



## WITHDRAWAL

March 2019

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Mars 2019

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## **CAN/CGSB-4.2**

### Textile test methods

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Moisture regain values, SI units used in CAN/CGSB-4.2 and fibre, yarn, fabric, garment and carpet properties (ICS 59.080.01)

#### **No. 1-M87**

Precision and accuracy of measurements (ICS 59.080.01)

#### **No. 2-M88**

Conditioning textile materials for testing (ICS 59.080.01)

#### **No. 3-M88**

Determination of moisture in textiles (ICS 59.080.01)

#### **No. 5.1-M90**

Unit mass of fabrics (ICS 59.080.30)

#### **No. 9.1-M90**

Breaking strength of fabrics — Strip method — Constant-time-to-break principle (ICS 59.080.30)

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**No. 19.1-2004**

Colourfastness to washing — Accelerated test — Launder-Ometer (ICS 59.080.01)

**No. 20-M89**

Colourfastness to water (ICS 59.080.01)

**No. 21-M90**

Colourfastness to sea water (ICS 59.080.01)

**No. 22-2004**

Colourfastness to rubbing (crocking) (ICS 59.080.01)

**No. 24-2002**

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Dimensional change in wetting (ICS 59.080.01)

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**N° 20-M89**

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**N° 33-94**

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**N° 36-M89**

Perméabilité à l'air (ICS 59.080.01)

**N° 57-M90**

Détermination de la température maximale de repassage (ICS 59.080.01)



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**CAN/CGSB-4.2**

**No. 19.1-2004**

**Supersedes CAN/CGSB-4.2**

**No. 19.1-M90**

**Reaffirmed**

**November 2013**

## **Textile test methods**

### **Colourfastness to washing — Accelerated test — Launder-Ometer**

ICS 59.080.01

Withdrawn



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**NATIONAL STANDARD OF CANADA**

**CAN/CGSB-4.2**  
**No. 19.1-2004**

Supersedes CAN/CGSB-4.2  
No. 19.1-M90  
Reaffirmed  
November 2013

**Textile test methods**  
**Colourfastness to washing — Accelerated test —**  
**Launder-Ometer**

CETTE NORME NATIONALE DU CANADA EST DISPONIBLE EN VERSIONS  
FRANÇAISE ET ANGLAISE.

Prepared by the  
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**CAN/CGSB-4.2**  
**No. 19.1-2004**


Supersedes CAN/CGSB-4.2  
No. 19.1-M90  
Reaffirmed  
November 2013

**Preface to the National Standard of Canada**

This National Standard of Canada has been reaffirmed by the CGSB Committee on Textile Test Methods and Terminology. Editorial changes have been made by the correction of the following paragraph:

- 9.1 **Source of Referenced Publications** — The publications referred to in par. 3.1.1 may be obtained from the Canadian General Standards Board, Sales Centre, Gatineau, Canada K1A 1G6. Telephone 819-956-0425 or 1-800-665-2472. Fax 819-956-5740. E-mail [ncr.cgsb-ongc@tpsgc-pwgsc.gc.ca](mailto:ncr.cgsb-ongc@tpsgc-pwgsc.gc.ca). Web site [www.tpsgc-pwgsc.gc.ca/ongc-cgsb](http://www.tpsgc-pwgsc.gc.ca/ongc-cgsb).

Withdrawn

 Gatineau Canada K1A 1G6	<b>TEXTILE TEST METHODS</b>	<b>CAN/CGSB-4.2</b>
	<b>Colourfastness to Washing — Accelerated Test — Launder-Ometer</b>	<b>No. 19.1-2004</b>

Supersedes CAN/CGSB-4.2  
No. 19.1-M90  
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## 1. PURPOSE AND SCOPE

