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Série des 176

WITHDRAWAL

October 2016

Standards in series Tobacco

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Octobre 2016

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CAN/CGSB-176.1-92

Preparation of cigarettes from cigarette tobacco for testing (ICS 65.160)

CAN/CGSB-176.2 No.1-96

Methods of sampling and testing tobacco
Determination of Benzo(α)pyrene in total particulate matter of tobacco smoke (ICS 65.160)

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CAN/CGSB-176.1-92

Préparation des cigarettes à l'aide de tabac aux fins d'essais (ICS 65.160)

CAN/CGSB-176.2 N° 1-96

Méthodes d'échantillonnage et d'essai du tabac
Détermination du benzo(α)-pyrène dans la matière particulaire totale de la fumée de tabac (ICS 65.160)

Preparation of Cigarettes from Cigarette Tobacco for Testing



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PREPARATION OF CIGARETTES FROM CIGARETTE TOBACCO FOR TESTING

Prepared by the

Canadian General Standards Board 

Approved by the

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

CANADIAN GENERAL STANDARDS BOARD

**PREPARATION OF CIGARETTES FROM
CIGARETTE TOBACCO FOR TESTING****1. SCOPE**

- 1.1 This standard specifies preparation of make-your-own cigarettes from cigarette tobacco for the purpose of testing (see par. 6.1).
- 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 ASTM
D 646 — Test Method for Grammage of Paper and Paperboard (Weight Per Unit Area)
D 1577 — Test Method for Linear Density of Textile Fibers.
- 2.1.2 Cooperation Centre for Scientific Research Relative to Tobacco (CORESTA)
N 3 — Determination of the Air Permeability of Cigarette Paper.
- 2.1.3 International Organization for Standardization (ISO)
ISO 2965 — Material Used as Cigarette Papers — Determination of Air Permeability
ISO 2971 — Cigarettes and Filters — Determination of Nominal Diameter — Pneumatic Method
ISO 6565 — Tobacco and Tobacco Products — Draw Resistance of Cigarettes and Filter Rods — Definitions, Standard Conditions and General Aspects
ISO 8243 — Cigarettes — Sampling.
- 2.1.4 Snell F.D. and Snell, C.T., *Colorimetric Methods of Analysis*.
- 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. TERMINOLOGY

For the purpose of this standard the following definitions apply:

- 3.1 **Cigarette Tobacco** — Tobacco sold for the end purpose of making one's own cigarettes.
- 3.2 **Make-your-own Cigarettes** — Cigarettes that require some form of assembly by the consumer in order to be smoked, excluding pre-portioned sticks sold with pre-formed tubes.
- 3.3 **Filter Tow** — Bundle of endless, spun cellulose acetate fibres used in the making of the filter rod to filter cigarette smoke.
- 3.4 **Filter Paper (Plug Wrap)** — Paper used to wrap or enclose the filter tow material in the filter making process.
- 3.5 **Filter Tip** — The formed filter element in rod shape attached to the end of a cigarette or tube and that serves as a mouthpiece.

- 3.6 **Tipping Paper** — Paper used to cover the mouth end (including the filter tip) of a cigarette tube and that serves as a mouthpiece.
- 3.7 **Cigarette Tube** — A tube, resembling a cigarette, used to contain tobacco. It consists of a rod-shaped, single cigarette paper, a filter tip and a tipping paper.
- 3.8 **Cigarette Paper** — Paper used to wrap and/or contain tobacco in a smokeable rod form.
- 3.9 **Denier per Filament** — A unit of linear density expressing the mass of a fibre filament (in grams) per 9000 m of fibre filament.
- 3.10 **Total Denier** — Total mass in grams of a group of fibre filaments, each 9000 m long.
- 3.11 **Pressure Drop** — The resistance to air flow offered by the cigarette tube. It is measured as the difference in static pressure across the tube when subjected to a constant air flow rate of 17.5 mL/s.
4. **GENERAL REQUIREMENTS**
- 4.1 **Cigarette Tube Components** — The cigarette tube and its components (Figure 1) shall conform with the detailed requirements given in section 5.

