

SLOVENSKI STANDARD

SIST EN 1504-7:2006

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Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - Part 7: Reinforcement corrosion protection

Produkte und Systeme für den Schutz und die Instandsetzung von Betontragwerken - Definitionen, Anforderungen, Qualitätsüberwachung und Beurteilung der Konformität - Teil 7: Korrosionsschutz der Bewehrung

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 7: Protection contre la corrosion des armatures

Ta slovenski standard je istoveten z: EN 1504-7:2006

ICS:

91.080.40 Betonske konstrukcije Concrete structures

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English Version

Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - Part 7: Reinforcement corrosion protection

Produits et systèmes pour la protection et la réparation des structures en béton - Définitions, exigences, maîtrise de la qualité et évaluation de la conformité - Partie 7: Protection contre la corrosion des armatures

Produkte und Systeme für den Schutz und die Instandsetzung von Betontragwerken - Definitionen, Anforderungen, Qualitätsüberwachung und Beurteilung der Konformität - Teil 7: Korrosionsschutz der Bewehrung

This European Standard was approved by CEN on 19 June 2006.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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Foreword

This document (EN 1504-7:2006) 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 2007, and conflicting national standards shall be withdrawn at the latest by December 2008.

It has been developed by sub-committee 8 "Protection and repairs of concrete structures" (Secretariat AFNOR).

This Part of EN 1504 does not supersede any other European Standard.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association and supports essential requirements of EU Construction Products Directive (89/106/EC).

For the relationship with the EU Directive, see informative Annex ZA, which is an integral part of this document.

This Part of EN 1504 includes an informative Annex A, dealing with minimum frequency of testing for factory production control.

This Part of EN 1504 is one of the parts of this standard on products and systems for the repair and protection of concrete structures. The other parts are listed below:

EN 1504-1, *Products and systems for the protection and repair of concrete structures — Definitions, requirements, quality control and evaluation of conformity — Part 1: Definitions.*

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 1504-6¹, *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.*

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.*

¹ This document is in preparation.

ENV 1504-9²⁾, *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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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2) ENV 1504-9 will have to be modified when adopted as EN according to finalisation of this European Standard.

1 Scope

This Part of EN 1504 specifies requirements for the identification and the performance (including durability aspects) of products and systems for active and barrier coatings for protection of existing uncoated steel reinforcement and embedded steel in concrete structures under repair.

This standard does not cover products for corrosion protection of pre-stressing steels and stainless steels.

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.

EN 1015-4, *Methods of test for mortar for masonry — Part 4: Determination of consistence of fresh mortar (by plunger penetration)*

EN 1504-1:2005, *Products and systems for the protection and repair of concrete structures — Definitions, requirements, quality control and evaluation of conformity — Part 1: Definitions*

EN 1504-8:2004, *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 1504-9:1997, *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 1767, *Products and systems for the protection and repair of concrete structures — Test methods — Infrared analysis*

EN 1877-1, *Products and systems for the protection and repair of concrete structures — Test methods — Reactive functions related to epoxy resins — Part 1: Determination of epoxy equivalent*

EN 1877-2, *Products and systems for the protection and repair of concrete structures — Test methods — Reactive functions related to epoxy resins — Part 2: Determination of amine functions using the total basicity number*

EN 12614, *Products and systems for the protection and repair of concrete structures — Test methods — Determination of glass transition temperatures of polymers*

EN 13062, *Products and systems for the protection and repair of concrete structure — Test method — Determination of thixotropy of products for protection of reinforcement*

EN 15183 ³⁾ *Products and systems for the protection and repair of concrete structures — Test methods — Corrosion protection test*

EN 15184 ³⁾ *Products and systems for the protection and repair of concrete structures — Test methods — Shear adhesion of coated steel to concrete (pull-out test)*

³⁾ This document is in preparation.

EN ISO 868, *Plastics and ebonite — Determination of indentation hardness by means of a durometer (Shore hardness) (ISO 868:2003)*

EN ISO 2811-1, *Paints and varnishes — Determination of density — Part 1: Pyknometer method (ISO 2811-1:1997)*

EN ISO 2811-2, *Paints and varnishes — Determination of density — Part 2: Immersed body (plummet) method (ISO 2811-2:1997)*

EN ISO 3219, *Plastics — Polymers/resins in the liquid state or as emulsions or dispersions — Determination of viscosity using a rotational viscometer with defined shear rate (ISO 3219:1993)*

EN ISO 3251, *Paints, varnishes and plastics — Determination of non-volatile-matter content (ISO 3251:2003)*

EN ISO 9514, *Paints and varnishes - Determination of the pot life of multicomponent coating systems — Preparation and conditioning of samples and guidelines for testing (ISO 9514:2005)*

EN ISO 11358, *Plastics — Thermogravimetry (TG) of polymers — General principles (ISO 11358:1997)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1504-1:2005, EN 1504-8:2004, ENV 1504-9:1997 and the following apply.

3.1
active coatings
coatings, which contain electrochemically active pigments, which may function as inhibitors or which may provide localised cathodic protection

NOTE Cement is considered to be an active pigment due to its alkalinity.

3.2
barrier coatings
coatings which isolate the reinforcement from pore water in the surrounding cementitious matrix

4 Performance characteristics for intended uses

Table 1 lists the performance characteristics of reinforcement corrosion protection products and systems, which are required for “all intended uses” or “for certain intended uses” according to the “principles” and “methods” defined in ENV 1504-9. Performance characteristics which are required for “all intended uses” are marked ☒. All other performance characteristics which are marked ☐ may be required for “certain intended uses”.

Performance requirements are given in 5.2.

Table 1 — Performance characteristics for all and certain intended uses

Test methods defined in	Performance characteristics	Intended uses	
		Active coating 11.1 ^a	Barrier coating 11.2 ^a
EN 15183	Corrosion protection	■	■
EN 12614	Glass transition temperature	□	□
EN 15184	Shear adhesion (coated steel to concrete)	□	□
^a Method in accordance with ENV 1504-9.			

5 Requirements

5.1 Identification requirements

The manufacturer shall undertake selected representative initial identification tests for the product or system as specified in Table 2. These tests may be used to confirm the composition of the product at any time. Acceptable tolerances are given in Table 2. The manufacturer shall hold the test records.

Table 2 — Identification test methods and requirements

Property	Test method	Requirement/tolerance
Components (liquid)		
Colour/general appearance	Visual	Uniform and similar to the description provided by the manufacturer
Density	SIST EN 1504-7:2006	
— Pyknometer method	EN ISO 2811-1	± 3 %
— Immersed body method	EN ISO 2811-2	± 3 %
Infrared spectrum	EN 1767	Confirmed by visual comparison
Epoxy equivalent ^a	EN 1877-1	± 5 %
Amine functions ^a	EN 1877-2	± 6 %
Volatile and non-volatile matter	EN ISO 3251	± 5 %
Thermogravimetric analysis	EN ISO 11358	Confirmed by comparison and ± 5 % with respect to loss of mass at 600°C
Viscosity	EN ISO 3219	± 20 %
Mixture		
Pot-life ^a	EN ISO 9514	± 15 %
Consistency	EN 1015-4	± 15 %
Thixotropy	EN 13062	± 15 %
Hardness (shore D after 7 days)	EN ISO 868	± 3 units
^a Only for epoxy (EP).		