SLOVENSKI STANDARD
SIST EN 1504-1:2005

01-december-2005

Nadomešča:
SIST EN 1504-1:2002

Proizvodi in sistemi za zaščito in obnovo betonskih konstrukcij – Definicije, zahteve, kontrola kakovosti in ovrednotenje skladnosti – 1. del: Definicije

Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - Part 1: Definitions

Produkte und Systeme für den Schutz und die Instandsetzung von Betontragwerken - Definitionen, Anforderungen, Güteüberwachung und Beurteilung der Konformität - Teil 1: Definitionen

Produits et systemes pour la protection et la réparation des structures en béton - Définitions, prescriptions, maîtrise de la qualité et évaluation de la conformité - Partie 1: Définitions

Ta slovenski standard je istoveten z: **EN 1504-1:2005**

ICS:

01.040.91	Gradbeni materiali in gradnja (Slovarji)	Construction materials and building (Vocabularies)
91.080.40	Betonske konstrukcije	Concrete structures

SIST EN 1504-1:2005 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1504-1

July 2005

ICS 91.080.40; 01.040.91

Supersedes EN 1504-1:1998

English Version

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This European Standard was approved by CEN on 2 June 2005.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

Foreword

This European Standard (EN 1504-1:2005) 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of an identical text or by endorsement, at the latest by January 2006, and conflicting national standards shall be withdrawn at the latest by December 2008.

This document supersedes EN 1504-1:1998.

It has been developed by sub-committee 8 "Products and systems for the protection and repair of concrete structures" (Secretariat AFNOR).

This document is part of a series of standards dealing with the general considerations related to the products and systems for the repair and protection of concrete structures. The other parts of this Standard are listed below:

— EN 1504-2, *Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - Part 2: Surface protection systems for concrete*

— EN 1504-3, *Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - Part 3: Structural and non-structural repair*

— EN 1504-4, *Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - Part 4: Structural bonding*

— EN 1504-5, *Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - Part 5: Concrete injection*

— prEN 1504-6, *Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - Part 6: Anchoring of reinforcing steel bar*

— prEN 1504-7, *Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - Part 7: Reinforcement Corrosion Protection*

— EN 1504-8, *Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - Part 8: Quality control and evaluation of conformity*

— ENV 1504-9, *Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - Part 9: General principles for the use of products and systems*

— EN 1504-10, *Products and systems for the protection and repair of concrete structures - Definitions - Requirements - Quality control and evaluation of conformity - Part 10: Site application of products and systems, and quality control of the works*

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

1 Scope

This European Standard defines terms relating to products and systems for repair, for use in maintenance and protection, restoration and strengthening of concrete structures.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Not applicable.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 General

3.1.1
batch
quantity of material made in a single operation, or in the case of continuous production for a defined quantity (in tonnes) which shall be demonstrated by the producer to have a uniform composition and shall not exceed one day's production

3.1.2
declared value
value declared and documented by the manufacturer for identification or performance requirements

3.1.3
identification test
test carried out to verify a declared value of the composition or property of the product or system in terms of consistency of the production

NOTE This is to ensure that the product or system being tested corresponds to the product or system subjected to the initial type test, within the permitted tolerances.

3.1.4
performance
ability of a product or system to provide an effective and durable repair or protection without adverse effects on the original structure, other structures, site operatives, users, third parties and environment

3.1.5
performance requirements
required mechanical, physical and chemical properties of products and systems to provide durability and stability of both the repaired concrete and the structure

3.1.6
performance test
test carried out to verify a value for a required property of the product or system in terms of its specified performance during application and use

NOTE This is to ensure that the product or system conforms to its specified performance characteristics.

3.1.7
product
constituents formulated for the repair or protection of concrete structures

3.1.8
systems
two or more products which are used together, or consecutively, to undertake repair or protection of concrete structures

3.1.9
technology
application of a product or system using specific equipment or method (for example crack injection)

3.2 Main categories of products and systems

3.2.1
anchoring products and systems
products and systems which:

— anchor reinforcement into concrete to give adequate structural behaviour;

— fill cavities in order to ensure a continuity between steel and concrete elements.