- 1.1 This method contains five accelerated tests for determining the colourfastness to washing of textile fabrics, threads and yarns. Each test is designed to produce in a single treatment the colour change to be expected after five average home or commercial washings under one of five commonly used sets of conditions.
- 1.2 The five tests contained in this method are:
- 1.2.1 *Test No. 1* — For textile materials that are expected to withstand repeated hand washing, or equivalent gentle machine washing at lukewarm temperatures ( $40 \pm 2^\circ\text{C}$ ).
- 1.2.2 *Test No. 2* — For textile materials that are expected to withstand repeated machine washing at moderate temperatures ( $50 \pm 2^\circ\text{C}$ ) in the home or in a commercial laundry.
- 1.2.3 *Test No. 3* — For textile materials that are expected to withstand repeated machine washing at high temperatures ( $70 \pm 2^\circ\text{C}$ ) without bleach, in the home or in a commercial laundry.
- 1.2.4 *Test No. 4* — For textile materials that are expected to withstand repeated machine washing at high temperatures ( $70 \pm 2^\circ\text{C}$ ) in the presence of hypochlorite bleach, in the home or in a commercial laundry.
- 1.2.5 *Test No. 5* — For textile materials that are expected to withstand repeated hand washing, or equivalent gentle machine washing at cool temperatures ( $30^\circ \pm 2^\circ\text{C}$ ).
- 1.3 The testing and evaluation of a product against this method 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 method has the responsibility to consult the appropriate authorities and to establish appropriate health and safety practices in conjunction with any applicable regulatory requirements prior to its use.

## 2. PRINCIPLE

- 2.1 The coloured textile material and specified undyed fabric are washed together under specified conditions of temperature, alkalinity, bleach (where required) and abrasive action. Change in colour of the test specimen, and staining of the undyed fabric, are assessed by reference to the Grey Scale.

## 3. REFERENCED PUBLICATIONS

- 3.1 The following publications are referenced in this method:
- 3.1.1 Canadian General Standards Board (CGSB)  
CAN/CGSB-4.2 — Textile Test Methods:  
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.
- 3.2 A dated reference in this method is to the issue specified. An undated reference in this method is to the latest issue, unless otherwise specified by the authority applying this method. The sources are given in the Notes section.

## 4. APPARATUS AND REAGENTS

- 4.1 **Launder-Ometer:** or similar apparatus for rotating closed containers at 42 r/min in a thermostatically controlled water bath.<sup>1</sup>
- 4.2 **Containers:** for Tests No. 1 and No. 5, 500 mL glass jars, or stainless steel cylinders approximately 75 mm in diameter and 125 mm long; for Tests No. 2, No. 3, and No. 4, stainless steel cylinders approximately 90 mm in diameter and 200 mm long.<sup>1</sup>
- 4.3 **Adapter plates:** for holding 90 × 200 mm cylinders on Launder-Ometer shaft.<sup>1</sup>
- 4.4 **Stainless steel balls:** 6 mm in diameter.<sup>1</sup>
- 4.5 **Undyed adjacent fabric:** unless otherwise specified, multifibre test fabric No. 1 or No. 10 for Tests No. 1, No. 2 and No. 5, and bleached desized cotton fabric (e.g. 32 × 32 threads/cm) for Tests No. 3 and No. 4.<sup>2</sup>
- 4.6 **Detergent:** commercially available detergent.<sup>3 and 4</sup> A stock solution containing 5 g/L of the detergent in distilled water may be used.
- 4.7 **Commercial sodium hypochlorite solution:** of known available-chlorine content as determined by titration with sodium thiosulphate. The available-chlorine content of a large number of trade-name products of sodium hypochlorite (NaOCl) varies from 3 to 7% (mass/volume basis). The actual available-chlorine content should be determined before use, e.g. by the following method:
- 4.7.1 Pipette 5 mL of the sample into a 250 mL volumetric flask. Dilute to volume with distilled water and mix. Dissolve 3 g of crystalline potassium iodide in a 50 mL aliquot of the sample solution and then acidify with approximately 8 mL of glacial acetic acid. Immediately titrate the liberated iodine with 0.1 mol/L sodium thiosulphate until the yellow colour of iodine has nearly disappeared. Add 5 mL of starch solution and titrate until the blue colour entirely disappears. Calculate the percentage of available chlorine using the following equation:

$$\begin{array}{l} \text{\% available chlorine} \\ \text{(mass/volume basis = g/100 mL)} \end{array} = \frac{0.355 \times \text{mL of mol/L}}{\text{sodium thiosulphate}}$$

- 4.8 **Distilled or deionized water:** or water of approximately zero hardness (total hardness not more than 5 µg/g calcium carbonate).
- 4.9 **Grey scale:** for assessing change in colour and staining in accordance with CAN/CGSB-4.2 No. 46/ISO 105-A02 and No. 47/ISO 105-A03 respectively.

