



SLOVENSKI STANDARD

oSIST prEN 10245-1:2008

01-september-2008

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Steel wire and wire products - Organic coatings on steel wire - Part 1: General rules

Stahldraht und Drahterzeugnisse - Organische Beschichtungen auf Draht - Teil 1:
Allgemeine Regeln

Fils et produits tréfilés en acier - Revêtements organiques sur fils d'acier - Partie 1:
Principes généraux

Ta slovenski standard je istoveten z: prEN 10245-1

ICS:

25.220.60	Organske prevleke	Organic coatings
77.140.65	Jeklene žice, jeklene vrvi in verige	Steel wire, wire ropes and link chains

oSIST prEN 10245-1:2008

en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 10245-1

June 2008

ICS 25.220.60; 77.140.65

Will supersede EN 10245-1:2001

English Version

Steel wire and wire products - Organic coatings on steel wire - Part 1: General rules

Fils et produits tréfilés en acier - Revêtements organiques
sur fils d'acier - Partie 1: Principes généraux

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee ECISS/TC 30.

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Contents

Page

Foreword.....	4
Introduction	5
1 Scope	6
2 Normative references	6
3 Terms and definitions	8
4 Requirements and testing methods for the organic coating material	10
4.1 Requirements	10
4.1.1 Composition	10
4.1.2 Colour	10
4.1.3 Apparent density.....	10
4.1.4 Hardness.....	10
4.1.5 Tensile strength and elongation	10
4.1.6 Shelf life	10
4.1.7 The melt flow characteristics (extrusion index):	11
4.2 Test methods for organic coating materials as supplied by the manufacturer	11
4.2.1 Colour	11
4.2.2 Density	11
4.2.3 Method for determining Shore Hardness of organic coating material.....	12
4.2.4 Method for determining the tensile strength and elongation	12
5 Requirements and testing methods for the organic coating on wire.....	12
5.1 Requirements	12
5.1.1 Appearance of organic coating	12
5.1.2 Colour	12
5.1.3 Gloss	12
5.1.4 Thickness of organic coating	12
5.1.5 Adherence of organic coating	12
5.1.6 Resistance to impact (mechanical shock)	12
5.1.7 Spark testing	13
5.2 Testing methods	13
5.2.1 Appearance of the organic coating.....	13
5.2.2 Colour	13
5.2.3 Gloss	13
5.2.4 Thickness of the organic coating.....	13
5.2.5 Adherence test	14
5.2.6 Impact resistance (mechanical shock).....	15
5.2.7 Spark test.....	15
6 Performance tests for the organic coating	15
6.1 Performance requirements	15
6.1.1 Accelerated exposure test to artificial light (resistance to weathering)	16
6.1.2 Accelerated exposure to salt spray	16
6.1.3 Accelerated exposure to humidity	16
6.1.4 Accelerated exposure to humid atmospheres containing levels of sulphur dioxide.....	16
6.1.5 Resistance to natural weathering (long term)	16
6.2 Performance testing	16
6.2.1 Test for accelerated artificial light exposure	16
6.2.2 Accelerated test for exposure to salt spray.....	17
6.2.3 Accelerated exposure test for resistance to humidity.....	17
6.2.4 Accelerated exposure test for resistance to sulphur dioxide in a humid atmosphere.	17

6.2.5	Long term natural weathering test	17
7	Retests.....	17
8	Inspection and Quality assurance	17
	Bibliography.....	18

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prEN 10245-1:2008 (E)

Foreword

This document (prEN 10245-1:2008) has been prepared by Technical Committee ECISS/TC 30 “Steel wires”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document supersedes EN 10245-1:2001.

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Introduction

This European Standard for organic coatings for steel wire is a number of parts; Part 1 covering the requirements of a general nature and applying also to coatings for which no specific requirements have been established in the subsequent parts of this standard.

The subsequent parts of this standard deal more specifically with clearly defined coatings or groups of coatings. These coatings may have their own particular methods of application and their individual requirements which are specified in these parts of this standard, in other standards or in manufacturers data sheets.

This standard is made up of the following parts:

- *Part 1: General Rules*
- *Part 2: PVC coated wire*
- *Part 3: PE coated wire*
- *Part 4: Polyester coated wire*
- *Part 5: Polyamide coated wire*

In writing this series of standards consideration has been given to the nomenclature and transformation of organic coating materials as applied to steel wire products. These organic coating materials may on application to wire and by their integration into the finished wire product change their characteristics and properties.

This standard specifies characteristics and tests not only for the organic coating but also for the coating materials both before and after their application to steel wire and wire products. In addition it specifies the requirements for performance levels and testing methods on organic coating material which have become an integral and permanent part of the finished wire product. Therefore it has proven not to be practical to put all requirements in one clause and all the tests in another one.

