Specification for Sewing threads

Part 2: Sewing threads made wholly or partly from synthetic fibres

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Synthetic Fibres (K) Ltd.

Kenya Industrial Research and Development Institute (KIRDI)

Kenya Prisons — Tailoring Division

Kenya Taitex Mills Ltd.

Kenya Threads Industries Ltd.

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Part 2: Sewing threads made wholly or partly from synthetic fibres

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Foreword

This Kenya Standard has been prepared by the Technical Committee on Yarns and Fibres under guidance of the Standards Projects Committee, and it is in accordance with the procedures of the Kenya Bureau of Standards.

Sewing threads made wholly or partly from synthetic fibres are used for industrial and domestic stitching of the corresponding fabrics. It is important that sewing thread meets minimum requirements of the end-use. This Part 2 of KS 479 specifies these minimum requirements.

This Third edition cancels and replaces the Second edition (KS 479-2:1992) which has been technically revised. The changes are as follows;

-Test methods in clauses 4.2.1, 4.2.2, 4.2.7 and 4.2.8 have been updated

-Clause 7 on sampling have been added

-Method of determination of length have been added in annex A

-Breaking tenacity requirement for polypropylene threads has been added

During the preparation of this standard, reference was made to the following document:

KS 479-2:1992, Specification for Sewing threads Part 2: Sewing threads made wholly or partly from synthetic fibres

BS 6157: 1990 Specification for industrial sewing threads made wholly or partly from synthetic fibres.

Acknowledgment is hereby made for assistance received from these sources.

# Specification for Sewing threads Part 2: Sewing threads made wholly or partly from synthetic fibres

# 1 Scope

This Part 2 of KS 479 specifies requirements, test methods and sampling method of sewing threads made wholly or partly from synthetic fibres.

# 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.

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

KS ISO 1144, *Textiles — Universal system for designating linear density (Tex System).*

## KS ISO 1833*, Textiles — Quantitative chemical analysis*

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

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

KS ISO 2076*, Textiles — Man-made fibres — Generic names*

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

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

KS ISO 105-B03, *Textiles — Tests for colour fastness — Part B03: Colour fastness to weathering: Outdoor exposure*

KS ISO 105-B04, *Textiles — Tests for colour fastness — Part B04: Colour fastness to artificial weathering: Xenon arc fading lamp test*

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

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

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

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

KS 545*, Method for determination of colour fastness of textiles to peroxide washing (sodium perborate).*

# 3 Terms and definitions

For the purpose of this Part 2 of KS 479, the following definitions, together with those given in KS 209, KS ISO 2076, and KS ISO 1144, shall apply:

**3.1 loop textured**

threads made from continuous filament yarns which have been subjected to a texturing process by overfeeding in a turbulent air stream.

**3.2 crimp textured**

threads made from continuous filament yarns which have been subjected to a texturing process by highly twisting, heat setting in the twisted state and then untwisting.

**3.3 polyester and cotton core spun**

threads made from two or more single core yarns (i.e. yarns produced at the spinning frame by feeding a filament yarn through the delivery rollers simultaneously with the spinning of the staple material).

3.4 polyester and cotton component plied

threads made from combination yarns in which a continuous filament polyester yarn is folded with a cotton yarn.

**3.5 tenacity**

the ratio of the tension to the linear density of unstrained specimen. It is expressed in, for example, centinewtons per tex

**3.6 breaking tenacity**

the tenacity corresponding to the breaking force

NOTE: The breaking tenacity is calculated from the breaking force and the linear density of the unstrained specimen, or, for specimens of known linear density, obtained directly from tensile testing machines which can be suitably adjusted to indicate tenacity instead of breaking force.

# 4 Requirements

## 4.1 General requirements

**4.1.1 Application**

This Part 2 of KS 479 applies to sewing threads made from the following fibres and combinations thereof:

1. continuous filament polyester;
2. staple fibre polyester;
3. loop textured polyester;
4. crimp textured polyester;
5. continuous filament nylon 6.6;
6. staple fibre nylon 6.6;
7. staple fibre aramid nylon;
8. crimp textured nylon 6.6;
9. polyester and cotton core spun (continuous filament polyester core, cotton sheath);
10. polyester and cotton component plied;
11. polypropylene thread.

**4.1.2 Appearance**

When visually examined, sewing thread shall have a uniform shade or whiteness and shall be devoid of singeing defects and stains.

**4.1.3 Finishing**

Sewing threads shall be well lubricated to ensure efficient working on the appropriate types of sewing machines.

## 4.2 Specific requirements

4.2.1 Resultant Linear Density

The resultant linear density of the thread in tex shall be as declared subject to a tolerance of ± 2 per cent for continuous filament threads and ± 4 per cent for spun and plied threads. This shall be determined in accordance with KS ISO 2060.

**4.2.2 Type of Sewing Thread**

The type of sewing thread shall be as declared. In the case of blends, the blend composition shall be as declared subject to a tolerance of ± 5 per cent. The thread type shall be determined by microscopic observation and the relevant part of KS ISO 1833.

**4.2.3 Coefficient of Variation of Linear Density**

The coefficient of variation of the resultant linear density shall not exceed 2 per cent for continuous filament threads and 5 per cent for spun plied threads.

The coefficient of variation  shall be calculated from the following formula:

 x 100 %



where,

*x* – the resultant linear density in tex of any thread sample;

 = the mean resultant linear density of all the samples;

*n*  = the total number of all samples; and

σ = the standard deviation in tex.

**4.2.4 Knots**

The number of knots permissible in a package of sewing thread shall be as specified in Table 1.

