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**Series 4**  
**Série des 4**

## WITHDRAWAL

**December 2016**

### **Standards in series Textiles**

These CGSB standards and National Standards of Canada are hereby withdrawn due to limited use and support for their revision.

The Standards Council of Canada requires that accredited Standards Development Organizations, such as the CGSB, regularly

## RETRAIT

**Décembre 2016**

### **Normes de la série Textiles**

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**4-GP-80Ma**

Cotton Thread (ICS 59.060.10)

**4-GP-85Ma**

Nylon Thread (Continuous Multifilament) (ICS 59.060.20)

**4-GP-97Ma**

Polyester Thread (Continuous Multifilament) (ICS 59.060.20)

**CAN/CGSB-4.131-93**

Cotton-Covered or Polyester-Covered Polyester Thread (ICS 59.060.20)

**CAN/CGSB-4.139-94**

Polyester Staple Thread (ICS 59.060.20)

cette information.

Des copies des normes retirées peuvent être obtenues auprès du Centre des ventes de l'ONGC. Il suffit d'en faire la demande par téléphone au 819-956-0425 ou 1-800-665-2472, par télécopieur au 819-956-5740, par Internet à : [www.tpsgc-pwgsc.gc.ca/ongc-cgsb/index-fra.html](http://www.tpsgc-pwgsc.gc.ca/ongc-cgsb/index-fra.html), par courriel à [ncr.CGSB-ONGC@tpsgc-pwgsc.gc.ca](mailto:ncr.CGSB-ONGC@tpsgc-pwgsc.gc.ca), ou par courrier adressé au Centre des ventes, Office des normes générales du Canada, 11, rue Laurier, Gatineau, Canada K1A 1G6.

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**4-GP-85Ma**

Fil de nylon (multifilaments continus) (ICS 59.060.20)

**4-GP-97Ma**

Fil de polyester (multifilaments continus) (ICS 59.060.20)

**CAN/CGSB-4.131-93**

Fil polyester guipé de coton ou de polyester (ICS 59.060.20)

**CAN/CGSB-4.139-94**

Fil en fibres de polyester (ICS 59.060.20)

NATIONAL STANDARD OF CANADA

**CAN/CGSB-4.139-94**

Supersedes 4-GP-139M

## **Polyester Staple Thread**



**QUALITY**

Withdrawn

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**POLYESTER STAPLE THREAD**

**Prepared by the**  
Canadian General Standards Board 

**Approved by the**  
Standards Council of Canada 

Published February 1994 by the  
**Canadian General Standards Board**  
Ottawa, Canada K1A 1G6

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*Acknowledgment is made for the translation of this National Standard of Canada by the Translation Bureau of the Department of the Secretary of State.*

## CANADIAN GENERAL STANDARDS BOARD

## POLYESTER STAPLE THREAD

**1. SCOPE**

- 1.1 This standard applies to staple spun polyester thread intended for use in hand and machine sewing.
- 1.2 The testing and evaluation of a product against this standard may require the use of materials and/or equipment that could be hazardous. This document does not purport to address all the safety aspects associated with its use. Anyone using this standard has the responsibility to consult the appropriate authorities and to establish appropriate health and safety practices in conjunction with any existing applicable regulatory requirements prior to its use.

**2. APPLICABLE PUBLICATIONS**

- 2.1 The following publications are applicable to this standard:

