SLOVENSKI STANDARD
SIST EN 12422:1999

01-november-1999

Povezne vrvice iz sisala

Sisal twines

Sisal-Bindegarne

Ficelles Sisal

Ta slovenski standard je istoveten z: EN 12422:1999

ICS:

59.080.20 Preje Yarns

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Sisal twines

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of an identical text or by endorsement, at the latest by October 1999, and conflicting national standards shall be withdrawn at the latest by October 1999.

This standard includes an informative annex A.

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.

1 Scope

This European standard specifies the essential characteristics of sisal twines. It specifies the way they are manufactured, methods for testing and the manner in which they are designated and presented commercially.

This standard does not specify agricultural twines which are made from sisal. These twines are specified according to EN 25080 : 1993.

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

EN 10 002-2	Metallic materials - Tensile testing - Part 2: Verification of the force measuring system of the tensile testing machines
EN 20139	Textiles - Standard atmospheres for conditioning and testing (ISO 139:1973)
EN 919 : 1995	Fibre ropes for general service - Determination of certain physical and mechanical properties
EN 25080 : 1993	Sisal agricultural twines (ISO 5080 : 1977, modified)

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

3.4
package
number of balls or spools of twine which are contained within a common wrapper.

3.5
breaking force
maximum force that the twine can withstand when tested.

3.6
minimum breaking force
nominal breaking force which at least has to be achieved during the single tests.

3.7
production run
material which is made continuously on one machine or a set of machine with no changes being made to the machine settings and without any change in the material composition.

3.8
laboratory test
selection of all samples of one lot/production quantity for laboratory tests.

3.9
cropping
practice of trimming off fibres which protrude from the finished twine to produce a smoother profile.

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 sisal twine of 2 ply having a linear density of 2,04 ktex with "S" twist rust coloured conforming to EN 12422 is designated as follows :
TWINE EN 12422 - SISAL - 2 - 2,04 S - rust.

5 Manufacture

5.1 The fibre used for the manufacture of the twine shall consist of new genuine fibre of long staple ; it shall be unadulterated, free from defects and true to form as follows : Sisal (Agave Sisalana).

5.2 Each spool or ball of twine shall be continuous throughout its length, and with not more than 2 knots per spool or ball. It shall contain no loose ends.

5.3 The twine shall be supplied either cropped or uncropped as specified.

Note : Twines can be dyed to shades agreed by the supplier and the user.

6 Main requirements of sisal twines

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

6.2 When the permitted values are neither maxima nor minima, the permitted tolerances shall be as in Table 1.

6.3 When tested in accordance with 7.5, the water content of the twine shall not be greater than 16 %.

Table 1 : Main requirements of sisal twines

No of plies	Linear density of single ply (tex)	Linear density of single ply (Equiv.) (metric no.)	Linear density of twine (ktex)	Linear density of twine (m/kg)	Minimum breaking force (daN)
Tolerance :		± 9 %			
1	5 000	0,2	5,00	200	75
1	3 300	0,3	3,33	300	50
1	2 500	0,4	2,50	400	40
1	1 670	0,6	1,67	599	26
1	1 250	0,8	1,25	800	20
1	1 000	1,0	1,00	1 000	17
Tolerance :		± 6 %			
2	5 000	0,2	10,20	98	162
2	3 300	0,3	6,80	147	108
2	2 500	0,4	5,10	196	86
2	1 670	0,6	3,40	294	57
2	1 250	0,8	2,55	392	43
2	1 000	1,0	2,04	490	36

No of plies	Linear density of single ply (tex)	Linear density of single ply (Equiv.) (metric no.)	Linear density of twine (ktex)	Linear density of twine (m/kg)	Minimum breaking force (daN)
Tolerance :		± 6 %			
3	5000	0,2	15,30	65	245
3	3300	0,3	10,20	98	163
3	2500	0,4	7,65	131	131
3	1670	0,6	5,10	196	87
3	1250	0,8	3,82	262	65
3	1000	1,0	3,06	327	56
Tolerance :		± 6 %			
4	5000	0,2	20,40	49	328
4	3300	0,3	13,60	73	218
4	2500	0,4	10,20	98	175
4	1670	0,6	6,80	147	116
4	1250	0,8	5,10	196	87
4	1000	1,0	4,08	245	74

7 Methods of test

7.1 Sampling

7.1.1 The number of samples required in accordance with Table 2 shall be determined 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.

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 twine 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.

7.2.2 In case of arbitration, the specimens shall be left 24 h in the standard atmosphere for testing specified in EN 20 139 which has a temperature of (20 ± 2) °C and a relative humidity of (65 ± 2) %, before continuing with the tests.

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 : The expression of the result in tex units is recommended.

7.4 Determination of breaking force

7.4.1 Test specimen of twine using a tensile testing machine in accordance with EN 10 002-2, 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 the 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.

7.4.4 Check that the speed of movement of the moving grips of the machine is constant and equal, in millimeters 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 six 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 results of the six shall be less than 9 % for single ply twines, and 6 % for 2, 3 or 4 ply twines below those values quoted for the twine in Table 1.

7.5 Determination of water content

7.5.1 Unlay the twine into its component yarns.

7.5.2 Form a representative selection of these yarns into a hank weighing between 30 g and 50 g.

7.5.3 Weigh the hank prepared in 7.5.2 to the nearest 10 mg. Let this mass be M_1.

7.5.4 Place the hank into an oven maintained at a temperature of (120 ± 5) °C for a period of at least 2 h or at a temperature of (100 ± 5) °C for a period of 24 h.

7.5.5 Remove the hank from the oven, and allow it to cool in a dessicator.

7.5.6 When the sample has cooled down to room temperature, reweigh it to the nearest 10 mg. Let this be M_2.

7.5.7 Calculate the percentage water content of the original specimen from the expression :

$$[(M_1 - M_2)/M_2] \times 100$$

8 Test report

A written test report shall be compiled after testing which 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)