



**RWANDA
STANDARD**

**DRS
444**

First edition

2020-mm-dd

**Spun silk woven fabric and silk sheet —
Specification**

ICS 59.080.30

Reference number

DRS444: 2020

© RSB 2020

In order to match with technological development and to keep continuous progress in industries, standards are subject to periodic review. Users shall ascertain that they are in possession of the latest edition

© RSB2020

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without prior written permission from RSB.

Requests for permission to reproduce this document should be addressed to:

Rwanda Standards Board

P.O Box 7099 Kigali-Rwanda

KK 15 Rd, 49

Tel. +250 788303492

Toll Free: 3250

E-mail: info@rsb.gov.rw

Website: www.rsb.gov.rw

ePortal: www.portal.rsb.gov.rw

Contents	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Requirements	3
4.1 General requirements	3
4.2 Specific requirements	3
5 Packing and labelling	5
5.1 Packing	5
5.2 Labelling	5
6 SAMPLING	5

PUBLIC REVIEW

Foreword

Rwanda Standards are prepared by Technical Committees and approved by Rwanda Standards Board (RSB) Board of Directors in accordance with the procedures of RSB, in compliance with Annex 3 of the WTO/TBT agreement on the preparation, adoption and application of standards.

The main task of technical committees is to prepare national standards. Final Draft Rwanda Standards adopted by Technical committees are ratified by members of RSB Board of Directors for publication and gazettment as Rwanda Standards.

DRS 444 was prepared by Technical Committee RSB/TC 029, *Textile and leather technology*.

Committee membership

The following organizations were represented on the Technical Committee on *Textile and leather technology* (RSB/TC 029) in the preparation of this standard.

Ministry of Trade and Industry (MINICOM)

University of Rwanda-College of Science and Technology (UR-CST)

National Agricultural Export Development Board (NAEB)

Rwanda Inspectorate, Competition and Consumer Protection Authority (RICA)

HeWorks Silk Rwanda Ltd

Rene Pharmacy

UTEXRWA Ltd

OXALIS Ltd

LIXIL/SATO

Rwanda Standards Board (RSB) – Secretariat

Introduction

Spun silk woven fabric is solely made from silk fibre that is recovered from silk waste and cut cocoons (from silk breeding facilities) while silk sheet is derived from un-reelable silk cocoons and silk waste. The fabric is woven by a weaving machine into a grey fabric with the original shiny cream colour. The yarn and fabric can be dyed to any colour or shade.

Spun silk can be used for shantung, pile fabrics, dress trimmings and linings, elastic webbing, sewing silk, summer weight silks, velvets, umbrella fabrics and insulation. Short lengths of inferior silk filaments taken from waste material are combed and spun together as silk thread. Spun silk threads are soft but less lustrous, strong and elastic than reeled silks.

Spun silk woven fabrics applications include clothing, home textiles and accessories.

There are several sources to fabricate spun silk:

- a) pierced cocoons,
- b) double cocoons;
- c) floss, brushed from cocoons before reeling;
- d) friese, the coarse and uneven silk fibre at the beginning and end of each cocoon;
- e) waste derived from the processing of spun silk yarn is also used. Such fibre is labelled as waste silk, silk waste or most frequently noil silk. Silk noil may be reprocessed into spun yarn and woven into textured fabrics for draperies, upholstery and sportswear. These fabrics are dull, rough, with a cotton-like appearance and more resilience.

Spun silk woven fabric and silk sheet — Specification

1 Scope

This Draft Rwanda Standard specifies the requirements, sampling and test methods for spun silk woven fabric and silk sheet.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

RS ISO 105-B01, *Textiles — Tests for colour fastness — Part B01: Colour fastness to light: Daylight*

RS ISO 105-C10, *Textiles — Tests for colour fastness — Part C10: Colour fastness to washing with soap or soap and soda*

RS ISO 105-E04, *Textiles — Tests for colour fastness — Part E04: Colour fastness to perspiration*

RS ISO 105-X11, *Textiles — Tests for colour fastness — Part X11: Colour fastness to hot pressing*

ASTM D1388, *Standard Test Method for Stiffness of Fabrics*

RS ISO 139, *Textiles — Standard atmospheres for conditioning and testing*

RS ISO 1833-18, *Textiles — Quantitative chemical analysis — Part 18: Mixtures of silk with other protein fibres (method using sulfuric acid)*

ISO 2313, *Textiles — Determination of the recovery from creasing of a horizontally folded specimen of fabric by measuring the angle of recovery*

RS ISO 3071, *Textile materials — Method for determination of pH value of aqueous extracts*

RS ISO 3758, *Textiles — Care labelling code using symbols*

RS ISO 3801, *Textiles — Woven fabrics — Determination of mass per unit length and mass per unit area*

RS ISO 5077, *Textiles — Determination of dimensional change in washing and drying*

ISO 5084, *Textiles — Determination of thickness of textiles and textile products*

ISO 7211-5, *Textiles — Woven fabrics — Construction — Methods of analysis — Part 5: Determination of linear density of yarn removed from fabric*

RS ISO 7211-2, *Textiles — Woven fabrics — Construction — Methods of analysis — Part 2: Determination of number of threads per unit length*

ISO 9073-9, *Textiles — Test methods for nonwovens — Part 9: Determination of drapability including drape coefficient*

RS ISO 13934-1, *Textiles — Tensile properties of fabrics — Part 1: Determination of maximum force and elongation at maximum force using the strip method*