To aid continuity and in order to limit complexity following structure has been chosen for this standard.

- **Clause 4** Deals with the characteristics and testing methods of organic coating material as supplied by the manufacturer for the purposes of its application to the wire product.

Tests described in this section are intended to be carried out by the organic coating material manufacturer or the applicator **before** the coating operation.

- **Clause 5** relates to the characteristics and testing methods for the "organic coating" when the organic coating material has been applied to and has become an integral part of the finished wire. Consequently tests are intended to be in the main carried out by the coating "applicators".
- **Clause 6** defines the performance requirements and testing methods on the "organic coating" of the finished wire product, and where this is not possible, tests will be carried out on "coated" panels.

prEN 10245-1:2008 (E)**1 Scope**

This part of EN 10245 specifies the requirements for the characteristics and testing methods for organic coatings made of organic coating material suitable for the application on to steel wire and wire products of circular or other sections.

Other organic materials which are applied intentionally or otherwise such as oils, greases, waxes and temporary finishes which do not become integral or a permanent part of the finished wire product are excluded from this standard

This standard EN 10245 is in a number of parts, Part 1 covering the requirements of a general nature and applies to organic coatings and coating material for which no specific requirements have been established in the subsequent parts of EN 10245.

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 10021, *General technical delivery requirements for steel products*.

EN 10204, *Metallic materials – Types of inspection documents*.

EN 10218-1, *Steel wire and wire products — General — Part 1: Test methods*.

EN 10218-2, *Steel wire and wire products — General — Part 2: Wire dimensions and tolerances*.

EN ISO 527-2, *Plastics — Determination of tensile properties — Part 2: Test conditions for moulding and extrusion plastics (ISO 527-2:1993)*.

EN ISO 527-3, *Plastics — Determination of tensile properties — Part 3: Test conditions for films and sheets (ISO 527-3:1995)*.

EN ISO 868, *Plastics and ebonite — Determination of indentation hardness by means of a durometer (shore hardness)*.

EN ISO 1183-1, *Plastics — Methods for determining the density of non-cellular plastics — Part 1: Immersion method, liquid pykometer method and titration method (ISO 1183-1:2004)*.

EN ISO 1183-2, *Plastics — Methods for determining the density of non-cellular plastics — Part 2: Density gradient column method (ISO 1183-2:2004)*.

EN ISO 1183-3, *Plastics — Methods for determining the density of non-cellular plastics — Part 3: Gas pykometer method (ISO 1183-3:1999)*.

ISO 1512, *Paints and varnishes — Sampling of products in liquid or paste form*.

EN ISO 2808, *Paints and varnishes — Determination of film thickness*.

ISO 2809, *Paints and Varnishes — Determination of light fastness of paints for interior use*.

EN ISO 2811-1, *Paints and varnishes — Determination of density — Part 1: Pykometer 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 2811-3, *Paints and varnishes — Determination of density — Part 3: Oscillation method (ISO 2811-3:1997).*

EN ISO 2811-4, *Paints and varnishes — Determination of density — Part 4: Pressure cup method (ISO 2811-4:1997).*

EN ISO 2813, *Paints and varnishes — Determination of specular gloss of non mettalic paint films at 20°, 60° and 85°(ISO 2813:1994).*

.EN ISO 3668, *Paints and varnishes — Visual comparison of the colour of paints (ISO 3668:1998).*

EN ISO 6988, *Metallic and other non-organic coatings. Sulfur dioxide test with general condensation of moisture (ISO 6988:1985).*

ISO 4582, *Plastics — Determination of changes in colour and variations in properties after exposure to daylight under glass, natural weathering or artificial light sources.*

ISO/DIS 877-1, *Plastics — Methods of exposure to solar radiation —Part 1: General guidance*

ISO/DIS 877-2, *Plastics — Methods of exposure to solar radiation —Part 2: Exposure to direct and glass-filtered solar radiation*

ISO/DIS 877-3, *Plastics — Methods of exposure to solar radiation —Part 3: Intensified weathering using concentrated solar radiation*

EN ISO 4892-1, *Plastics — Methods of exposure to laboratory light sources — Part 1: General guidance (ISO 4892-1:1999).*

EN ISO 4892-2, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon arc sources (ISO 4892-2:1999).*

EN ISO 4892-3, *Plastics - Methods of exposure to laboratory light sources - Part 3: Fluorescent UV lamps (ISO 4892-3:2006).*

EN ISO 6270-1, *Paints and varnishes — Determination of resistance to humidity — Part 1: Continuous condensation (ISO 6270-1:1998).*