**2.1.1 Canadian General Standards Board (CGSB)****CAN/CGSB-4.2 — Textile Test Methods:**

- No. 2 — Conditioning Textile Materials for Testing
- No. 5.2 — Linear Density of Yarns in SI Units
- No. 8.3/ISO 2 — Textiles — Designation of the Direction of Twist in Yarns and Related Products
- No. 9.4 — Breaking Strength of Yarns — Single Strand Method
- No. 10 — Elongation
- No. 18.3/ISO 105-B02 — Textiles — Tests for Colourfastness — Part B02: Colourfastness to Artificial Light: Xenon Arc Fading Lamp Test
- No. 19.1 — Colourfastness to Washing — Accelerated Test — Launder-Ometer
- No. 20 — Colourfastness to Water
- No. 21 — Colourfastness to Sea Water
- No. 22 — Colourfastness to Rubbing (Crocking)
- No. 23 — Colourfastness to Perspiration
- No. 29.1 — Colourfastness to Dry Cleaning Solvent
- No. 31/ISO 105/X11 — Textiles — Tests for Colourfastness — Part X11: Colourfastness to Hot Pressing
- No. 35.1 — Colourfastness to Burnt Gas Fumes
- No. 46/ISO 105-A02 — Textiles — Tests for Colourfastness — Part A02: Grey Scale for Assessing Change in Colour
- No. 47/ISO 105-A03 — Textiles — Tests for Colourfastness — Part A03: Grey Scale for Assessing Staining
- No. 52.1 — Colourfastness to Chlorinated Water
- No. 64 — Chromatic Transference Scale.

**2.1.2 International Organization for Standardization (ISO)**

ISO 105-G01-1978 — Textiles — Tests for colour fastness — Part G01: Colour fastness to nitrogen oxides.

- 2.2 Reference to the above publications is to the latest issues, unless otherwise specified by the authority applying this standard. The sources of these publications are shown in the Notes section.

### 3. GENERAL REQUIREMENTS

- 3.1 The thread shall be manufactured from yarn spun from high-tenacity polyester staple fibre that when twisted and lubricated will perform satisfactorily in high-speed sewing machines.
- 3.2 **Finish** — The thread shall have a soft finish. No treatment or finish having a deleterious effect on polyester, or causing degradation during prolonged storage, shall be used.
- 3.3 **Colour** — The finished thread shall be clean and uniform in colour. The colour shall be as specified (par. 7.1). In the case of thread purchased for use with specific garments, the purchaser shall provide a colour swatch of the material to which the colour of the thread is to be matched.

### 4. DETAILED REQUIREMENTS

- 4.1 **Materials** — The yarn for the thread shall be made from high-tenacity polyester staple fibre (polyethylene glycol terephthalate) having a relative density within the range 1.36 to 1.40.
- 4.2 **Construction** — The thread shall be made by twisting together, evenly, two or more ends of the yarn.
- 4.3 **Direction of Twist** — When tested in accordance with CAN/CGSB-4.2 No. 8.3/ISO 2, the thread shall be twisted "twist against twist." Unless otherwise specified (par. 7.1), the direction of the final twist shall be "Z."
- 4.4 **Linear Density, Breaking Strength and Elongation** — The thread shall meet the requirements for linear density, when tested in accordance with CAN/CGSB-4.2 No. 5.2, breaking strength when tested in accordance with CAN/CGSB-4.2 No. 9.4 and elongation when tested in accordance with CAN/CGSB-4.2 No. 10 given in Table 1. Ticket numbers (par. 5.2) are given for identification only.

TABLE 1  
Physical Thread Requirements

Identification		Maximum Linear Density CAN/CGSB-4.2 No. 5.2 Tex*	Minimum Average Breaking Strength CAN/CGSB-4.2 No. 9.4 N	Maximum Elongation CAN/CGSB-4.2 No. 10 %
Tex Ticket No.	Conventional Ticket No. Thread Size (Metric)			
R 18 tex	180	21	6.0	25
R 21 tex	150	26	7.5	25
R 24 tex	140	28	8.5	25
R 27 tex	120	32	10.0	25
R 30 tex	100	37	11.5	25
R 35 tex	80	41	12.5	25
R 40 tex	60	52	15.5	25
R 50 tex	50	66	20.0	25
R 60 tex	40	82	23.5	25
R 80 tex	30	103	31.0	25

\*Applies to finished thread.

- 4.5 **Shrinkage** — The thread shall not shrink more than 2% in wet heat when tested in accordance with par. 6.3.1.
- 4.6 **Colourfastness** (par. 7.1)
- 4.6.1 Colourfastness of the dyed and finished thread to light, to laundering, to water, to rubbing (crocking), to perspiration and to dry cleaning solvent shall be as specified in Table 2.