Table 1-Number of Permissible Knots in A Package of Sewing Thread

|  |  |  |
| --- | --- | --- |
| **SN** | **Package Length, Metres** | **Permissible Knots** |
|  | Up to 1 000 | Not more than 1 |
|  | 1001-2500 | Not more than 2 |
|  | 2501-4000 | Not more than 3 |
|  | 4001-5500 | Not more than 4 |
|  | 5501-7000 | Not more than 5 |
|  | 7001-8500 | Not more than 6 |
|  | More than 8 500 | Not more than 7 |

**4.2.5 Length**

The length of the sewing thread contained in a package shall be as declared subject to a tolerance of 0.2% when tested in accordance with annex A

**4.2.6 Net Mass**

The mass of the package, conditioned as per KS ISO 139 shall be as declared subject to a tolerance of – 0.2 per cent

**4.2.7 Breaking Tenacity**

The minimum breaking tenacity for each type of sewing thread shall be as specified in Table 2. This shall be determined in accordance with KS ISO 2062.

**Table 2. Specification for Breaking Tenacity**

|  |  |  |
| --- | --- | --- |
| **SN** | **Type of Sewing Thread** | **Breaking Tenacity cN per tex (min.)** |
|  | Continuous filament polyester thread | 40 |
|  | Spun staple fibre polyester thread | 30 |
|  | Textured polyester thread | 30 |
|  | Continuous filament nylon 6.6 thread | 45 |
|  | Spun staple nylon 6.6 thread | 30 |
|  | Crimp textured nylon 6.6 thread | 30 |
|  | Aramid nylon thread | 22 |
|  | Polyester and cotton core spun thread | 30 |
|  | Polyester and cotton component plied thread | 30 |
|  | Polypropylene thread | 40 |

**4.2.8 Colour Fastness**

The colour fastness of the dyed threads shall be as specified in Table 3 when tested with the methods specified therein.

**Table 3- Colour Fastness Requirements**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SN | AGENCY | NUMERICAL RATING | | METHOD OF TEST |
| Colour Change, (min.) | Staining, (min.) |
|  | Light | 6 | - | KS ISO 105-B01  KS ISO 105-B02 |
|  | Washing | 4 | 4 | KS ISO 105-C10 |
|  | Dry cleaning | 4 | 4 | KS ISO 105-D01 |
|  | Perspiration | 4 | 4 | KS ISO 105-E04 |
|  | Peroxide washing | 4 | 4 | KS 08-545 |
|  | Weathering | 6 | - | KS ISO 105-B03  KS ISO 105-B04 |

# 5 Package Formation, Wrapping and Packing

**5.1 Package Formation**

Sewing threads shall be compactly and uniformly wound into cones or cheeses (spools). The free end of the thread shall be securely fastened to prevent unravelling

**5.2 Wrapping**

Each package (cone or cheese) shall be neatly and securely wrapped in cellophane wrappers to prevent it from damage or contamination with dust, moisture, or fumes.

**5.3 Packing**

The neatly and securely wrapped packages shall be packed in boxes (cartons) in the agreed quantities (preferably in dozens or grosses).

# 6 Marking

**6.1 Unit packages**

Each unit package (cone or cheese) shall have a label bearing the following information:

1. manufacturer’s name or registered trade mark;
2. type of sewing thread (refer to Clause 4.2.2);
3. nominal resultant linear density;
4. length of the sewing thread in metres;
5. net mass of the sewing thread in grams;
6. ticket number in accordance with KS 08-1141;
7. country of origin

**7.2 Bulk Containers**

Each bulk container (box) shall bear the following information:

1. manufacturer’s name or registered trade mark;
2. type of sewing thread;
3. nominal resultant linear density;
4. quantity of pieces;
5. gross mass of the container;
6. ticket number in accordance with KS 08-1141;
7. country of origin

# 7 Sampling

**7.1 Lot**

7.1.1 The quantity of sewing thread of the same variety delivered to a buyer against a despatch note shall constitute the lot.

7.1.2 The conformity of the lot to the requirements of this standard shall be determined based on the tests carried out on the samples selected from the lot.

7.1.3 Unless otherwise agreed to between the buyer and the seller, the number of packs to be selected at random from a lot shall be as follows:

|  |  |  |
| --- | --- | --- |
| **SN** | **Number of Packs in the Lot** | **Number of Packs to be Selected** |
|  | Upto 15 | 5 |
|  | 16-30 | 7 |
|  | 31-50 | 10 |
|  | 51-100 | 15 |
|  | 101-300 | 25 |
|  | 301 and above | 30 |

**ANNEX A**

**DETERMINATION OF LENGTH**

**A.1 Atmospheric Conditions for Testing**

The atmospheres for preconditioning, conditioning, and testing shall be as specified in ISO 139.

**A.2 Conditioning of Test Specimens**

Prior to test, the test specimens shall be conditioned in the standard atmosphere for at least 24 hours.

**A.3 Apparatus**

**A.3.1 Warp Reel-**with a perimeter of 1000 ± 4 mm. Determine the actual perimeter of the reel with a strip of gummed paper passed tightly around the reel and secured by adhesion at the overlap. Cut the paper strip and measure its length to an accuracy of 0.1 percent.

**A.3.2**- **Adjustable Yarn Tensioning Device**-It shall be capable of giving a reeling tension that will result in skeins of the specified length when measured under a load of 0.5 gf/tex.

**A.3.3** **Weighing Balance**-It shall be capable of weighing skeins in grams and with an accuracy of 0.2 percent.

**A.4 Procedure**

A.4.1 Determine linear density in tex as per KS ISO 2060

A.4.2 Determine the net weight of the yarn in the package in grams

**A.5 Calculation**

Calculate the length per kilogram by the following formula:

A.6- Similarly determine the length in meters of other test specimens.