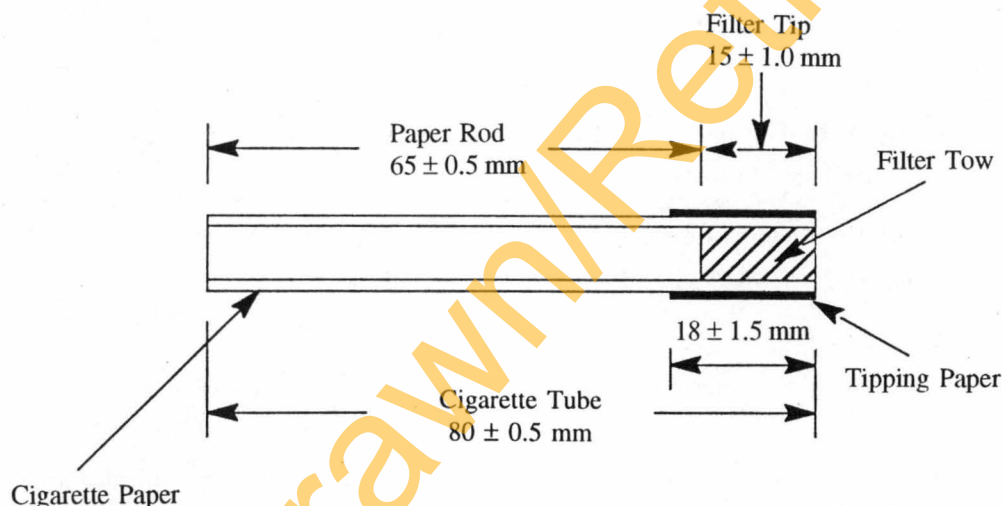


FIGURE 1

- 4.2 **Sampling of Cigarette Tobacco for Testing** — The sampling of cigarette tobacco for testing at the manufacturing facilities shall be performed in accordance with Appendix A. At all other levels of distribution the sampling shall be performed using ISO 8243 as a guide.
- 4.3 **Cigarette Preparation** — The cigarettes shall be made using a hand-operated cigarette-making device "Filtermaster" (Note 1) to inject 900 ± 10 mg of the conditioned laboratory samples of tobacco (par. 5.6 and par. A5., Appendix A) into the cigarette tube to a uniform packing density. For testing at the manufacturing level, the number of cigarettes prepared shall be as given in par. A6., Appendix A. For testing at all other levels, the number of cigarettes shall be determined using ISO 8243 as a guide.

5. DETAILED REQUIREMENTS

5.1 Cigarette Paper

- 5.1.1 The grammage (mass per unit area) of the cigarette paper shall be 25 ± 2 g/m² when determined in accordance with ASTM D 646.

Note 1: The Filtermaster cigarette-making machine is available from Gizeh Werke GmbH, Postfach 1367, D-5275 Bergneustadt 1, Germany.

- 5.1.2 The natural air permeability of the paper shall be $48 \pm 9 \text{ cm}^3/\text{min}\cdot\text{cm}^2\cdot\text{kPa}$ when determined in accordance with ISO 2965 or the CORESTA method No. 3.
- 5.1.3 The nominal phosphate content of the cigarette paper (expressed as mono-ammonium phosphate) shall be $0.6 \pm 0.1\%$, when determined in accordance with a colorimetric method given in the publication referenced in par. 2.1.4.
- 5.1.4 The fibre content of the cigarette paper shall be 100% flax. The nominal width of the paper shall be 28.5 mm.

5.2 Cigarette Tube Dimensions

The paper rod length shall be $65 \pm 0.5 \text{ mm}$ and the total tube length shall be $80.0 \pm 0.5 \text{ mm}$, when measured using a suitable calibrated gauge. The inside tube diameter shall be $8.15 \pm 0.05 \text{ mm}$, when measured as given in par. 5.3.3.

5.3 Filter

5.3.1 **Filter Tow** — The linear density of the filter tow shall be 0.2 tex (1.8 denier) when determined in accordance with ASTM Method D 1577 and the total denier shall be $50\,000 \pm 4000 \text{ g}$ (Note 2).

5.3.2 **Filter Paper** — The filter paper shall be made of non-porous paper that has a nominal width of 28 mm. The grammage (mass per unit area) of the filter paper shall be $26 \pm 1 \text{ g/m}^2$, when determined in accordance with ASTM D 646.

5.3.3 **Dimensions of Filter Tip** — The outside circumference of the filter tip shall be $25.8 \pm 0.15 \text{ mm}$ when measured in accordance with ISO 2971 or using a suitable calibrated gauge. The tip length shall be $15 \pm 1.0 \text{ mm}$ when measured using a suitable calibrated gauge.

5.3.4 **Plasticizer** — The plasticizer shall be glyceryl triacetate and it shall constitute 6.5 to 9.5% of the total tip mass according to good manufacturing practices.

5.3.5 **Filter Tip Attachment** — The filter tip shall be attached by a suitable adhesive.

5.4 **Tipping Paper** — The tipping paper shall be $18 \pm 1.5 \text{ mm}$ long, when measured using a suitable calibrated gauge.