**TABLE 2**  
**Thread Requirements**

Property	Test Method	Minimum Specified Requirements
Colourfastness:		
— to light	CAN/CGSB-4.2 No. 18.3/ISO 105/B02	AATCC Standard L4
— to laundering	CAN/CGSB-4.2 No. 19.1	No more change in shade than Grey Scale 4 and no more staining than Grey Scale 3.
— to water	CAN/CGSB-4.2 No. 20	No more change in shade than Grey Scale 4 and no more staining than Grey Scale 3.
— to rubbing (crocking)	CAN/CGSB-4.2 No. 22	No more staining than Grey Scale 4 when dry and Grey Scale 3 when wet.
— to perspiration	CAN/CGSB-4.2 No. 23	No more change in shade than Grey Scale 4 and no more staining than Grey Scale 3.
— to dry cleaning solvent	CAN/CGSB-4.2 No. 29.1	No more change in shade than Grey Scale 4

4.6.2 Colourfastness of the dyed and finished thread to other conditions, e.g., to chlorinated water, to sea water, to nitrogen oxides, to hot pressing and to burnt gas fumes shall be as specified, but at least equal to that specified for the material with which it is being used. The type of colourfastness required shall be tested in accordance with one or more of the following methods:

CAN/CGSB-4.2 No. 21, No. 52.1, ISO 105-G01, CAN/CGSB-4.2 No. 31/ISO 105/X11 and No. 35.1.

4.6.3 When colourfastness to dry heat (sublimation) is required (as in post curing of permanent press garments), it shall be tested in accordance with the method in par. 6.3.2.

4.6.4 The degree of colourfastness required shall be assessed by reference to CAN/CGSB-4.2 No. 46/ISO 105/A02, No. 47/ISO 105/A03 and No. 64.

4.7 **Knots** — There shall not be more than one finished thread-knot per 1000 m.

## 5. PREPARATION FOR DELIVERY

5.1 **Packaging, Labelling, Packing and Marking** — Unless otherwise specified (par. 7.1), normal commercial practice of packaging, labelling, packing and marking shall be acceptable.

*Note: Commercial packaging may be on a mass or length basis.*

5.2 **Identification** — Each unit (spool, cone, tube, etc.) shall have a label attached in such a manner as to remain in place and be clearly legible until all thread has been removed. Commercial identification markings giving the following information shall be acceptable, unless otherwise specified (par. 7.1):

Length

Ticket number

Colour

Name of manufacturer.

## 6. INSPECTION

6.1 **Sampling** — Samples for test shall be taken from thread that has not been stitched into any fabric or article. The number of units (spools, cones, tubes, etc.) selected from the inspection lot for the assessment of compliance with the requirements of the standard shall be as follows:

<u>Number of Units in Inspection Lot</u>	<u>Number of Units to be Sampled</u>
1-99	5 (or all, if less than 5)
100-299	6
300-499	8
500-999	10
1000 or more	15

Each unit in the test sample shall be selected at random from a different package in the inspection unit.

6.2 **Inspection** — Inspection shall be left to the discretion of the purchaser.

### 6.3 Test Methods

#### 6.3.1 *Shrinkage*

##### 6.3.1.1 *Apparatus*

Hot plate capable of heating water to the boil

Suitable beaker (400 mL)

Wall mounted metre stick with horizontal pin for hanging thread loop

10 g weight

Neutral soap.

6.3.1.2 *Test Specimens* — Cut six specimens, each 1 m long, three from each of two units per ticket number to be tested. Knot each specimen to form a loop. Condition the specimens in accordance with CAN/CGSB-4.2 No. 2.

6.3.1.3 *Procedure* — Suspend each specimen over a horizontal pin on a vertical metre scale (Figure 1), and apply tension by attaching a 10 g weight to the bottom of the loop. Measure and record the length of the loop to the nearest millimetre. Remove the weight and lay the specimen flat and unrestrained in the beaker. Add 250 mL of 0.1% soap solution (1 g of soap per litre of distilled water), raise the solution to 100°C and boil gently for 10 min. Remove the specimen, hang it vertically without tension from the horizontal pin and allow it to dry at room temperature for 24 h. Remeasure the specimen under tension of a 10 g weight. Calculate the percent shrinkage to the nearest 0.1%. Average the results of the six specimens. Care should be taken to ensure that twist is not affected during the test.

