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Series 9

Série 9

WITHDRAWAL

April 2020

Selected standards in the series Paper and paper products

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Avril 2020

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9.1-93

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9.29-93

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9.1-93

Papier bond (ICS 85.080)

9.29-93

Papier lithographique opaque d'édition (ICS 85.080)



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Converted to GCS in 2014

Opaque Litho Book Paper

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Opaque Litho Book Paper

ICS 85.080

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Preface

This document has been converted to a Government of Canada (GC) Standard in April 2014. Its previous designation was CAN/CGSB-9.29-93. The original content has not been modified.

Withdrawn

CANADIAN GENERAL STANDARDS BOARD

OPAQUE LITHO BOOK PAPER

1. SCOPE

- 1.1 This standard applies to No. 1 opaque litho book paper, used for face and back offset litho printing of books, magazines, periodicals, pamphlets, etc. Printed matter may include text, line illustrations and 150 lines/cm halftones in multicolours. A standard for permanence of paper is in the course of preparation.
- 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 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 CAN/CGSB-9.0 Methods of Testing Pulp and Paper
- No.5 — Brightness of Pulp, Paper and Paperboard
 - No.6 — Opacity of Paper
 - No.7 — Grammage of Paper and Paperboard.
- 2.1.2 Technical Section, Canadian Pulp and Paper Association (CPPA)
- D.1 — Machine Direction of Paper and Paperboard
 - D.4 — Thickness and Density of Paper and Paperboard
 - D.9 — Internal Tearing Resistance of Paper, Paperboard and Pulp Handsheets Determined with the Appita-Elmendorf Instrument
 - D.14 — Air Resistance of Paper (Gurley Method)
 - D.29P — Sheffield Roughness of Paper and Paperboard
 - G.25P — pH of Paper and Paperboard (Extract and Surface).
- 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 **Curl** — The paper shall lie flat, or have no more than a slight curl that can be overcome under normal commercial operating conditions.
- 3.2 **Surface Condition** — The paper surface shall be free from blemishes, dust, lint and other particles that may adversely affect its printing or end use.
- 3.3 **Formation** — The formation of the paper shall be close and even.
- 3.4 **Trim (sheets)** — The paper shall be trimmed with clean, smooth edges and shall be evenly jogged. Successive sheets within any stack shall not vary more than 1.5 mm in their respective jogged position, or as specified by the purchaser (par. 8.1).

- 3.5 **Trim (rolls)** — The edges of the rolls shall be smooth, clean and even.
- 3.6 **Splices in Rolls** — Splice(s) must be flagged with a bright coloured tag on the edge of the roll, or identified on the end of the roll by means of a stencil or other readily visible mark.

The maximum number of splices per roll shall be as follows:

<u>Roll Diameter</u>	<u>No. of Splices</u>
Up to 762 mm	1
From 763 to 1219 mm	2
Over 1220 mm	3

Splices shall not be less than 152 mm from the core, not less than 40 mm from the outside diameter and at least 76 mm between splices, or as specified by the purchaser (par. 8.1).

- 3.7 **Stock** — The paper stock shall normally be free from more than trace amounts (less than 1%) of unbleached or mechanical pulps, except that no limitation is imposed on the amount of deinked or non-deinked, bleached secondary (recycled) fibre, nor on the amount of high-yield pulps, present in the stock. Fluorescent (optical) brighteners may be present.
- 3.8 **Moisture Content** — This paper may be used either in air-conditioned pressrooms or in pressrooms lacking relative humidity and temperature controls. Unless otherwise specified (par. 8.1), paper at time of delivery shall be in equilibrium with a relative humidity of $40 \pm 5\%$ and a temperature of $23 \pm 0.5^\circ\text{C}$ if used in air-conditioned pressrooms. If specified "for use in non-air-conditioned pressrooms" (par. 8.1), the paper at time of delivery shall be in suitable equilibrium with seasonally prevailing relative humidity and temperature conditions.

4. DETAILED REQUIREMENTS

- 4.1 **Size (sheets)** — The paper shall be furnished in the sheet sizes specified (par. 8.1). For sheet sizes up to and including 216×356 mm, the paper shall not be undersize, and not more than 0.8 mm oversize in either direction. For sheet sizes larger than 216×356 mm, the paper shall not be undersize, and not more than 2.4 mm oversize in either directions. Successive sheets within any package shall not differ from one another by more than 0.8 mm. Sheets shall be square on all four sides within a tolerance of 0.8 mm in each 762 mm as determined on a squaring table. The edge bow in individual sheets shall not be more than 0.8 mm in each 762 mm, as determined by turning a sheet over, butting an edge against the corresponding edge of the sheet below, measuring the gap between them, and taking half of this measurement.
- 4.2 **Size (rolls)** — The rolls shall be as specified (par. 8.1) in width with a tolerance of 0.8 mm. Diameters shall be as specified ± 13 mm. Roll diameters may be less if the specified diameter can only be obtained by splicing within 76 mm of the outside diameter of the roll.
- 4.3 **Cores (rolls)** — The paper shall be wound on a 76 mm inside diameter non-returnable core, or as specified by the customer. Cores shall be of fibrous material, and shall have a wooden, plastic or metal bung at each end.
- 4.4 **Grammage** — The paper shall be supplied in the grammage listed in Table 1, with a tolerance of $\pm 5\%$, when determined in accordance with CAN/CGSB-9.0 No.7.
- 4.5 **Thickness** — The paper shall conform to the average thickness in Table 1, with a tolerance of 0.005 mm. The difference in average thicknesses between sheets shall not exceed 0.005 mm. Individual sheets shall be uniform in thickness and the difference between the highest and lowest thickness across each sheet shall not exceed 0.008 mm.
- 4.6 **Grain Direction (sheets)** — The grain direction, when determined in accordance with Technical Section, CPPA standard D.1, shall be as specified (par. 8.1).
- 4.7 **Colour** — The paper shall be white or coloured as specified (par. 8.1). The colour and brightness of the paper shall match the supplied reference in accordance with commercial colour matching practice.
- 4.8 **Hydrogen Ion Concentration (pH)** — The pH value of the cold extract of the paper shall not be less than 4.8 when determined in accordance with Technical Section, CPPA standard G.25P.