5.5 **Pressure Drop of the Cigarette Tube** — The pressure drop of the total cigarette tube shall be $70 \pm 5 \text{ mm H}_2\text{O}$ when measured by using the conditions defined in ISO 6565.

5.6 **Conditioning of the Cigarette Tobacco** — Cigarette tobacco shall be conditioned for at least 48 h at $22 \pm 1^\circ\text{C}$ and $60 \pm 2\%$ relative humidity before preparing the cigarettes (par. 4.3) and conducting the tests required.

6. NOTES

6.1 Intended Use

6.1.1 The values obtained by analyzing the cigarettes as defined in this standard are suitable only for comparing different cigarette tobaccos.

6.1.2 Where cigarette tobacco is sold in a pre-portioned stick format, the sticks are to be tested with the tubes with which they are sold.

6.2 Sources of Referenced Publications

6.2.1 The publication referred to in par. 2.1.1 may be obtained from ASTM, 1916 Race Street, Philadelphia, PA 19103, U.S.A. or from the Standards Council of Canada, Standards Sales Branch, 45 O'Connor Street, Suite 1200, Ottawa, Ontario K1P 6N7.

6.2.2 The publication referred to in par. 2.1.2 may be obtained from the Centre de coopération pour les recherches scientifiques relatives au tabac, 53, quai d'Orsay, F-75007, Paris, France.

Note 2: Depending on the available machinery a different tow may be required in order to achieve the pressure drop specified in par. 5.5.

- 6.2.3 The publications referred to in par. 2.1.3 may be obtained from the Standards Council of Canada, Standards Sales Branch, 45 O'Connor Street, Suite 1200, Ottawa, Ontario K1P 6N7.
- 6.2.4 The publication referred to in par. 2.1.4 may be obtained from D. Van Nostrand, Princeton, N.J., U.S.A.

Withdrawn/Retirée

SAMPLING OF CIGARETTE TOBACCO AND NUMBER OF CIGARETTES TO BE PREPARED AT MANUFACTURING FACILITIES

A1. STATISTICAL CONCEPT

The sampling of cigarette tobacco shall be based on a unit production period of one month. Alternatively, the sample units may be composed from subunits within the monthly unit production period (subunits of time or subunits of processing batches). Subsample units to make up the overall sample shall be taken either before or after packaging in such a way as to be representative of the month's production. For each unit production period, the laboratory sample is formed by aggregating the results of analyses associated with the subunit samples.

A2. SAMPLING CONCEPT

The sample of a given cigarette tobacco brand over the one month period may be produced in more than one location, be packaged on one or more machines and may consist of different pack size categories. The minimum sample size for a subunit or unit production period shall be 400 g of product.

A3. IN-PLANT SAMPLING

(applies to each location)

A3.1 Sampling on the Basis of Subunits of Time (i.e. weeks) — For each subunit sample a minimum of 200 g of product shall be taken on a minimum of two sampling times over the production time. Where product is sampled on the basis of packaged product, a minimum of one package of product shall be taken on a minimum of two sampling times over the production time. The minimum sample size per subunit of time shall be 400 g.

A3.2 Sampling on the Basis of Subunits of Production Batches — For each batch of product produced during a unit production period (i.e. one month), on at least two sampling times spread over the length (time) of the production run, a minimum of 200 g of product shall be taken at each sampling time. Where sampling is on the basis of packaged product, the guidelines given in A3.1. shall apply.

A4. LABORATORY SAMPLE

The product samples taken over the subunit production period shall be accumulated until the laboratory is ready to undertake preparation of the cigarettes. The laboratory sample may be composed of the subsamples associated with the subunit production periods or be composed of all the samples associated with the unit production period.

A5. PREPARATION OF LABORATORY SAMPLE

From each of the subsamples of product available to be included in the laboratory sample, increments of product of at least 25 g shall be taken and spread over a tray. The actual amount taken from each subsample shall be adjusted according to the number of subsamples available. The increments on the tray shall be spread out in a thin layer for conditioning (see par. 5.6). Alternatively cigarette preparation and analysis may be done on the basis of laboratory subsamples (see A6.).

A6. NUMBER OF CIGARETTES

The number of cigarettes prepared must be such as to obtain a minimum of eight replicate (ports of smoking machine) analyses or 40 cigarettes per unit production period. Where analyses are conducted on the basis of subunit production periods, the number of cigarettes prepared may be adjusted accordingly.

Note: For any given three months, the results based on a minimum of 20 replicates shall be reported. Hence the number of cigarettes prepared for analysis shall be adjusted according to the expected frequency of production.