SLOVENSKI STANDARD
SIST EN 12423:1999

01-november-1999

Polipropilenske povezne vrvice

Polypropylene twines

Polypropylen-Bindegarne

Ficelles polypropylene

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Ta slovenski standard je istoveten z: **EN 12423:1999**

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ICS:

59.080.20 Preje Yarns

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 12423

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English version

Polypropylene twines

Ficelles polypropylène

Polypropylen-Bindegarne

This European Standard was approved by CEN on 1 April 1999.

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 248 " Textiles and textile products", the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by October 1999, and conflicting national standards shall be withdrawn at the latest by October 1999.

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, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This European standard specifies requirements for twines made from polypropylene. It specifies the methods for their manufacture, their physical characteristics, as well as describing test methods to verify these characteristics. This standard allows ultra violet light inhibitors to be added but does not require them to be added. Requirements for the commercial presentation of twines are also specified.
This standard does not specify requirements for agricultural twines made of polyolefin, which are covered according to EN 906 : 1996.

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 cited publications are listed hereafter. For dated references, subsequent amendments to, or revisions of, any of these publications apply to this standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

EN 20139	Textiles - Standard atmospheres for conditioning and testing (ISO 139:1973)
EN 10 002-2	Metallic materials - Tensile testing - Part 2: Verification of the force measuring system of the tensile testing machines
EN 919 : 1995	Fibre ropes for general service - Determination of certain physical and mechanical properties
EN 906 : 1996	Polyolefin agricultural twines

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3 Terms and definitions

For the purposes of this European standard, the following terms and definitions apply :

3.1
twine
product made from a single yarn or from a number of plied yarns assembled in such a way as to form a continuous length.

3.2
ply
number of yarns composing the twine.

3.3
colouring
process of adding colouring matter to the polypropylene before extrusion to provide a finished twine of a defined shade.

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3.4
batch
definite quantity of twine produced under conditions which are presumed uniform.

3.5
package
number of balls or spools of twine which are contained within a common wrapper.

3.6
breaking force
maximum tensile force that the twine can withstand when tested.

3.7
minimum breaking force
nominal breaking force which at least has to be achieved during the single tests.

3.8
production run
material which is made continuously on one machine or on a set of machines with no changes being made to the machine settings and without any change in the material composition.

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3.9
laboratory test
selection of all samples of one lot/production quantity for laboratory tests.

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4 Designation

A twine shall be designated by :

a) the material from which the twine is made ;
b) the word twine ;
c) the number of plies in the twine ;
d) the nominal linear density of the twine in ktex ;
e) the direction of twist ;
f) the colour ;
g) the number of this standard.

Example of designation : a polypropylene twine of 2 ply having a linear density of 2,04 ktex with "S" twist black coloured conforming to EN 12 423 is designated as follows :
TWINE EN 12 423 - PP - 2 - 2,04 S - black.

5 Manufacture

5.1 Polypropylene twines shall be made from mechanically fibrillated polypropylene film tapes in order to achieve a softer yarn.

Note : Additives can be used to colour the material or to improve other characteristics.

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5.2 A specific request shall be made if an additive is needed in order to increase the twine's resistance against ultra violet rays.

5.3 Each spool or ball of twine shall be continuous throughout its length and shall contain no loose ends.

Note : Knots in the twine are permitted provided that these do not exceed two in number per spool or ball.

6 Main requirements of polypropylene twines

When tested in accordance with clause 7 twines shall meet the requirements of Table 1.

Table 1 : Main requirements of polypropylene twines

Linear density 1) of twine Tex 2)						Linear density of single ply			Minimum breaking force			Maximum elongation at rupture
single ply		2 ply		3 ply					single ply	2 ply	3 ply	
Tolerance ± 8 %		Tolerance ± 6 %		Tolerance ± 6 %		Tolerance ± 8%		Equivalent metric number	(daN)	(daN)	(daN)	%
tex	m/kg	tex	m/kg	tex	m/kg	tex	m/kg					
6 670	150							0,15	221			
4 440	225							0,225	148			
3 330	300			10 190	98	3 330	300	0,3	111		339	20
2 000	500			6 120	163	2 000	500	0,5	66		204	20
1 430	699	2 920	342	4 370	229	1 430	699	0,7	48	97	145	20
1 000	1 000	2 040	490	3 060	327	1 000	1 000	1	33	67	102	20
715	1 399	1 450	699	2 170	461	715	1 399	1,4	23	48	72	20
500	2 000	1 020	980	1 530	654	500	2 000	2		34	51	20

