SINGAPORE STANDARD

SS 320 : 1987

(ICS 91.100.30)

SPECIFICATION FOR

Concrete admixtures

Published by
SPRING Singapore
2 Bukit Merah Central
Singapore 159835
SPRING Singapore Website: www.spring.gov.sg
Standards Website: www.standards.org.sg

SPRING singapore

SINGAPORE STANDARD

SS 320 : 1987

(ICS 91.100.30)

SPECIFICATION FOR

Concrete admixtures

Head
Standardisation Department
SPRING Singapore
2 Bukit Merah Central
Singapore 159835
Telephone: 62786666 Telefax: 62786667
Email: stn@spring.gov.sg

ISBN 9971-67-206-5

CONTENTS

Page

TABLES

FIGURE

SINGAPORE STANDARD

SPECIFICATION FOR CONCRETE ADMIXTURES

FOREWORD

This Singapore Standard was prepared by the Technical Committee on Concrete Admixtures under the authority of the Building Materials Product Standards Committee.

The developments in the field of chemical admixtures have created a worldwide interest in their use in the building industry and related professions. This is because of their apparent value in improving the quality of concrete especially with regard to potential strength development while facilitating concrete construction operations and product manufacture. In view of the increasing use of admixtures in local building and construction industry, the technical committee has drawn up a Singapore Standard on concrete admixtures taking into consideration the views of admixture suppliers, consumers, testing authorities and concrete technologists. This standard specifies acceptance tests and uniformity tests for accelerating, retarding, water-reducing, high-range water-reducing and retarding high-range water-reducing admixtures. In the acceptance tests, workability and strength requirements were specified for concrete with and without admixture at the same water-cement ratio. For water-reducing admixtures, a second test mix was used at fixed water reduction.

In the area of shrinkage and bleeding, the Technical Committee responsible for this standard would welcome any test data which would assist them to make recommendations on the effect of admixtures on the shrinkage and bleeding of concrete in subsequent revisions.

In preparing this standard, reference was made to the following overseas publications. Acknowledgement is made for the use of information from these publications:

1.	AS 1478-1973	Chemical admixtures for use in concrete
2.	AS 1479-1973	Code of practice for the use of chemical admixtures in concrete
3.	ASTM C403-77	Standard test method for time of setting of concrete mixtures by penetration resistance
4.	ASTM C494-82	Standard specification for chemical admixtures for concrete
5.	BS 5075	Concrete admixtures Part 1 : 1982 — Specification for accelerating admixtures, retarding admixtures and water-reducing admixtures Part 3 : 1985 — Specification for superplasticizing admixtures

1. SCOPE

This Singapore Standard specifies the requirements and methods of test for seven categories of admixtures, which may be used to modify one or more properties of hydraulic cement concrete: the workability, the rate of stiffening and hardening, and the strength.

2. DEFINITIONS

For the purpose of this standard, the definitions given in BS 2787 and BS 6100, together with the following, apply:

2.1 Accelerating Admixture. A material that increases the initial rate of reaction between cement and water and thereby accelerates the setting and early strength development of concrete.

2.2 Retarding Admixture. A material that decreases the initial rate of reaction between cement and water and thereby retards the setting of concrete.

2.3 Normal Water-reducing Admixture. A material that increases the fluidity of the cement paste without significantly affecting the air content and thereby increases the workability of concrete at constant water-cement ratio, or permits concrete to be made with a decreased amount of water, while maintaining equal workability, with a consequent increase in strength.

2.4 Accelerating Water-reducing Admixture. A material that combines the functions of an accelerating admixture (2.1) and a normal water-reducing admixture (2.3).

2.5 Retarding Water-reducing Admixture. A material that combines the function of a retarding admixture (2.2) and a normal water-reducing admixture (2.3).

2.6 High-range Water-reducing Admixture. Admixture that, when added to a hydraulic binder concrete, imparts very high workability or allows a large decrease in water content for a given workability.

2.7 Retarding High-range Water-reducing Admixture. High-range water-reducing admixture that imparts prolonged workability retention and retards setting.

NOTE. The performance requirements for these categories are defined according to their specified test requirements in Tables 1 and 2.

3. SAMPLING

An admixture to be tested in accordance with the requirements of this standard shall be sampled by the appropriate method described in Appendix A.

4. PERFORMANCE REQUIREMENTS

Admixtures shall comply with the performance requirements, appropriate to the type of admixture, detailed in Tables 1 or 2.

For the purpose of acceptance testing, a representative sample of admixture, as defined in the appropriate subclause in Appendix A, shall be subjected to the tests detailed in Tables 1 or 2 and shall comply with the relevant requirements specified there.