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DRAFT EAST AFRICAN STANDARD

Acrylic yarn — Specification

EAST AFRICAN COMMUNITY

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Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the Principles and procedures for development of East African Standards.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

The committee responsible for this document is Technical Committee EASC/TC 061, *Textiles, textile products and accessories*.

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Acrylic yarn — Specification

1 Scope

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

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.

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

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

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

ISO 105-D02, *Textiles — Tests for colour fastness Part D02: Colour fastness to rubbing: Organic solvents*

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

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

ISO 105-X12, *Textile — Tests for colour fastness Part X12: Colour fastness to rubbing: Small areas*

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

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 3758, *Textiles — Care labelling code using symbols*

ISO 14362-1, *Textiles — Test methods for determination of certain aromatic amines derived from azo colorants Part 1: Detection of the use of certain azo colorants accessible with or without extracting the fibres*

ISO 14362-3, *Textiles — Test methods for determination of certain aromatic amines derived from azo colorants Part 3: Detection of the use of certain colorants, which may release 4-amino azo benzene*

ISO 16373-1, *Textiles — Dyestuffs Part 1: General principles of testing coloured textiles for dyestuff identification*

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/TR 11827, *Textiles — Composition testing-Identification of fibres*

3 Terms and definitions

For the purposes of this East African Standard, the following terms and definitions shall 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 tenacity

tensile force per unit of linear density of the unstrained specimen

3.3 linear density

mass per unit length of a yarn

3.4 coefficient of variation of unevenness, CVU

value of unevenness expressed as coefficient of variation

3.5 mean - deviation unevenness

value of unevenness (3.1) expressed as an average mean deviation

3.6 hairiness index

total length of protruding fibres in the yarn in centimetres with reference to the sensing length of one centimetre yarn

3.7 tex

number of grams per kilometre of yarn

4 Requirements

4.1 General requirements

4.1.1 The yarn shall be free from contamination such as stains, dirt, foreign matter or any other defect that may affect its performance during use.

4.1.2 The yarn packages shall be correctly and uniformly wound and shall enable the removal of yarn without difficulty and entanglement.

4.2 Specific requirements

4.2.1 Linear density

4.2.1.1 When tested in accordance with ISO 2060, the linear density shall be as declared on the label marking subject to a tolerance of $\pm 2\%$.

4.2.1.2 The CV % of linear density shall be a maximum of 2 % when determined in accordance with ISO 2060.

4.2.2 Breaking tenacity

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

- a) Weaving yarn: 13 cN/tex; and
- b) Knitting yarn: 10 cN/tex.

4.2.3 Package mass

The net mass of the yarn package shall be not less than 98 % of the declared value when tested in accordance with Annex A.

4.2.4 Twist

4.2.4.1 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.

4.2.4.2 The CV% of twist shall be a maximum of 5 %.

4.2.5 Yarn unevenness

The yarn unevenness, expressed as maximum CV % and U % shall be as given in Table 1. The yarn unevenness shall be tested in accordance with ISO 16549.

Table 1 — Yarn unevenness

S/N	Linear density, tex	CV %, max.	U %, max.
i	Finer than 20	18	14.4
ii	20 – 30	16	12.8
iii	30 – 40	14	11.2
iv	40 – 50	12	9.6

v	50 – 60	10	8
vi	Coarser than 60	≤ 8	≤ 6.4
NOTE 1 When a number falls under two linear density classes, it shall be categorized under the lower one.			
NOTE 2 CV% = 1.25 U%			

4.2.6 Fibre composition

The fibre composition shall be 100 % acrylic fibres when tested in accordance with ISO 1833-12 and ISO/TR 11827.

4.2.7 Colour fastness

The minimum colour fastness rating for dyed acrylic yarns shall be as given in Table 2 when tested in accordance with the test methods specified therein.

Table 2 — Colour fastness requirements of acrylic yarn

S/N	Parameter		Numerical rating, min.		Test method
			Colour change	Staining	
i	Light		6	-	ISO 105-B02
ii	Washing		4	3	ISO 105-C10
iii	Rubbing	Dry	4	4	ISO 105-X12
		Wet	4	3	
iv	Perspiration	Acid	4	4	ISO 105-E04
		Alkali	4	4	
v	Dry cleaning		4	4	ISO 105-D02
vi	Hot pressing		4	4	ISO 105-X11

4.2.8 Restricted colourants

4.2.8.1 The colourants used on the acrylic yarns shall be free from those that are listed in ISO 16373-2, ISO 16373-3 and ISO 14362-1 and ISO 14362-3.

4.2.8.2 The colourants shall be identified in accordance with ISO 16373-1.

4.2.9 Moisture regain

The acrylic yarns shall have a moisture regain value of not more than 2 % when tested in accordance with Annex B.

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 and indelible label which shall include the following particulars:

- a) manufacturer's name or registered trade mark;
- b) the words "100 % acrylic yarn";
- c) linear density in 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 ISO 3758;
- g) end use of yarn such as "weaving, knitting" country of manufacture;
- h) shade number; and
- i) batch/lot number.

6.2 Bulk package

Each bulk package shall bear the following information:

- a) manufacturers name or trade mark;
- b) the words "100 % acrylic yarn";
- c) linear density in tex;
- d) net mass in kilograms;
- e) number of packages;
- f) End use of yarn such as "weaving, knitting";
- g) country of manufacture; and
- h) lot number.

7 Sampling

Sampling shall be done in accordance with ISO 2859-1.

Annex A (normative)

Determination of net mass of the package

A.1 Principle

Mass of a package without wrappers is taken on a weighing balance. This is the net mass of package.

A.2 Apparatus

Weighing balance, capable of determining the mass of packages to an accuracy of $\pm 0.2\%$.

A.3 Procedure

- A.3.1 Condition five specimens (packages) without wrappers in accordance with ISO 139.
- A.3.2 Determine the mass of the conditioned specimens using the weighing balance (2.1).
- A.3.3 Calculate the average of the mass obtained.
- A.3.4 Report the average net mass in grams.

Annex B (normative)

Determination of moisture regain

B.1 Principle

A known mass of yarns is dried and then the loss in mass expressed as a ratio of the dry mass.

B.2 Apparatus

B.2.1 Weighing balance, capable of weighing to an accuracy of 0.001 g

B.2.2 Drying Oven, well ventilated with a temperature of 102 °C to 105 °C

B.2.3 Desiccator, waterproof when sealed, will be used for transfer of analysed material and during weighing.

B.3 Procedure

B.3.1 From the sample under test draw at least three test specimens each weighing approximately 5 g.

B.3.2 Take a test specimen drawn as in A.3.1 and weigh it accurately (M_1)

B.3.3 Dry it at a temperature of 102°C to 105°C until constant mass is obtained (see note)

B.3.4 Cool the test specimen in a desiccator and determine the oven-dry mass (M_2).

NOTE The mass is usually regarded as constant if the loss between two successive weighing, taken at an interval of 30 min does not exceed 0.1 per cent of the first of the two values.

B.3.5 Similarly test the other test specimen(s).

B.4 Calculation

$$\text{Moisture regain} = \frac{M_1 - M_2}{M_2} \times 100\%$$

B.5 Report

Report the average of the value calculated in B.4 as the moisture regain in %.

Bibliography

- [1] KS 496: 2018, *Acrylic yarn — Specification*
- [2] US 2150: 2021, *Textiles — Acrylic yarn — Specification*

Public Review Draft

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