3.2.2
injection products and systems
products and systems which, when injected into a concrete structure, restore the structural integrity and/or durability

3.2.3
non-structural repair products and systems
products and systems which, when applied on a concrete surface, restore the geometric or aesthetic aspect of the structure

3.2.4
reinforcement protection products and systems
products and systems applied to unprotected reinforcement to provide corrosion protection

3.2.5
structural bonding products and systems
products and systems applied to concrete to provide a durable structural bond to additional applied material

3.2.6
structural repair products and systems
products and systems applied to a concrete structure, to replace defective concrete and to restore structural integrity and durability

3.2.7
surface protection products and systems
products and systems which, when applied, improve the durability of concrete and reinforced concrete structures

3.3 Main chemical types and constituents of protection and repair products and systems

3.3.1
additions
finely divided inorganic materials that may be added to repair products in order to improve certain properties or to achieve special properties

There are two types of additions:

— nearly inert additions (type I); and

— pozzolanic or latent hydraulic additions (type II).

3.3.2
additives for hydraulic binders
products which are added with hydraulic binder to give specific properties and which are not covered by admixtures and additions

3.3.3
additives for reactive polymer
products other than admixtures and additions which give the repair product specific properties

NOTE Typical additives are, for example:

— plasticizers;

— flexibilizers;

— accelerators;

— retarders;

— materials which regulate the rheology;

— pigments;

— fillers.

3.3.4
admixtures
material added during the mixing process of concrete in a quantity not more than 5 % by mass of the cement content of the concrete, to modify the properties of the mix in the fresh and/ or hardened state

3.3.5
coating
treatment to produce a continuous protective layer on the surface of concrete

NOTE 1 Thickness is typically of 0,1 mm to 5,0 mm. Particular applications may require a thickness greater than 5 mm.

NOTE 2 Binders may be, for example, organic polymers, organic polymers with cement as a filler or hydraulic cement modified with polymer dispersion.

3.3.6
hydraulic binders (H)
inorganic material which reacts with water, undergoing a hydration reaction to produce a solid material

NOTE They are generally cements conforming to EN 197-1 or to EN 413-1, building limes conforming to EN 459-1 or in combination with other cements.

3.3.7
hydraulic mortars and hydraulic concretes (CC)
mortars and concretes based on a hydraulic binder which is blended together with graded aggregates and may include admixtures and additions and which, when mixed with water, set by a hydration reaction

3.3.8
hydrophobic impregnation
treatment of concrete to produce a water-repellent surface. The pores and capillaries are internally coated, but they are not filled. There is no film on the surface of the concrete and there is little or no change in its appearance

NOTE Active compounds may be, for example, silanes or siloxanes.

3.3.9
impregnation
treatment of concrete to reduce the surface porosity and to strengthen the surface. The pores and capillaries are partially or totally filled

NOTE 1 This treatment usually leads to a discontinuous, thin film on the concrete surface.

NOTE 2 Binders may be, for example, organic polymers.

3.3.10
polymer hydraulic cement mortars or concretes (PCC)
hydraulic mortars or concretes modified by the addition of polymer additives, which are added in sufficient quantity to give specific properties

NOTE Polymers typically used include:

— acrylic, methacrylate or modified acrylic resins as redispersible powders or aqueous dispersions;

— vinyl mono-, co- and ter-polymers as redispersible powders or aqueous dispersions;

— styrene butadiene co-polymer, generally as aqueous dispersions;

— natural rubber latices;

— epoxies.

3.3.11
polymer mortars and polymer concretes (PC)
blended mixtures of polymer binder and graded aggregates which set by polymerisation reaction

3.3.12
reactive polymer (P) binder
binders which generally consist of two components, a reactive polymer base and a hardener or catalyst, and which cure at ambient temperature. Additives (see 3.3.3) may also be added

NOTE 1 Ambient moisture vapour may act as the hardener/catalyst in some systems.

NOTE 2 Typical binders are, for example:

— epoxies;

— unsaturated polyesters;

— cross-linkable acrylics;

— one or two-component polyurethanes.