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उत्पाद मैनुअल
Sisal Ropes Part 1 Untarred Varieties

IS 1321 (Part 1):2003 के अनुसार

PRODUCT MANUAL For
Sisal Ropes Part 1 Untarred Varieties
ACCORDING TO IS 1321 (Part 1):2003

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना- I के तहत प्रमाणन के संचालन में अभ्यास और पारदर्शिता के संचालन में पारदर्शिता सुनिश्चित करने के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज़ का उपयोग बीआईएस प्रमाणन लाइसेंस/प्रमाणपत्र प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2008 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.

1.	उत्पाद Product	:	IS 1321 (Part 1):2003
	शीर्षक Title	:	Sisal Ropes - Specification Part 1 Untarred Varieties
	संशोधनों की संख्या No. of amendments	:	03
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	The fibre used in the manufacture of ropes shall be sisal, that is sisal (Agava Sisalana) true to its type and shall be unadulterated and free from defects and shorts. The fibre shall be well hackled and of quality, fineness and colour necessary to produce ropes having the characteristics required and specified in the respective tables (see Table 1 to 3) of ISS. To comply with the minimum number of yarns specified in this standard, yarn of 4.6 ktex shall be used. Manufacturer shall submit a declaration to the effect that fibre

		used in the manufacture of ropes shall be sisal and shall be unadulterated and free from defects and shorts and also that yarn of 4.6 ktex shall be used.
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	: Please refer Annex –A

c)	नमूने का आकार Sample Size	: 10 Mtrs
3.	परीक्षण उपकरणों की सूची List of Test Equipment	: Please refer Annex –B
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	: Please refer Annex - C
5.	एक दिन में संभावित परीक्षण Possible tests in a day	: Prior to evaluation, the test sample shall be conditioned to moisture equilibrium in a standard atmosphere for 24 hours. Complete test of preconditioned sample is possible in a single day.

6.	लाइसेंस का दायरा /Scope of the Licence:	
	Licence is granted to use Standard Mark as per IS 1321 (Part 1):2003 with the following scope:	
	Name of the product	Sisal Ropes Part 1 Untarred Varieties
	Type of Rope	Hawser Laid / Shroud Laid / Cable Laid
	Sizes	Reference Number (Diameter)
	Any other aspect required as per the Standard.	With/without Rot-Proofing Treatment

ANNEX-A
GROUPING GUIDELINES

In IS 1321 (Part 1):2003, Ropes are classified on the basis of the type of the rope (hawser-laid, shroud-laid, and cable-laid), and the size (diameter of the rope).

Accordingly, for the purpose of grant of licence/change in scope of licence, following grouping guidelines shall be followed

Type of Rope	Sizes (Dia)	Samples to be tested
Hawser-laid	Dia 8 mm to 24 mm	One sample of any size (dia.) within this range and any length
	Dia 26 mm to 56 mm	-do-
	Dia 60 mm to 128 mm	-do-
Shroud-laid	Dia 8 mm to 24 mm	One sample of any size (dia.) within this range and any length
	Dia 26 mm to 56 mm	-do-
	Dia 60 mm to 128 mm	-do-
Cable-laid	Dia 40 mm to 64 mm	One sample of any size (dia.) within this range and any length
	Dia 72 mm to 144 mm	-do-

In case rot proofing treatment is intended to be covered in the scope of licence, sample of rope which has been subjected to rot proofing treatment shall be tested. Manufacturer shall also submit evidence (independent lab/in house test report or test certificate) that When zinc or copper are extracted in accordance with IS 3522 (Part 1), it shall be minimum 0.5 percent and 0.2 percent respectively.

However, scope of the licence shall be restricted on the basis of the available manufacturing and testing facilities.

During the operation of licence, samples of all sizes/varieties covered in the scope of the licence shall be drawn for testing.

