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Textiles — Acrylic yarn — Specification



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Foreword

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- (a) a member of International Organisation for Standardisation (ISO) and
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The work of preparing Uganda Standards is carried out through Technical Committees. A Technical Committee is established to deliberate on standards in a given field or area and consists of key stakeholders including government, academia, consumer groups, private sector and other interested parties.

Draft Uganda Standards adopted by the Technical Committee are widely circulated to stakeholders and the general public for comments. The committee reviews the comments before recommending the draft standards for approval and declaration as Uganda Standards by the National Standards Council.

The committee responsible for this document is Technical Committee UNBS/TC 07, Textiles, Leather, Paper and related products, Subcommittee SC 1, Textiles and related products.

Textiles — Acrylic yarn — Specification

1 Scope

This Draft Uganda Standard specifies the requirements, test methods and sampling of acrylic yarn to be used for machine weaving, hand weaving, hand knitting and machine knitting.

2 Normative references

The following referenced 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.

ASTM D5647, *Standard guide for measuring hairiness of yarns by the photo-electric apparatus*

FDUS ISO 1833-12, *Textiles — Quantitative chemical analysis — Part 12: Mixtures of acrylic, certain modacrylics, certain chlorofibres, certain elastane fibres with certain other fibres (method using dimethylformamide)*

ISO 16373-2, *Textiles — Dyestuffs — Part 2: General method for the determination of extractable dyestuffs including allergenic and carcinogenic dyestuffs (method using pyridine-water)*

ISO 16373-3, *Textiles — Dyestuffs — Part 3: Method for determination of certain carcinogenic dyestuffs (method using triethylamine/methanol)*

ISO 16549, *Textiles — Unevenness of textile strands — Capacitance method*

ISO 17202, *Textiles — Determination of twist in single spun yarns — Untwist/retwist method*

ISO 2, *Textiles — Designation of the direction of twist in yarns and related products*

ISO 2061, *Textiles — Determination of twist in yarns — Direct counting method*

ISO 2062, *Textiles — Yarns from packages — Determination of single-end breaking force and elongation at break using constant rate of extension (CRE) tester*

ISO 6741-1, *Textiles — Fibres and yarns — Determination of commercial mass of consignments — Part 1: Mass determination and calculations*

US ISO 105-B02, *Textiles — Tests for colour fastness — Part B02: Colour fastness to artificial light: Xenon arc fading lamp test*

US ISO 105-C 10, *Textiles — Tests for colour fastness — Part C10: Colour fastness to washing with soap or soda*

US ISO 1833-1, *Textiles — Quantitative chemical analysis — Part 1: General principles of testing*

US ISO 2060, *Textiles — Yarn from packages — Determination of linear density (mass per unit length) by the skein method*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

unevenness

variation of linear density along the length of a continuous strand of yarns.

3.2

english count (Ne)

number of hanks (each measuring 768 m or 840 yd) in 453.6 g (or 1 lb)

3.3

grey yarn

yarn as it leaves the spinning frame without any bleaching, dyeing or finishing treatment

Note 1 to entry: The yarn may be waxed or unwaxed

3.4

hairiness index

total length of protruding fibres in the yarn in cm with reference to the sensing length of 1 cm yarn

3.5

lea

continuous length of yarn measuring 109.73 m (120 yd) in the form of a coil having 80 wraps wound on a reel of 1.37 m (1.5 yd) girth

3.6

breaking load

maximum load (or force) applied to a specimen in a tensile test carried to rupture

3.7

tex

number of grams per kilometre of yarn

4 Requirements

4.1 General requirements

4.1.1 Fibre composition

The fibre composition shall be 100 % acrylic fibres when tested in accordance with FDUS ISO 1833-12

4.1.2 Yarn count

4.1.2.1 The average resultant count of yarn shall be as agreed between the purchaser and the manufacturer.

4.1.2.2 A tolerance of ± 2.0 percent shall be permissible on the count of yarn

4.1.2.3 Yarn count shall be determined in accordance with US ISO 2060.

4.1.3 Yarn twist

4.1.3.1 The number of turns per unit length shall be determined in accordance with ISO 2061 or ISO 17202. The direction for twist shall be indicated by the capital letter “S” or “Z” as specified in ISO 2.

4.1.3.2 The coefficient of variation of twist shall be within ± 5 percent of the specified value

4.1.4 Moisture regain

Unless otherwise agreed to between the purchaser and manufacturer, the moisture regain shall not exceed 2 percent when determined in accordance with ISO 6741-1.