1) Linear density of twine as T in tex or as L in m/kg

$$T = \frac{10^6}{L}$$ where : T = linear density in tex, L = runnage in m/kg

2) tex = g/1000 m

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7 Methods of test

7.1 Sampling

7.1.1 The number of samples required shall be determined in accordance with Table 2 and the samples shall be taken from the batch at random.

7.1.2 Not more than one sample shall be taken from each package.

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Table 2 : Number of samples

Quantity in the production run tonne	No of samples
≤ 1	1
> 1 and ≤ 2,5	2
> 2,5 and ≤ 5	3
> 5 and ≤ 10	4
> 10	5

7.1.3 The first 10 m of twines shall be discarded at the end of the package.

7.1.4 Test samples shall be removed with care from the package so that twist is neither added nor removed from them.

7.2 Conditioning

7.2.1 The tests shall be carried out in ambient atmospheric conditions.

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7.2.2 In case of arbitration, the specimens shall be left 24 h in the standard atmosphere for testing specified in EN 20139 which has a temperature of (20 ± 2) °C and a relative humidity of(65 ± 2) %, before continuing with the tests.

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7.3 Determination of linear density

7.3.1 Measure a length of at least 10 m under sufficient tension by hand to straighten the twine.

7.3.2 Determine the mass of each specimen length to an accuracy of 0,5 %.

7.3.3 Calculate the linear density in the unitary system appropriate for the product.

Note : Expression of the result in tex unit is recommended.

7.4 Determination of breaking force

7.4.1 Test specimen of twine shall be tested using a tensile testing machine calibrated in accordance with EN 10 002-2, and which shall demonstrate a minimum accuracy of ± 2 %. The testing machine shall be within its period of valid calibration.

7.4.2 Have a sufficient length of specimen to provide a minimum effective length between the grips of the testing machine of 250 mm, conforming to annex B of EN 919 : 1995.

7.4.3 Secure the specimen in the testing machine by means of appropriate grips which have been designed for the purpose. Under no circumstances shall the specimen be connected to the grips by knotting.

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7.4.4 Check that the speed of movement of the moving grips of the machine is constant and equal, in millimetres per minute, within ± 10 %, to the length in millimetres of the specimen between the grips as defined in 7.4.2.

7.4.5 Perform 5 tests on each specimen. Each test shall be taken at a minimum distance of 5 m along the twine from the previous one.

7.4.6 Record each result in decanewtons.

7.4.7 The results, when averaged, shall equal or exceed those values quoted for the twine in Table 1.

7.4.8 Not more than two individual results of the six shall be less than 8 % for single ply twines, and 6 % for 2 or 3 ply twines quoted for the twine in Table 1.

8 Test report

A written test report shall be compiled after testing wich will include :

a) reference to this European standard

b) test report reference

c) reference of the twine stated in this standard (description of the material)

d) linear densities obtained for the specimen

e) individual breaking forces obtained for the specimen

f) average breaking forces obtained from the specimen

g) any operating details and details of any incident liable to have an effect upon the results

h) date of the report, name, title, and signature of the person conducting the tests.

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9 Commercial presentation

9.1 Polypropylene twines shall be supplied in balls or in spools.

9.2 All twines shall be neatly and securely made up into packages as ordered.

Note 1: When the twines are supplied in ball, the recommended masses should be 100 g, 250 g, 500 g, 1 kg or 2 kg.

Note 2: When the twines are supplied in spool, the recommended masses should be 1 kg, 2 kg or 4 kg. Package size should be either 150 mm, 200 mm or 250 mm.

9.3 The nominal mass of balls and of spools shall be subject to a tolerance of ± 8 %.