-setting additive have been increased; 2. “Noun interpretation on additives” as Appendix I in the former code has been cancelled; 3. “Design of concrete mix ratio” as Appendix II in the former code has been cancelled; 4. “Composition and dosage of hardening accelerator and hardening accelerating and water-reducing additive” as Appendix IV has been cancelled; 5. “Test method of adaptability of concrete additive to cement” has been increased as Appendix A in this code; 6. The test items to be inspected for an additives entering the job field have been additionally added in the clauses on construction in various chapters; 7. Possible hazard to human and environmental pollution are given a great attention in this code, and consequently have been clearly stipulated in Chapters II, VI, and VII.

When some parts in this code are required to revise locally, the information and the contents revised locally in the clauses concerned will be published in the journal “*Standardization of Engineering Construction (Gongcheng Jianshe Biaozhunhua)*” (Chi).

The clauses printed in boldfaces in this code are compulsory ones, must be strictly executed.

Management and interpretation of the compulsory clauses in this code are responsibility of the Ministry of Construction, Interpretation on technical details is responsibility of China

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Contents

1. General Principle	6
2. Basic stipulations	6
2.1 Selection of an additive	6
2.2 Admixed amount of additive	7
2.3 Quality control of an additive	7
3. Water-reducing additive and high-effective water-reducing additive	8
3.1 Varieties	8
3.2 Applicable scope	8
3.3 Construction	8
4. Air entraining additive and air entraining and water-reducing additive	9
4.1 Varieties	9
4.2 Applicable scope	10
4.3 Construction	10
5. Set retarder, set retarding and water-reducing additive, and set retarding and high-effective water-reducing additive	11
5.1 Varieties	11
5.2 Applicable scope	12
5.3 Construction	12
6. Hardening accelerator and hardening accelerating and water-reducing additive	13
6.1 Variety	13
6.2 Applicable scope	13
6.3 Construction	14
7. Antifreeze Additives	16
7.1 Variety	16
7.2 Applied Scope	16
7.3 Construction	17
7.4 Quality Control for Antifreeze additive-added Concrete	19
8. Expanding additive	20

8.1 Variety	20
8.2 Applicable scope	20
8.3 Requirement for performances of the concrete (mortar) admixed with an expanding additive	21
8.4 Design requirement	22
8.5 Construction	23
8.6 Inspection of concrete quality	25
9. Pumping aid	25
9.1 Varieties	25
9.2 Applicable scope	25
9.3 Construction	26
10. Water repellent	27
10.1 Varieties	27
10.2 Applicable scope	27
10.3 Construction	28
11. Flashly setting additive	28
11.1 Varieties	28
11.2 Applicable scope	29
11.3 Construction	29
Appendix A Test method of adaptability of concrete additive to cement	30
Appendix B Test method of the expansion rate and the dry shrinkage rate of the shrinkage-compensating concrete	32
Appendix C Test method of vertical expansion rate of the expanding mortar for grouting	35
Explanation of Wording in This Standard	37
Interpretation of Articles	38

1. General Principle

1.0.1 It is the purpose to work out this code to correctly select and reasonably use various types of additives for concrete, to improve performances of a concrete and help the concrete to reach forecasted effect.

1.0.2 This code is suitable for application of 14 additives in concrete work, including water-reducing additive, high-effective water-reducing additive, air-entraining additive and air-entraining and water-reducing additive, set retarder, set retarding and water-reducing additive, set retarding and high-effective water-reducing additive, hardening accelerating additive and hardening accelerating and water-reducing additive, anti-freezing additive, expanding additive, pumping aid, water repellent, and flashly setting additives.

1.0.3 Preparation and use of a concrete admixed additives shall conform to relevant stipulations in the compulsory clauses in the current national standards in addition to this code.

2. Basic stipulations

2.1 Selection of an additive

2.1.1 Selection of a variety of additives shall be performed as the engineering design and the requirement for the construction, and ascertained by test and comparison in cost-effectiveness analysis.

2.1.2 If an additive may bring hazard to human or pollution to the environment, its use shall be strictly prohibited.

2.1.3 It is recommendable to adopt a Portland cement, e.g., common Portland cement, Portland-slag cement, Portland-pozzolana cement, Portland pulverized fuel ash cement, or compound Portland cement as the cement into which an or some additives will be admixed. Adaptability of an additive used to the cement shall be tested, and the additive may be used only when its adaptability meets the requirement.

2.1.4 Materials, such as cement, sand, stone, blended material, and/or additives, used in a concrete admixed an additive, shall conform to stipulations in current national standards concerned. In a matching trial of a concrete admixed an additive, shall use the raw materials allowable in engineering construction, relevant test items shall be ascertained as the design and the requirement for the construction, and the test conditions shall be the same as those used in the construction. If the raw materials used in the construction or the requirement for performances of concrete change, a new matching trial shall be performed.

2.1.5 When additives of different varieties are compounded in use, their compatibility each

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