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Series 4
Série des 4

WITHDRAWAL

March 2019

Selected standards in the series Textiles

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RETRAIT

Mars 2019

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CAN/CGSB-4.2

Textile test methods

No. 4.5-M86

Retail packages of yarn — Determination of mass (ICS 59.080.20)

No. 5.2-M87

Linear density of yarn in SI units (ICS 59.080.20)

No. 9.2-M90

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

No. 9.3-M90

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

No. 9.4-M91

Breaking strength of yarns — Single strand method (ICS 59.080.20)

No. 9.5-M89

Breaking strength of yarns — Skein method (ICS 59.080.20)

No. 9.6-93

Breaking strength of nonwoven textiles (ICS 59.080.30)

CAN/CGSB-4.2

Méthodes pour épreuves textiles

Nº 4.5-M86

Bobines de fil vendues au détail — Détermination de la masse (ICS 59.080.20)

Nº 5.2-M87

Masse linéique du fil en unités SI (ICS 59.080.20)

Nº 9.2-M90

Résistance à la rupture des tissus — Méthode d'arrachement — Principe de rupture à temps constant (ICS 59.080.30)

Nº 9.3-M90

Résistance à la rupture des tissus de haute résistance — Principe de rupture à temps constant (ICS 59.080.30)

Nº 9.4-M91

Résistance à la rupture des fils — Méthode à fil simple (ICS 59.080.20)

Nº 9.5-M89

Résistance à la rupture des fils — Méthode de l'écheveau (ICS 59.080.20)

Nº 9.6-93

Résistance à la rupture des non-tissés (ICS 59.080.30)

No. 10-M87

Elongation (ICS 59.080.30)

No. 23-M90

Colourfastness to perspiration (ICS 59.080.01)

No. 25.2-M89

Dimensional change of textile fabrics to open-head steaming (ICS 59.080.30)

No. 26.1-M88

Water resistance — Static head penetration test (ICS 59.080.01)

No. 26.5-M89

Water resistance — High-pressure penetration test (ICS 59.080.30)

No. 28.2-M91

Resistance to micro-organisms — Surface-growing fungus test — Pure culture (ICS 59.080.01)

No. 28.4-M91

Resistance to micro-organisms — Fungus damage test — Pure culture — Qualitative (ICS 59.080.01)

No. 30.1-M89

Effect of solvents on the permanence of textile finishes (ICS 59.080.01)

No. 32.1-98

Resistance of woven fabrics to seam slippage (ICS 59.080.01)

Nº 10-M87

Allongement (ICS 59.080.30)

Nº 23-M90

Solidité de la couleur à la sueur (ICS 59.080.01)

Nº 25.2-M89

Changement dimensionnel des textiles à l'aide d'une presse à plateau inférieur vaporisant (ICS 59.080.30)

Nº 26.1-M88

Résistance à l'eau — Essai de pénétration sous pression constante (ICS 59.080.01)

Nº 26.5-M89

Résistance à l'eau — Essai de pénétration à haute pression (ICS 59.080.30)

Nº 28.2-M91

Résistance aux micro-organismes — Essai par fongus se propageant en surface — En culture pure (ICS 59.080.01)

Nº 28.4-M91

Résistance aux micro-organismes — Évaluation des dommages causés par fongus — En culture pure — Qualitative (ICS 59.080.01)

Nº 30.1-M89

Effet des solvants sur la permanence des apprêts textiles (ICS 59.080.01)

Nº 32.1-98

Résistance des tissés au glissement de la couture (ICS 59.080.01)

No. 35.1-M90

Colourfastness to burnt gas fumes (ICS 59.080.01)

No. 37-2002

Fabric thickness (ICS 59.080.30)

No. 42-M91

Copper content of textiles (ICS 59.080.01)

No. 45-M88

Textile fabrics — Determination of the recovery from creasing of a horizontally folded specimen by measuring the angle-of-recovery (ICS 59.080.01)

No. 49-99

Resistance of materials to water vapour diffusion (ICS 59.080.01)

No. 55-M90

Loss in strength and colour change of fabrics due to retained chlorine (ICS 59.080.01)

No. 56.1-M87

Unidirectional extension and recovery properties of elastic fabrics (ICS 59.080.30)

No. 60-M89

Resistance to snagging — Mace test (ICS 59.080.01)

No. 65-M91

Determination of strength of bonds of bonded, laminated and fused fabrics (ICS 59.080.10)

Nº 35.1-M90

Solidité de la couleur aux produits de combustion des gaz (ICS 59.080.01)