RS ISO 22198, *Textiles — Fabrics— Determination of width and length*

ISO 24153, *Random sampling and randomization procedures*

ISO 13937-2, *Textiles — Tear properties of fabrics — Part 2: Determination of tear force of trouser-shaped test specimens (Single tear method)*

ISO 13934 – 1, *Textiles — Tensile properties of fabrics — Part 1: Determination of maximum force and elongation at maximum force using the strip method*

RS EAS 96-1, *Sanitary towels — Specification — Part 1: Disposable*

ISO 9073-2, *Textiles — Test methods for nonwovens — Part 2: Determination of thickness*

ISO 9073-18, *Textiles — Test methods for nonwovens — Part 18: Determination of breaking strength and elongation of nonwoven materials using the grab tensile test*

3 Terms and definitions

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

3.1

spun silk

yarn produced by spinning, un-reelable silk cocoons, silk waste, short and broken filaments from which the sericin has been removed

3.2

spun silk fabric

fabric woven from spun silk yarn

4 Requirements

4.1 General requirements

- a) The spun silk woven fabric shall be woven from 100 % silk yarns when tested in accordance with RS ISO 1833-18.
- b) The spun silk woven fabric shall be generally free from defects which effect the performance such as holes, cuts, tears, spots, stains, gap stitches, loose ends and frayed ends
- c) The selvedge shall be straight and firm
- d) When coloured, the spun silk woven fabric shade shall be uniform throughout when visually examined in ordinary daylight

4.2 Specific requirements

4.2.1 The spun silk woven fabric properties shall be as specified in Table 1 when tested in accordance with the test method given therein.

Table 1– Mechanical and comfort properties of spun silk woven fabric

S/No.	Characteristic	Requirement	Test method	
i.	pH value	6.0-8.0	RS ISO 3071	
ii.	Pilling resistance	3-4	ISO 12945-1	
iii.	Drape coefficient , %, min	75	ISO 9073-9	
iv.	Thickness, mm, min	0.44	ISO 5084	
v.	Mass per unit area, g/m ² , min	180	RS ISO 3801	
vi.	Tensile strength, N, min	Warp	RS ISO 13934-1	
		Weft		550
vii.	Elongation at break , %	Warp	30	
		weft	20	
viii.	Flexural rigidity, mg-cm	Warp	ASTM D1388	
		Weft		22.17
		Overall		5.60
ix.	Threads density	Ends/cm	RS ISO 7211-2	
		Picks/cm		20
x.	Yarn count, denier	Weft	ISO 7211-5	
		Warp (2 ply)		64
xi.	Crease recovery angle, degree (weft + warp)	Initial	ISO 2313	
		Final		131.0

4.2.2 The silk sheet properties shall be as specified in Table 2 when tested in accordance with the test methods given therein.

Table 2—silksheets

S/No.	Characteristic		Requirement	Test method
i.	Fibre composition, %		100	ISO 1833-18: 2019
ii.	pH value		6.0-8.5	RS ISO 3071
iii.	Moisture content, % m/m, max.		8	RS EAS 96-1
iv.	Mass per unit area (Specificweight), g/m ²		590	ISO 3081
v.	Tear strength, N,min	Warp	25	ISO 13937-2
		Weft	10	
vi.	Tensile strength, N, min	Warp	2900	ISO 13934 – 1
		Weft	20	
vii.	Thickness, mm, min.		1.1	ISO 9073-2

4.2.3 The width of the spun silk woven fabric shall be as declared subject to a tolerance of $\pm 2\%$ when measured in accordance with ISO 22198.

4.2.4 The spun silk woven fabric length shall be as declared subject to a tolerance of $\pm 1\%$ when determined in accordance with ISO 22198.

4.2.5 Dimensional change of spun silk woven fabric shall not exceed $\pm 2\%$ when determined in accordance with RS ISO 5077.

4.2.6 **Colour fastness**—The colour fastness of the coloured spun silk woven fabric shall comply with the requirements given in Table 3 when tested in accordance with test methods specified therein.

Table 3 –Colour fastness requirements for dyed spun silk woven fabrics

S/No.	Fastness to:		Numerical Rating (min)		Method of test
			Change in colour	Staining adjacent fabric	
i.					
ii.	Light		5	-	RS ISO 105-B01
iii.	Washing		4	4	RS ISO 105-C10
iv.	Perspiration		4	4	RS ISO 105-E04
v.	Hot pressing		4	4	RS ISO 105-X11
vi.	Rubbing	Dry	-	4	RS ISO 105-C10
		Wet	-	4	

5 Packing and labelling

5.1 Packing

The spun silk woven fabric shall be rolled and packed in suitable and environmental friendly packaging material that protects it from any damage during handling, storage and transportation.

5.2 Labelling

The following information shall be legibly and indelibly marked on each roll or bale:

- a) name of the material;
- b) fibre content;
- c) length in metres (m);
- d) width in centimetres (cm);
- e) mass of roll or bale in kilograms (kg);
- f) manufacturer's name or registered trademark;
- g) country of origin;
- h) intended use; and
- i) care labelling symbols as per RSISO 3758 depending upon the end use.

6 SAMPLING

Spun silk woven fabrics shall be sampled randomly in accordance with ISO 24153 and the samples shall be conditioned as per RS ISO 139.

Bibliography

[1] Indian Journal of Fibre & Textile Research, Vol.19, December 1994, pp.247-250

PUBLIC REVIEW

PUBLIC REVIEW

Price based on nnn pages

©RSB 2020- All rights reserved