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PRODUCTS AND SYSTEMS FOR THE PROTECTION AND REPAIR OF CONCRETE STRUCTURES - TESTS METHODS - DETERMINATION OF THE DURABILITY OF STRUCTURAL BONDING AGENTS

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Produits et systèmes pour la protection et la réparation des structures en béton - Méthodes d'essai - Détermination de la durabilité des produits de collage structural

Produkte und Systeme für den Schutz und die Instandsetzung von Betontragwerken - Prüfverfahren - Bestimmung der Dauerhaftigkeit von Klebstoffen für konstruktive Zwecke

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Contents

page

Foreword 3

1 Scope 4

2 Normative references 4

3 Principle 4

4 Equipment 4
4.1 Concrete to concrete composites (see Figures 1a) and 1b)) 4
4.2 Steel to steel composite (see Figure 2) 5
4.3 Environmental cabinets 5

5 Environmental regimes 5
5.1 Thermal Cycle 5
5.2 Warm-moist environment 5

6 Preparation of test specimens 5
6.1 General 5
6.2 Concrete to concrete composites 6
6.3 Production of steel-to-steel composite specimens 6

7 Test procedures 6
7.1 Testing of the concrete-to-concrete specimens 6
7.2 Testing of steel-to-steel specimens 7

8 Test report 7
8.1 Concrete to concrete composite specimen 7
8.2 Steel-to-steel composite specimen 7

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Foreword

This document EN 13733:2002 has been prepared by Technical Committee CEN/TC 104 "Concrete and related products", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2002, and conflicting national standards shall be withdrawn at the latest by December 2002.

This standard does not supersede any other European Standard. It has been prepared by Sub-Committee 8 "Products and systems for the protection and repair of concrete structures", the secretariat of which is held by AFNOR.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

The purpose of this European Standard is to define laboratory methods of testing to ascertain the durability of structural bonding agents in composite systems involving the bonding of hardened concrete to hardened concrete, fresh concrete to hardened concrete and steel-to-steel.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 1766, *Products and systems for the protection and repair of concrete structures - Test methods – Reference concretes for testing.*

EN 12390-4, *Testing hardened concrete – Part 4: Compressive strength – Specification for testing machines.*

ISO 8501-1, *Preparation of steel substrates before application of paints and related products – Visual assessments of surface cleanliness – Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings.*

3 Principle

This standard describes a thermal cycling regime and a warm-moist environment, which are applied in turn to composite systems incorporating a structural bonding agent.

For testing the structural bonding of concrete, the specimen consists of three concrete cubes bonded in line which are then exposed to an environmental regime prior to being subjected to a compressive shear force applied in the plane of the bond line.

For testing the structural bonding of steel, two steel plates are bonded together and subjected to a cleavage force applied by the insertion of a wedge. The stressed specimen is then exposed to an environmental regime during which measurements are taken.

4 Equipment

4.1 Concrete to concrete composites (see Figures 1a) and 1b))

4.1.1 Steel mould for casting 100 mm × 100 mm × 100 mm concrete cubes.

4.1.2 Jig to ensure accurate alignment when bonding the 100 mm × 100 mm × 100 mm cubes.

4.1.3 Steel mould 100 mm × 100 mm × 302 mm for casting fresh concrete to hardened concrete specimens.

4.1.4 Compression testing machine conforming to EN 12390-4 capable of testing the bonded specimens conforming to 6.2.1 and 6.2.2 in compressive shear.

4.1.5 Test rig support to align the bonded cube assembly securely in the testing machine whilst the compressive shearing force is applied parallel to the planes of the bonds and distributed evenly between them, as depicted in Figures 1a) and 1b).

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