## 5. TEST SPECIMENS

### 5.1 Fabrics

- 5.1.1 One specimen, 50 × 100 mm, for each of Tests No. 1 and No. 5, and one specimen, 50 × 150 mm, for each of Tests No. 2, No. 3 and No. 4 shall be used except where additional specimens may be required to test all the colours in multicolour fabrics.

<sup>1</sup> The Launder-Ometer and related equipment is available from R.B. Atlas Company, 9 Canso Rd., Rexdale, Ontario M9W 4L9. Telephone (416) 241-4647. Fax (416) 241-9008.

<sup>2</sup> Multifibre fabric No. 1 or No. 10 and bleached desized cotton fabric may be obtained from Testfabrics Inc., P.O. Drawer O, 200 Blackford Avenue, Middlesex, NJ 08846, U.S.A. The fibres contained in this multifibre fabric are: No. 1 — acetate, cotton, nylon, silk, viscose and wool, and No. 10 — acetate, cotton, nylon, polyester, acrylic and wool. Generally, multifibre fabric No. 1 is used if the sample contains any viscose or silk fibres, and No. 10 is used with samples made from other fibres. If a detergent being used is known to contain an optical brightener and/or bleaching agent, a reference sample of the multifibre fabric must be washed in a control dummy load without test specimen.

<sup>3</sup> At date of publication "Original Tide" without bleach meets this standard.

<sup>4</sup> For sensitive fabrics, an alternate detergent with no builders may be used, but must be reported.

- 5.1.2 **For Woven Specimens** — Place a 50 × 50 mm piece of undyed fabric (par. 4.5) on the face of the specimen, at one end of it. Where undyed multifibre fabric is used, position it with the six fibre bands parallel to the length of the specimen. Stitch the two fabrics together along the 50 mm end of the specimen.
- 5.1.3 **For Knitted Specimens** — Follow the procedure in par. 5.1.2. **Exception:** where the specimen shows any tendency to curl, back it with a piece of undyed cotton fabric (par. 4.5) of the same size, stitch the fabrics together along the four edges, then proceed according to par. 5.1.2.

## 5.2 Thread or Yarn

- 5.2.1 Knit the thread or yarn to form a fabric specimen of the required size (par. 5.1.1) and combine this specimen with undyed fabric according to par. 5.1.3.
- 5.2.2 Alternatively, prepare a composite specimen by placing on a piece of undyed fabric (par. 4.5), measuring 50 × 100 mm for Tests No. 1 and No. 5, and 50 × 150 mm for Tests No. 2, No. 3, and No. 4, a sufficient number of parallel strands of the coloured thread or yarn to substantially cover the surface, and holding these in contact with the fabric by several rows of stitching at right angles to the strands. Where undyed multifibre fabric is used, the strands of the coloured yarn shall be placed at right angles to the six fibre bands.