ANNEX B
LIST OF TEST EQUIPMENTS

Major test equipment required to test as per the Indian Standard

Sr. No.	Test Equipment	Tests used in with Clause Reference
1	Bevel Protractor	Angle of Lay, Cl. 5.4
2	Soxhlet Apparatus, Hot air oven, Balance	Lubrication, Cl. 5.5
3	Balance, capable of weighing to an accuracy of 1 percent.	Mass & Length of the coil etc., Cl. 6.1 to Cl. 6.5
4	Measuring Tape, calibrated in Mtr, and mm	Mass & Length of the coil etc., Cl. 6.1 to Cl. 6.5
5	Tensioning Device	Mass & Length of the coil etc., Cl. 6.1 to Cl. 6.5
6	Rope Gauge or a Pair of Calipers	The diameter of the rope, Cl. 6.5
7.	Tensile Testing M/c	Breaking Strength, Cl. 6.4
8.	Zinc or copper based rot proofing agent For Estimation of Zinc (As per Cl. 11 of IS 3522 Part 1:1989) - Reagents: Sodium Acetate, Acetic Acid, Ammonia Sol, Ammonium Chloride, 8- hydroxyquinoline, Hydrochloric acid, Nitric Acid, Sulphuric Acid, Potassium Bromate, Sodium Thiosulphate, Potassium Iodide, Methyl Red Indicator, Soluble Starch Indicator - Apparatus: Kjeldahl flask, Analytical Balance, Bunsen Burner, Steam Bath, titration apparatus and other laboratory glassware For Estimation of Copper (As per Cl. 11 of IS 3522 Part 1:1989) - Reagents : Benzene or petroleum ether, Hydrochloric Acid, Nitric Acid, Ammonia Solution, Copper sulphate or electrolytic copper - Apparatus: Soxhlet Apparatus, Extraction Flask, Analytical Balance, Colorimeter/Standard Copper Solution in Nessler Tubes	Rot Proofing, Cl 6.6

The list given above is indicative and is not meant to be exhaustive

ANNEX – C

SCHEME OF INSPECTION AND TESTING

1. **LABORATORY** - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.
 - 1.1 The manufacturer shall prepare and implement a calibration plan for the test equipment.
2. **TEST RECORDS** – The manufacturer shall maintain test records for the tests carried out to establish conformity.
3. **PACKING AND MARKING** – The Standard Mark as given in the Schedule of the license shall be marked on the label attached at both the ends of each coil of untarred sisal rope, provided applied that the rope in each coil to which this mark is thus applied conforms to every requirement of the specification. The Standard Mark shall also be marked on each package containing such ropes.
 - 3.1 Marking and packing shall be done as per the provisions of the Indian Standard. In addition, the following information shall be given each package containing untarred sisal rope:
 - a) Control Unit (or Batch) Number.
 - b) BIS website details i.e.–“For details of BIS certification please visit www.bis.gov.in”
4. **CONTROL UNIT** – For the purpose of this scheme all the coils of rope of one type (refer clause 1 of IS 1321 (Part I):2003) and reference number (diameter) manufactured in a day under similar condition shall constitute a control unit..
5. **LEVELS OF CONTROL** - The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.
 - 5.1 All the production which conforms to the Indian Standard and covered by the licence should be marked with Standard Mark.
6. **REJECTIONS**–Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act,2016.

TABLE 1
LEVELS OF CONTROL

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or)S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods Clause Reference			No. of Sample	Frequency	Remarks
5.1	Sisal Fibre	5.1	IS 1321 (Pt.I) : 2003	R	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
5.2	Yarn	5.2	IS 1321 (Pt. I) : 2003	R	-do-		
5.3 & 5.4	Strand & Rope	5.3 & 5.4	IS 1321 (Pt.I) : 2003	R	-do-		No of Strands in the rope and the lay of the rope , unless otherwise specified shall be as given in ISS.
5.5	Lubrication	5.5	IS 1321 (Pt.I) : 2003	R	Three	Every Mixing	
5.6	Rot-proofing treatment	5.6	IS 1321 (Pt.I) : 2003	R	-do-	-do-	This requirement is however subject to order by the buyer.

6.1	Mass of the coil		IS 7071 (Pt 1 to 3) : 1989	R	Three coils of ropes	Each control unit	
6.2	Pitch		IS 7071 (Pt 1 to 3) : 1989	R	-do-	-do-	
6.3	Length of coil		IS 7071 (Pt 1 to 3) : 1989	R	All coils of Ropes	-do-	Length in the coil may be agreed between buyer and seller.
6.4 and Table 1,2 or 3	Other requirements :						
	a) Linear Density		IS 7071 (Pt 1 to 3) : 1989	R	-do-	-do-	
	b) Breaking Strength		IS 7071 (Pt 4) : 1986	R	-do-	-do-	
	c) No. of yarns per strand		IS 7071 (Pt 1 to 3) : 1989	R	-do-	-do-	
6.5	Diameter	6.5	IS 1321 (Pt.I) : 2003	R	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
7	Finish	7	IS 1321 (Pt.I) : 2003	R	-do-		
8	Identification	8	IS 1321 (Pt.I) : 2003	R	-do-		

Note-1: Whether test equipment is required or sub-contracting is permitted in column 2 shall be decided by the Bureau and shall be mandatory. Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empaneled by the Bureau

Note-2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval by BO Head.