

**Organic coating systems and linings for protection of industrial apparatus and plants against corrosion caused by aggressive media - Part 4: Linings on metallic components**

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## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 14879-4:2007 sisaldab Euroopa standardi EN 14879-4:2007 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 30.10.2007 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 14879-4:2007 consists of the English text of the European standard EN 14879-4:2007.</p> <p>This document is endorsed on 30.10.2007 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b> This document describes the requirements for and methods of testing of organic linings which are applied to metallic process engineering equipment that will come in contact with chemical substances. The requirements specified here may be used for the purposes of quality control (e.g. as agreed between the contract partners1)).</p>	<p><b>Scope:</b> This document describes the requirements for and methods of testing of organic linings which are applied to metallic process engineering equipment that will come in contact with chemical substances. The requirements specified here may be used for the purposes of quality control (e.g. as agreed between the contract partners1)).</p>
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English Version

## Organic coating systems and linings for protection of industrial apparatus and plants against corrosion caused by aggressive media - Part 4: Linings on metallic components

Systèmes de revêtements organiques de peinture et autres revêtements rapportés pour la protection des appareils et installations industriels contre la corrosion par des milieux agressifs - Partie 4: Revêtements rapportés pour composants métalliques

Beschichtungen und Auskleidungen aus organischen Werkstoffen zum Schutz von industriellen Anlagen gegen Korrosion durch aggressive Medien - Teil 4: Auskleidungen für Bauteile aus metallischen Werkstoffen

This European Standard was approved by CEN on 24 June 2007.

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 CEN Management Centre 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 CEN Management Centre has the same status as the official versions.

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## Foreword

This document (EN 14879-4:2007) has been prepared by Technical Committee CEN/BT/Task Force 130 "Organic coating systems and linings for protection of industrial apparatus and plants against corrosion caused by aggressive media", 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 February 2008, and conflicting national standards shall be withdrawn at the latest by February 2008.

EN 14879 "Organic coating systems and linings for protection of industrial apparatus and plants against corrosion caused by aggressive media" consists of the following parts:

- *Part 1: Terminology, design and preparation of substrate*
- *Part 2: Coatings on metallic components*
- *Part 3: Coatings on concrete components*
- *Part 4: Linings on metallic components*
- *Part 5: Linings on concrete components*
- *Part 6: Combined lining with tile and brick layers*

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, 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.

## 1 Scope

This document describes the requirements for and methods of testing of organic linings which are applied to metallic process engineering equipment that will come in contact with chemical substances. The requirements specified here may be used for the purposes of quality control (e.g. as agreed between the contract partners<sup>1)</sup>).

The standard applies to linings which serve one or more of the following purposes:

- to protect the component from adverse effects of aggressive substances;
- to protect waters (e.g. ground water) from harmful substances;
- to protect the charge from becoming contaminated by components released from the substrate material;
- to achieve a particular surface quality.

This standard applies to vessels, apparatus, piping parts and other components for process plants made of metallic substrate materials which are in contact with media and are provided with a surface protection made of

- a) prefabricated, natural or synthetic rubber based sheeting (subsequently named rubber lining), to be applied in the workshop or on site;
- b) prefabricated, phenol formaldehyde or epoxy resin based sheeting (subsequently named duroplastic lining), to be applied in the workshop only;
- c) prefabricated, thermoplastic products (e.g. foils, sheeting, plates, pipes) (subsequently named thermoplastic lining), to be applied in the workshop or on site.

The standard specifies the requirements, acceptance inspection, packaging, transport, storage and installation of organic linings for metallic materials.

The tests described in this standard are intended for verification of the suitability of sheeting used for linings and for acceptance inspection to be carried out on the products during or after application of the lining or as part of routine inspections to determine any changes effected in the lining during service.

## 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 59, *Glass reinforced plastics — Measurement of hardness by means of a Barcol impressor*

EN 228, *Automotive fuels — Unleaded petrol — Requirements and test methods*

EN 590, *Automotive fuels — Diesel — Requirements and test methods*

EN 12814 (series), *Testing of welded joints of thermoplastics semi-finished products*

prEN 13122, *Hot gas welding of semifinished products of thermoplastic materials*

EN 14728, *Imperfections in thermoplastic welds — Classification*

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1) For the purposes of this standard, the contract partners are the lining material manufacturer, the component manufacturer, the person(s) responsible for applying the lining, and the client ordering the linings.

**EN 14879-4:2007 (E)**

EN 14879-1:2005, *Organic coating systems and linings for protection of industrial apparatus and plants against corrosion caused by aggressive media – Part 1: Terminology, design and preparation of substrate*

EN ISO 291, *Plastics - Standard atmospheres for conditioning and testing (ISO 291:2005)*

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

EN ISO 2039-1, *Plastics — Determination of hardness — Part 1: Ball indentation method (ISO 2039-1:2001)*

EN ISO 4624:2003, *Paints and varnishes — Pull-off test for adhesion (ISO 4624:2002)*

EN ISO 8503-1, *Preparation of steel substrates before application of paints and related products — Surface roughness characteristics of blast-cleaned steel substrates — Part 1: Specifications and definitions for ISO surface profile comparators for the assessment of abrasive blast-cleaned surfaces (ISO 8503-1:1988)*

EN ISO 8503-2, *Preparation of steel substrates before application of paints and related products — Surface roughness characteristics of blast-cleaned steel substrates — Part 2: Method for the grading of surface profile of abrasive blast-cleaned steel - Comparator procedure (ISO 8503-2:1988)*

EN ISO 12944-4, *Paints and varnishes — Corrosion protection of steel structures by protective paint systems — Part 4: Types of surface and surface preparation (ISO 12944-4:1998)*

IEC 60093:1980, *Methods of test for volume resistivity and surface resistivity of solid electrical insulating materials*

IEC 60167, *Methods of test for the determination of the insulation resistance of solid insulating materials*

ISO 813, *Rubber, vulcanized or thermoplastic — Determination of adhesion to a rigid substrate — 90 degree peel method*

ISO 1817, *Rubber vulcanised — Determination of the effect of liquids*