Nº 37-2002

Épaisseur des tissus (ICS 59.080.30)

Nº 42-M91

Teneur en cuivre des textiles (ICS 59.080.01)

Nº 45-M88

Étoffes — Détermination de l'auto-défroissabilité d'un spécimen plié horizontalement par mesurage de l'angle rémanent après pliage (ICS 59.080.01)

Nº 49-99

Résistance des textiles à la diffusion de vapeur d'eau (ICS 59.080.01)

Nº 55-M90

Perte de résistance et changement de couleur des tissus causés par la rétention de chlore (ICS 59.080.01)

Nº 56.1-M87

Évaluation de l'extension unidirectionelle et de la récupération dimensionnelle des tissus élastiques (ICS 59.080.30)

Nº 60-M89

Résistance aux accrocs — Essai à la masse (ICS 59.080.01)

Nº 65-M91

Détermination de la résistance du liage des tissus contre-collés, stratifiés et thermocollés (ICS 59.080.10)

No. 66-M91

Dimensional change and appearance after dry cleaning of coated, bonded, laminated and fused fabrics (ICS 59.080.40)

Nº 66-M91

Évaluation du changement dimensionnel et de l'aspect des tissus enduits, contre-collés, stratifiés et thermocollés à la suite de nettoyages à sec (ICS 59.080.40)

No. 69-M91

Weather resistance — Xenon arc radiation (ICS 59.080.10)

Nº 69-M91

Résistance aux intempéries — Rayonnement d'une lampe à arc au xénon (ICS 59.080.10)

No. 78.1-2001

Thermal protective performance of materials for clothing (ICS 59.080.01)

Nº 78.1-2001

Évaluation de la protection thermique des matériaux de confection des vêtements (ICS 59.080.01)

CAN/CGSB-4.155-M88

Flammability of soft floor coverings — Sampling plans (ICS 59.080.60)

CAN/CGSB-4.155-M88

Résistance à l'inflammation des revêtements de sol mous — Plans d'échantillonnage (ICS 59.080.60)

CAN/CGSB-4.158-75

Designation of yarns (ICS 59.080.20)

CAN/CGSB-4.158-75

Désignation des fils (ICS 59.080.20)

CAN/CGSB-4.159-75

Universal system for designating linear density (Tex system) (ICS 59.080.20)

CAN/CGSB-4.159-75

Système universel de désignation de la masse linéique (système Tex) (ICS 59.080.20)

CAN/CGSB-4.160-75

Integrated conversion table for replacing traditional yarn numbers by rounded values in the Tex system (ICS 59.080.20)

CAN/CGSB-4.160-75

Table générale de conversion pour le remplacement des titres traditionnels des fils par des valeurs arrondies du système Tex (ICS 59.080.20)

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Textile test methods

Resistance to micro-organisms — Surface-growing fungus test — Pure culture

ICS 59.080.01

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NATIONAL STANDARD OF CANADA

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Textile test methods

Resistance to micro-organisms — Surface-growing fungus test — Pure culture

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

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No. 28.2-M91

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Preface to the National Standard of Canada

This National Standard of Canada has been extended and reaffirmed by the CGSB Committee on Textile Test Methods and Terminology. It is published without editorial changes.

National Standard of Canada

CGSB Ottawa Canada K1A 1G6	TEXTILE TEST METHODS	CAN/CGSB-4.2
	Resistance to Micro-organisms — Surface-Growing Fungus Test — Pure Culture	No. 28.2-M91

Supersedes CAN/CGSB-4.2
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1. PURPOSE AND SCOPE

1.1 This method determines the resistance of textile materials to disfiguration by growth of fungi that derive their assimilable carbon not from the pure textile fibres but from nonfibrous substances present in or on the fibres. Under normal conditions of use, suitable nonfibrous sources of carbon are usually present on most textile materials, e.g., applied finishing agents, natural constituents of raw cellulosic fibres, or contaminants. Therefore, to possess resistance to surface-growing fungi under damp or humid conditions, textile materials normally require treatment with a fungicide. This method evaluates the efficacy of the fungicidal treatment.

1.2 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 existing applicable regulatory requirements prior to its use.

2. PRINCIPLE

2.1 If the textile is expected to be used outdoors, the fabric is leached with water to remove any fungicidal substance likely to be rapidly removed by wetting. Specimens taken from the leached material are subjected to the action of a fungus that is incapable of utilizing as food the carbon in the fibres of the material. A supply of assimilable carbon is, however, made available to the organism in the culture medium used. The resistance of the fabric is assessed by the extent of growth of the organism on the fabric and by the amount of staining or colour damage resulting from such growth.

