Gouvernement du Canada

Canadian General Office des normes Standards Board générales du Canada

Series 4 Série des 4

WITHDRAWAL

RETRAIT

March 2019

Selected standards in the series Textiles

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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)

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

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Breaking strength of yarns — Skein method (ICS 59.080.20)

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Breaking strength of nonwoven textiles (ICS 59.080.30)

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Nº 26.5-M89

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

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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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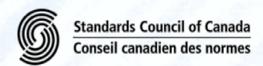
Office des normes générales du Canada CAN/CGSB-4.2 No. 28.2-M91

Supersedes CAN/CGSB-4.2 Method 28.2 July 1977 Extended April 1997 Reaffirmed November 2013

Textile test methods

Resistance to micro-organisms — Surfacegrowing fungus test — Pure culture

ICS 59.080.01



National Standard of Canada





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NATIONAL STANDARD OF CANADA

CAN/CGSB-4.2 No. 28.2-M91

Supersedes CAN/CGSB-4.2 Method 28.2 July 1977 Extended April 1997 Reaffirmed November 2013

Textile test methods

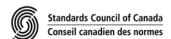
Resistance to micro-organisms — Surface-growing fungus test — Pure culture

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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.



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 Method 28.2 July 1977 Extended April 1997 Reaffirmed 'P qxember 2013

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 $24 \pm 3^{\circ}$ 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.
- 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.
- Incubate the Petri dishes and contents for two weeks at $30 \pm 2^{\circ}$ 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.
- 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.

2 No. 28,2-M91

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.