## 6. PROCEDURE

### 6.1 Washing

- 6.1.1 The washing conditions for the five tests shall be as given in Table 1.
- 6.1.2 Fill the Launder-Ometer water bath and adjust the controls to maintain the specified test temperature in the bath (and preheating pan for containers, if available).
- 6.1.3 Prepare a suitable quantity of the required washing solution. For Test No. 4, do not add the sodium hypochlorite bleach to the washing solution until immediately before adding the washing solution to the containers. Heat the solution to the required temperature.
- 6.1.4 To each container, add the steel balls, the specified volume of washing solutions, and then one well-crumpled test specimen. Clamp the cover on each container. Fasten the containers on the rotor of the Launder-Ometer. If the number of containers is less than required to fill the rotor on all four sides, distribute them on opposite sides of the rotor so that the load is balanced. (If necessary for balance, add an extra container holding water.)
- 6.1.5 **Tests No. 1 and No. 5** — Run the machine for 45 min.
- 6.1.6 **Tests No. 2, No. 3, and No. 4** — Run the machine for 2 min. Stop the rotor, with a row of containers in the upright position. Unclamp each cover to release built-up pressure, and reclamp. Where Launder-Ometers are equipped with preheating pans for the containers, preheating the latter, and the contained steel balls, will allow the pressure-release stop to be omitted and the machine to be operated continuously for 45 min. Repeat this procedure for the remaining rows of containers. Start the machine again and run it for 43 min.

### 6.2 Rinsing and Extracting — The following procedures apply to all five tests:

- 6.2.1 Remove the containers from the Launder-Ometer and empty the contents of each into a sieve. Transfer each specimen to a separate beaker and rinse it as follows, with occasional stirring or hand squeezing:
- Rinse — 100 mL water — 40°C — 1 min
- Rinse — 100 mL water — 40°C — 1 min
- Rinse — 100 mL water — 25°C — 1 min
- 6.2.2 Hydroextract specimens, or pass them between wringer rolls, to remove excess moisture.

**TABLE 1**  
**Washing Condition**

Test No.	Temperature	Container Size	Undyed Adjacent Fabric	Specimen Size	Wash Solution	Composition of Wash Solution		Number of Steel Balls	Time
	°C	mm		mm	mL	Detergent	Sodium Hypochlorite		min
						%	Available Chlorine, %		
1	40	75 × 125	No. 1 or 10	50 × 100	200	0.5	None	10	45
2	50	90 × 200	No. 1 or 10	50 × 150	150	0.2	None	50	2 + 43
3	70	90 × 200	Cotton	50 × 150	50	0.2	None	100	2 + 43
4	70	90 × 200	Cotton	50 × 150	50	0.2	0.015	100	2 + 43
5	30	75 × 125	No. 1 or 10	50 × 100	200	0.5	None	10	45

6.3 Separate the undyed fabric from the coloured textile and press them separately with a hand iron at 135 to 150°C on the back of the fabric or smooth the damp fabric with the hand and air-dry it at room temperature. It is not generally feasible to separate the undyed fabric from coloured thread or yarn stitched to it by the procedure given in par. 5.2.2. In such cases, smooth the damp composite specimen with the hand and air-dry it at room temperature.

6.4 Allow the coloured specimen and the undyed fabric to remain at room temperature for at least 2 h before final evaluation.

6.5 If the washed and pressed specimen shows a change in shade, press a piece of the original fabric as in par. 6.3 and 6.4 to determine if the shade change is due to pressing alone.

## 7. EVALUATION

7.1 Evaluate the change in colour of the test specimens, and the staining of each fibre band of the multifibre fabric, using the appropriate Grey Scale in accordance with CAN/CGSB-4.2 No. 46/ISO 105-A02 and No. 47/ISO 105-A03. If the garment contains components of different colours, also evaluate the cross-staining of the components.

## 8. REPORT

Report the following information:

8.1 The brand name of the detergent used and whether it contains fluorescent brighteners and/or bleaching agents.

8.2 The numerical rating for the colour change in the specimen.

8.3 The numerical rating for the staining of each of the fibres in the multifibre fabric or the undyed cotton test fabric.

8.4 Change in hue and uniformity of any colour change, when required.

8.5 Any change in shade due to pressing the original fabric.

8.6 Indicate if the specimen was ironed or not before being assessed.

8.7 The number of this method: CAN/CGSB-4.2 No. 19.1-2004 and the number of the test used.

## 9. NOTES

9.1 **Source of Referenced Publications** — The publications referred to in par. 3.1.1 may be obtained from the Canadian General Standards Board, Sales Centre, Gatineau, Canada K1A 1G6. Telephone (819) 956-0425 or 1-800-665-2472. Fax (819) 956-5644.