3. APPARATUS AND MATERIALS

3.1 **Organism** — *Aspergillus Niger*: ATCC No. 6275 (Note 1).

3.2 **Maintenance of organism**: the fungus is grown on nutrient agar slants in test tubes, and spore suspensions are made in sterile distilled water as required for this test. Subcultures should be made on nutrient agar at sufficiently frequent intervals to maintain viable pure cultures. Cultures, under refrigeration, may be kept as long as six to nine months.

3.3 **Nutrient-agar culture medium**: (Note 2).

3.4 **Autoclave**: an autoclave capable of being operated at a steam pressure of 103 to 117 kPa (gauge) and an exhaust temperature of 121 to 123°C, these being the sterilizing conditions used throughout.

3.5 **Incubator**: an incubator room or cabinet maintained at 30 ± 2°C.

Note 1: *Cultures of this organism may be obtained from American Type Culture Collection, 12301 Parklawn Drive, Rockville, MD 20852, U.S.A.*

Note 2: *A typical satisfactory formula is:*

Malt extract	30 g
Yeast extract	5 g
Agar	15 g
Distilled water to make	1 L

3.6 **Petri dishes**: 100 mm in diameter.

3.7 **Leaching Apparatus**

3.7.1 This shall consist of a reservoir of water at 24 ± 3°C from which water is passed to a suitable vessel containing the fabric to be leached. The size of this vessel will depend on the size of the sample to be leached. The rate of flow of water through the vessel should be such as to provide approximately four changes of water per hour.

3.7.2 The water used must not contain any material that may react with any of the constituents of the sample being tested (Note 3). Wherever possible, distilled or demineralized water shall be used.

3.7.3 The pH of the water shall not be less than 5.0 nor greater than 8.0.

4. TEST SPECIMENS

4.1 **Fabrics** — A minimum of five specimens (40 mm diameter circles or 50 x 50 mm squares) taken from widely distributed areas of the sample are required.

4.2 **Yarns** — A minimum of five representative specimens each approximately 500 mm long and wound into loops approximately 50 mm long are required.

4.3 If the textile is expected to be used outdoors, the specimens shall be leached for 24 h (Note 4).

5. PROCEDURE

5.1 Sterilize the required number of 100 mm Petri dishes under the conditions specified in par. 3.4.

5.2 Sterilize the nutrient agar solution, pour into the sterile Petri dishes, and allow to stand until hardened.

5.3 Using a sterile loop of nichrome, tungsten or platinum wire, add scrapings from a ripe fruiting culture of the organism, 7 d old and sufficient to cover a 100 mm Petri dish, to an Erlenmeyer flask containing 100 mL of sterile water. Shake the suspension of spore clusters in the flask with sterile glass beads until the spores are in suspension. To maintain a uniform suspension, the addition of a surface-active agent is recommended (Note 5). Other equally satisfactory procedures for making spore suspensions may be used.

5.4 Inoculate the surface of the agar with approximately 1.0 mL of spore suspension. Place the specimen on the seeded agar. Using a pipette, inoculate the specimen with 0.2 to 0.4 mL of spore suspension.

5.5 Incubate the Petri dishes and contents for two weeks at 30 ± 2°C. Keep the specimens under observation during that period, noting the extent of growth on the specimens and on the agar medium adjacent to the specimens, as well as the presence or absence of fruiting bodies.

5.6 At the end of the incubation period, remove the specimens, wash them in water, and dry at room temperature. Then examine for staining, and also (in the case of dyed materials) for change of colour.

6. REPORT

Report the following:

6.1 The extent of growth on and around the specimens, together with any staining or colour change.

Note 3: *An example of the use of an unsuitable type of water is to employ a water containing alkaline impurities to leach a sample carrying a phenolic type fungicide. Depending on the degree of alkalinity, solubilization of the fungicide by the alkali in the water will occur through the formation of soluble phenate, and the loss thus occasioned would not represent a loss through water solubility of the original phenolic compound.*

Note 4: *To facilitate wetting by the spore suspension, it is desirable that the inoculation of the specimens (section 5) be proceeded with immediately following leaching, before the specimens have become dry. Where drying has occurred, the specimens should be dampened by being thoroughly sprayed with distilled water and allowed to stand for* 1 *to* 2 h, *flat, on a non-absorbent surface in a closed container, to avoid dessication.*

Note 5: *The product Aerosol OT (sodium di-octyl sulphosuccunate) at a concentration of 0.05% is suitable.*

6.2 The number of this method: CAN/CGSB-4.2 No. 28.2-M91.