#### 6.3.2 *Colourfastness to Dry Heat (Sublimation)*

##### 6.3.2.1 *Apparatus and Materials*

Scorch Tester (Note 1) providing even heat transfer at controlled temperature by close contact with both sides of the specimen.

Two pieces of Multifiber Test Fabric No. 10 (Note 2) 25 × 50 mm in size with the bands perpendicular to the 50 mm dimension.

*Note 1: Scorch Tester is available from Atlas Electric Devices Company, 4114 North Ravenswood Avenue, Chicago, IL 60613, U.S.A. (Canadian agent J.B. Atlas Company, 9 Canso Road, Rexdale, Ontario M9W 4L9).*

*Note 2: Multifiber Test Fabric No. 10 consists of acetate, cotton, nylon 6,6, polyester (polyethylene glycol terephthalate), acrylic and wool, and is available from Testfabrics Inc., P.O. Drawer O, 200 Blackford Avenue, Middlesex, NJ 08846, U.S.A.*

Grey Scale for assessing change in colour (CAN/CGSB-4.2 No. 46/ISO 105/A02).

Grey Scale for assessing staining (CAN/CGSB-4.2 No. 47/ISO 105/A03).

6.3.2.2 *Test Specimen* — The thread shall be formed into a 1 g skein of suitable size and placed between the two pieces of multifibre fabric, in contact with the bands of the test fabric to form a composite specimen. Condition the specimen in accordance with CAN/CGSB-4.2 No. 2.

6.3.2.3 *Procedure* — Place the composite specimen in the Scorch Tester for 30 s at  $175 \pm 2^\circ\text{C}$  (par. 6.3.2.4). Apply sufficient pressure to the composite test specimen to assure intimate contact between the test specimen and with the plates of the tester. (Minor variations in pressure do not affect the result.) Remove the composite specimen from the tester and separate the components for evaluation. Measure and report the colour change of the test specimen using CAN/CGSB-4.2 No. 46/ISO 105/A02:

- a. after 1 min, and
- b. after conditioning (CAN/CGSB-4.2 No. 2)

Measure and report the staining of each kind of fibre in the multifiber test cloth using CAN/CGSB-4.2 No. 47/ISO 105/A03.

6.3.2.4 The accuracy of this test is dependent upon the uniformity of the heat supplied by the Scorch Tester and upon the temperature of the thread. It is suggested that the thread temperature be measured with a thermocouple or thermopaper placed between the specimen being tested and the multifiber test fabric. It is desirable to calibrate the instrument periodically to ensure its accuracy. Although a thermocouple is preferable for measuring the temperature, thermostat paper (Note 3) will give quite an accurate measurement of temperature.

## 7. NOTES

7.1 **Options** — The following options must be specified in the application of this standard:

- a. Colour (par. 3.3)
- b. Direction of twist, if other than "Z" (par. 4.3)
- c. Type and degree of colourfastness required in addition to those specified in Table 2 (par. 4.6)
- d. Packaging, labelling, packing and marking details, if normal commercial practice is not suitable (par. 5.1)
- e. Identification, if other than as specified (par. 5.2).