4.1.5 Restricted colorants

The colorants used on the acrylic yarns shall be free from those that are listed in ISO 16373-2, and ISO 16373-3

4.1.6 Freedom from defects

The yarn on cones/cheeses shall be free from the following defects:

- a) stitches of more than 2.5 cm in length at the base;
- b) excessive stitches at the nose;
- c) soft cones or cheeses;
- d) prominent stains inclusive of chalk and other markings;
- e) cut threads;
- f) absence of tail end where it is required and the length of the tail-end should not be less than 30 cm;
- g) entanglement;
- h) presence of hard waste;
- i) ribbon formation;
- j) drum cuts;
- k) count mix up.

4.2 Specific requirements

4.2.1 Breaking tenacity

When tested in accordance with ISO 2062, the minimum breaking tenacity of yarn shall be as follows:

- a) grey yarn intended for weaving: 16.5 g/tex
- b) hosiery grey yarn: 13.0 g/tex
- c) dyed yarn intended for weaving: 13.0 g/tex

d) dyed hosiery yarn: 10.0 g/tex

4.2.2 Elongation and Evenness

Acrylic yarn shall meet the requirements given in Table 1.

Table 1 — Specific requirements of acrylic yarn

Parameter	Requirement				Test Method
	≤ 10s	10s – 20 s	20s – 30 s	30s and finer	
Lea count CV, %, Max.	1.5	1.5	1.4	1.3	US ISO 2060
Breaking elongation, %, Max	15.0	15.5	16.0	16.5	ISO 2062
Unevenness, %, Max	8.7	10.7	12.0	12.0	ISO 16549
Hairiness Index	10.0	10.0	8.0	7.5	ASTM D5647
Imperfections/Km					ISO 16549
Thin	4.5	4.5	6.0	6.5	
Thick	3.0	3.0	4.0	8.0	
Neps	6.5	6.5	13.0	22.5	
Total	14.0	14.0	23.0	37.0	
Colour fastness*					
Light	5				US ISO 105-B02
Washing	4				US ISO 105-C 10
NOTE The unevenness percentage (U %) and the imperfections per Km of the yarn on packages shall not exceed the values given in Table 1 when tested at a speed of 5 m/min and at sensitivity of -50%, +50% and +200% for thin places, thick places and neps respectively					
*dyed acrylic yarn					

4.5 Package mass

The mass of the yarn package shall be not less than 98 % of the declared value. This shall be tested in accordance with ISO 6741-1.

5 Packaging

Acrylic yarn packages shall be packaged in suitable packaging materials which shall protect the product from damage during transportation, handling and storage. The spools, cheeses or cones may be packaged in unit packages and into bulk packs.

6 Labelling

6.1 Unit packages

Each unit package shall bear a clear label which shall include the following particulars:

- a) manufacturer's name or trade mark and address;
- b) product name as "100 % acrylic yarn";

- c) yarn count in 'Ne' or 'tex' ;
- d) the direction of twist (*S* or *Z*) and number of plies for plied yarn;
- e) net mass in grams;
- f) care instruction in accordance with US ISO 3758;
- g) type of yarn i.e. machine weaving, machine knitting or hand weaving and knitting;
- h) country of manufacture; and
- i) shade/lot number.

6.2 Bulk containers

Each bulk container shall bear the following information:

- a) manufacturers name or trade mark and address;
- b) product name as "100 % acrylic yarn";
- c) yarn count in 'Ne' or 'tex';;
- d) net mass in kilograms;
- e) number of packages;
- f) type of yarn;
- g) country of manufacture; and
- h) lot number.

7 Sampling

7.1 In any consignment, the cases containing yarn of the same type and of the same nominal count shall constitute a lot.

7.2 Samples shall be drawn from each lot to determine its conformance with the requirements of the standard.

7.3 Unless otherwise agreed to between the buyer and the seller, the number of cases to be selected from a lot shall be in accordance with Table 2. The bales or cases shall be selected at random.

7.4 In case two or less cases are selected in the sample, at least 10 cones or cheeses shall be drawn at random from each of the selected case. However, in case three or more cases are selected in the sample, at least five cones or cheeses shall be drawn at random from each of the selected case.

Table 2 — Sampling

Lot Size	Sample Size
Up to 3	1
4 – 10	2
11 – 30	3

31 – 50	5
Over 50	8

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Bibliography

- [1] SITRA Norms for spinning mills (seventh edition)
- [2] IS 15336:2003, Textiles - Acrylic Yarn for Hosiery – Specification

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Certification marking

Products that conform to Uganda standards may be marked with Uganda National Bureau of Standards (UNBS) Certification Mark shown in the figure below.

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