- 4.9 **Pick Resistance** — The paper shall not pick under normal offset printing conditions.
- 4.10 **Physical and Optical Properties** — Physical and optical properties shall be in accordance with the requirements of Table 1.
- 5. PREPARATION FOR DELIVERY**
- 5.1 **Packaging** — The paper shall be wrapped in accordance with normal commercial practice. The number of sheets in each package shall be as specified (par. 8.1).
- 5.2 **Packing** — The paper shall be in moisture-vapour proof enclosures for both sheets and rolls, unless otherwise specified (par. 8.1).
- 5.3 **Labelling and Marking** — Labelling and marking shall be in accordance with normal commercial practice, unless otherwise specified (par. 8.1).
- 5.4 **Pile Height Variation (sheets)** — The pile height variation from any one corner shall not exceed 25 mm when measured from the centre of the pile.
- 6. INSPECTION**
- 6.1 **Sampling** — Sampling shall be at the discretion of the inspection authority, unless a specific sampling plan is specified (par. 8.1).
- 6.2 **Testing**
- 6.2.1 **Surface Roughness** — The surface roughness shall be determined on a Sheffield Roughness Tester (Note 1). Make a minimum of ten determinations on each side of each sample in accordance with the procedure laid down by the instrument manufacturer. Average the results obtained from each side separately.
- 7. NOTES**
- 7.1 **Options** — The following options must be specified in the application of this standard:
- a. If a specific trim is required (par. 3.4)
 - b. Splices in rolls (par. 3.6)
 - c. Moisture content, if other than as required (par. 3.8)
 - d. Moisture content, if for use in non-air-conditioned pressrooms (par. 3.8)
 - e. Size of sheets (par. 4.1)
 - f. Size of rolls (par. 4.2)
 - g. Grain direction (par. 4.6)
 - h. Colour (par. 4.7)
 - i. Number of sheets per package (par. 5.1)
 - j. Packing, if other than as specified (par. 5.2)
 - k. Labelling and marking, if normal commercial practice is not suitable (par. 5.3)
 - l. Sampling, if a specific sampling plan is required (par. 6.1).
- 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 1-800-665-CGSB. Fax (613) 941-8705.
- 7.2.2 The publications referred to in par. 2.1.2 may be obtained from the Technical Section, Canadian Pulp and Paper Association, Sun Life Building, 19th Floor, 1155 Metcalfe Street, Montreal, Quebec H3B 4T6. Telephone (514) 866-6621. Fax (514) 866-3035.

Note 1: The Sheffield tester may be obtained from Testing Machines Inc., 6 Ronald Drive, Montreal West, Canada H4X 1M8. Telephone (514) 489-8491. Fax (514) 489-6044.

TABLE 1

Physical and Optical Properties for No. 1 Opaque Litho Book Paper

Property	Requirement														Test Method
	30	32	35	38	41	45	48	53	56	60	67	75	90	90	
Grammage, g/m ²	30	32	35	38	41	45	48	53	56	60	67	75	90	CAN/CGSB-9.0 No. 7	
Thickness, average, μm	38	40	43	46	50	55	60	66	68	76	89	99	117	CPPA D.4	
Opacity range, %, min.	81/82	80.5/84	82/85	83/86	84/87	85/88	86/90	87/92	88/89	88/91.5	90/93.5	90.5/95.5	91/98	CAN/CGSB-9.0 No. 6	
Brightness, each side, %, min.	77	77	77	77	77	77	77	77	77	77	77	77	77	CAN/CGSB-9.0 No. 5	
Internal tearing strength, 1 sheet, each direction, mN, min.	110	120	130	140	155	170	200	250	300	320	350	350	350	CPPA D.9	
Air resistance (Gurley), s/100 ml air, min.	9	9	9	9	9	9	9	9	9	9	9	9	9	CPPA D.14	
Surface roughness (Sheffield), each side, mL/min, max.	150	150	150	150	150	150	150	150	150	150	150	150	150	Par. 6.1 CPPA D.29P	