EN ISO 6270-2, *Paints and varnishes — Determination of resistance to humidity — Part 2: Procedure for exposing test specimens in condensation-water atmospheres (ISO 6270-2:2005).*

EN ISO 6272-1, *Paints and varnishes — Rapid-deformation (impact resistance) tests — Part 1: Falling-weight test, large area indenter (ISO 6272-1:2002).*

EN ISO 6272-2, *Paints and varnishes — Rapid-deformation (impact resistance) tests — Part 2: Falling-weight test, small area indenter (ISO 6272-2:2002).*

EN ISO 7724-2, *Paints and varnishes — Colorimetry — Part 2: Colour measurement (ISO 7724-2:1984).*

ISO 7724-3, *Paints and varnishes — Colorimetry — Part 3: Calculations of colour differences.*

EN ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests (ISO 9227:2006).*

EN 50395, *Electrical test methods for low voltage energy cables*

EN 50396, *Non electrical test methods for low voltage energy cables*

3 Terms and definitions

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

3.1

organic coating

the layer of organic coating material when deposited intentionally onto the wire/wire product substrate in a clearly specified manner. On becoming an integral part of the wire product the "organic coating" will impart specific functional and performance characteristics. The organic coating material may be applied directly to the surface of the steel wire or subsequent to a pre-treatment of the steel wire surface with a primary coating which can consist of inorganic or organic materials. For the purpose of this definition the steel wire/wire product may be coated with a non-ferrous metallic coating or not

3.2

organic coating material

a material made essentially of organic compounds capable of covering the steel wire surface after suitable preparation

The "organic coating materials" generally contain other matter such as pigments, fillers, plasticisers, lubricants and other additives which are specific to each organic coating material composition

The organic coating materials may be applied using a liquid solution containing organic products capable of covering the surface with the desired organic coating material

The organic coating material may also be applied in the solid form, e.g. powder or in the form of granules. A powder coating is generally applied by depositing the powder on the wire/wire product and then sintering by melting the powder onto the wire product. Granules are applied to a wire by feeding them into an extruder and extruding the "organic coating" onto the wire substrate.

Organic coating materials can be subdivided into several groups each having its own characteristic method of application

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3.2.1

thermoplastics materials

materials having the specific property of softening when heated and hardening or solidifying when cooled. This process is reversible and allows a certain degree of recycling or reprocessing of the material

These materials include PVC, nylon, polyethylene, polypropylene and the copolymer vinyl ethylene acetate

These materials may be applied by one of the following methods: electrostatic spraying, fluidized bed or extrusion

3.2.2

thermosetting materials

materials having the property of changing into much more infusible and insoluble product when hot polymerized by methods such as radiation, catalysts. etc. Once polymerized and made insoluble they cannot be remelted. These materials include polyester and epoxy coatings. These materials are typically applied by electrostatic powder spray

3.2.3

plastisols/organosols

suspension of fine particles of inorganic materials such as resins, PVC, etc carried in an organic fluid or solvents. After immersion or spraying, exposure to heat causes the plastisol to melt to form a solid continuous flexible organic coating

3.2.4**paint**

materials coloured with organic and sometimes inorganic components, dispersed in oils or water. They are applied in liquid form to the surface of the wire and after air drying they form a continuous adherent film on the wire. Application is by brush, roller or spray (electrostatic or atmospheric) or by immersion

3.2.5**varnish**

generally organic materials which are transparent or coloured with an oil, resin and solvent base, which are then air dried. Application is the same as for paints (see 3.2.4)

3.2.6**lacquer**

synthetic organic transparent or coloured coating which generally dries to form a film after evaporation of the solvent

3.3**test piece**

as the definition in EN 10021

3.4**significant surface**

part of the total surface over which it shall be ensured that the "organic coating" complies with the specific requirements of the Standard

3.5**pre-treatment**

operation carried out on the wire/wire products before the final application of the organic coating material

3.6**shelf life**

the period which an organic coating material, securely packaged and stored according to the manufacturer's recommendations, may be kept from the time of manufacture to the actual use by the applicator and still retain the characteristics and properties as specified

3.7**meltflow index**

rate of extrusion of molten resins through a die of specified length and diameter under prescribed conditions of load and piston position in the barrel as the timed measurement is being made

3.8**manufacturer**

the organisation which manufactures the organic coating material

3.9**applicator**

the organisation which applies the organic coating material to the wire/wire product and transforms it into an organic coating which is an integral part of the finished wire product

3.10**specifier**

the organisation issuing a contract specifying the particular properties and performance requirements of a finished wire/wire products covered with an organic coating. The specifier is usually the purchaser of the finished wire product