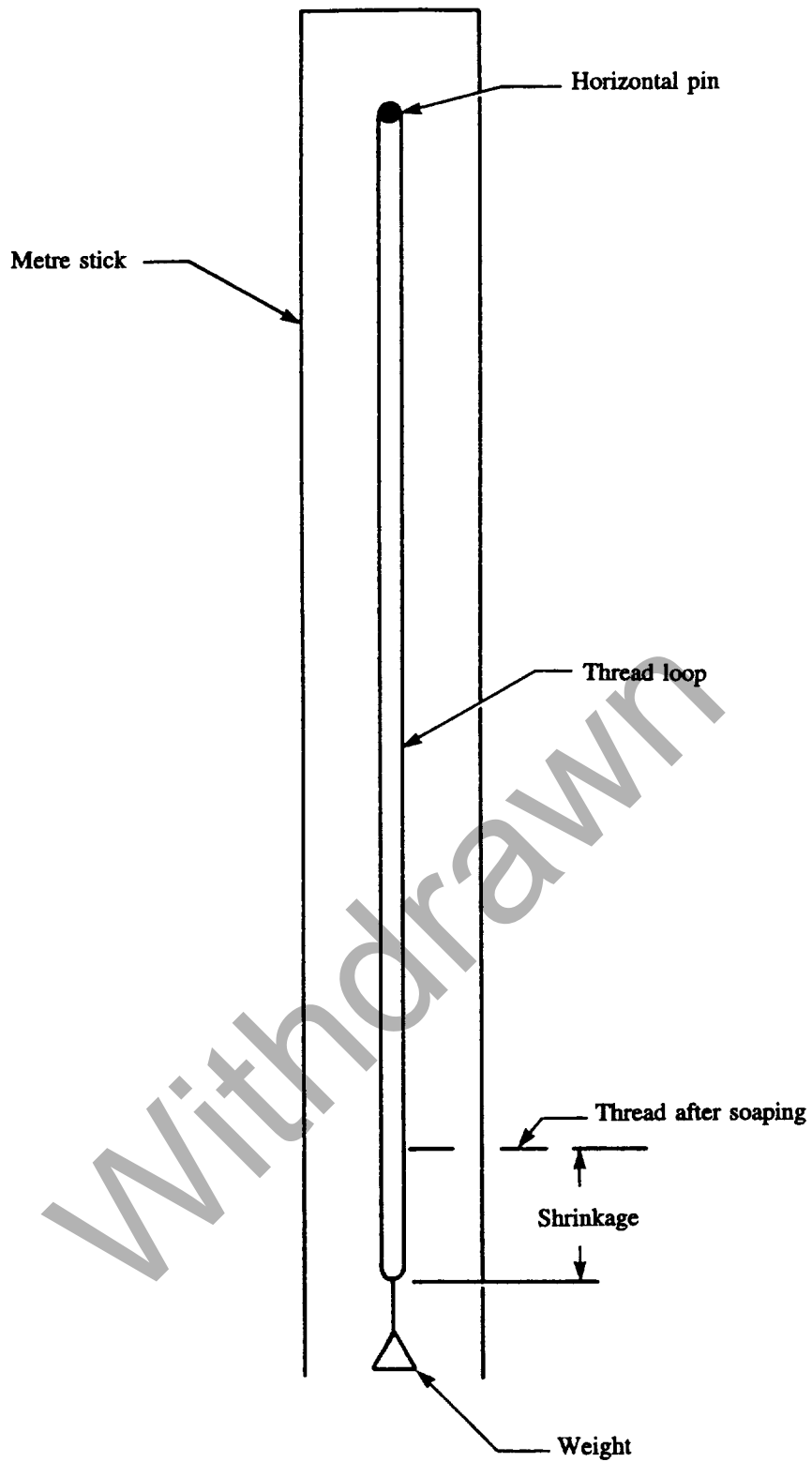
## 7.2 Sources of Referenced Publications

7.2.1 The publications referred to in par. 2.1.1 may be obtained from the Canadian General Standards Board, Sales Centre, Ottawa, Canada K1A 1G6. Telephone (613) 941-8703 or 1-800-665-CGSB (Canada only). Fax (613) 941-8705.

7.2.2 The publication referred to in par. 2.1.2 may be obtained from the Standards Council of Canada, Standards Sales Branch, 45 O'Connor Street, Suite 1200, Ottawa, Ontario K1P 6N7.

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Note 3: Thermostat paper is available from Paper Thermometer Co., Dept. T, P.O. Box 129, Greenfield, NH 03047, U.S.A.



**FIGURE 1**  
**Shrinkage Test**