

53-GP-19
March 1956
CANCELLATION
June 1972

CANADIAN GOVERNMENT SPECIFICATIONS BOARD

Standard
for

INK, WRITING, BLUE - BLACK AND BLACK

This standard is hereby cancelled. It is no longer required for government procurement.

CANADIAN GOVERNMENT SPECIFICATIONS BOARD

Specification
for

INK; WRITING, BLUE-BLACK AND BLACK

Section 7.3.1.1 - Color Intensity

Color Intensity Standard

Change: (a) Blue-black Ink - To 1000 ml. of distilled water, etc.

to read: (a) Blue-black Ink - To 700 ml. of distilled water, etc.

Add after second sentence of paragraph at top of p. 4 ("... into a 2-liter flask") the following sentence:

Pour three 75 ml. aliquots of distilled water through the filter to insure complete transfer of dyes to filtrate

and change the word "made" to "make" in the next sentence.

7.3.2.2 Clogging - Delete text and add:

Fill a cleaned fountain pen with the ink under test three times, discarding the first two fillings. After the third filling write a series of marks on a paper to assure that the pen is in writing condition, and with the cap off allow the pen to remain for one hour in a room or cabinet where the atmosphere is controlled at a temperature of $73 \pm 3.5^{\circ}\text{F}$ and relative humidity of 10 - 20 per cent. At the end of the test period the pen shall start to write at first touch to the paper without pressure and without skipping or other impairment in the ink flow.

Add new paragraph:

7.3.2.3 Fountain Pen - The fountain used shall be such that when filled with a standard Blue-Black or Black Ink prescribed in Clause 7.3.1.1 of Specification 53-GP-19 it shall pass the test as outlined in the procedure above.

*Cumulative Amendment incorporating
Amendment No. 1



ANADA

CANADIAN GOVERNMENT SPECIFICATIONS BOARD

SPECIFICATION

FOR

INK; WRITING, BLUE - BLACK AND BLACK

53-GP-19

29 MARCH 1956

ARCHIVES COPY

THIS SPECIFICATION APPLIES TO BLUE - BLACK AND BLACK PERMANENT INK,
FOR USE WITH FOUNTAIN AND DIP PENS.

NATIONAL RESEARCH COUNCIL, OTTAWA, CANADA

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CANADIAN GOVERNMENT SPECIFICATIONS BOARD

Specification
for

INK; WRITING, BLUE-BLACK AND BLACK

1. DEFINITION

1.1 This specification applies to blue-black and black permanent ink, for use with fountain and dip pens.

2. APPLICABLE PUBLICATIONS

2.1 The following CGSB specifications shall form a part of this specification:

9-GP-1: Paper; Bond and Ledger
53-GP-0: Methods of Testing Office Supplies

2.2 Reference to the above publications shall be the issue in effect on the date of invitation for bids, unless otherwise specified.

3. CLASSIFICATION

3.1 Ink shall be supplied in the following types and quantities as may be specified:

Type I - Fluid

- (a) 2 fluid ounce bottles
- (b) 16 fluid ounce bottles
- (c) 32 fluid ounce bottles

Type II - Powder

- (a) to make 16 fluid ounces
- (b) to make 20 fluid ounces
- (c) to make 32 fluid ounces
- (d) to make 40 fluid ounces

4. GENERAL REQUIREMENTS

4.1 Material and Workmanship - A wide range of materials and processes of manufacture is allowed provided that the ink produced meets all the requirements of this specification.

5. DETAIL REQUIREMENTS

5.1 Quality - The ink shall pass the laboratory tests with respect to color intensity, light fastness, resistance to water, stability and acidity as described in section 7.3.1.

5.2 Performance - The ink shall pass the writing tests with respect to feathering and clogging, as described in section 7.3.2.

5.3 Surface Tension - of the ink shall be not less than 35 nor more than 60 dynes per cm. corrected at 20°C.

5.4 Mold - There shall be no evidence of green mold when a 2 ounce, unstoppered bottle of ink is left for a period of 30 days in a moist chamber at room temperature.

6. PREPARATION FOR DELIVERY

6.1 Packaging - Unless otherwise specified, both the fluid and the powdered ink shall be packaged in accordance with commercial practice. Powdered ink shall be packaged in siftproof packages in quantities sufficient for reconstituting 1 pint and 1 quart fluid volumes.

6.2 Packing - Unless otherwise specified, the subject commodity shall be packed in substantial commercial containers of the type, size and kind commonly used for the purpose, so constructed as to insure acceptance and safe delivery by common or other carriers, at the lowest rate to the point of delivery called for in the contract or purchase order.

6.3 Marking - Unless otherwise specified shipping containers shall be marked with type, size of the individual bottles (or, in the case of powders, the equivalent in fluid ink of each container), and the total number of bottles or other containers contained therein, as defined by the contract or order under which the shipment is made, the name of the contractor, and the number of the contract or order.

7. INSPECTION

7.1 Sampling

7.1.1 Fluid - a pint of ink from each delivery of one hundred quarts or less shall be taken as a sample.

7.1.2 Powder - enough powder to make up one pint of full-strength writing fluid shall be taken from each lot of 100 quarts or less.

7.2 Inspection - The material shall be inspected to determine compliance with this specification with regards to type, size of container, packaging and marking.

7.3 Tests

7.3.1 Laboratory Tests

7.3.1.1 Color Intensity - Fix a sheet of 32M white bond paper conforming to class B.3 of CGSB specification 9-GP-1 to a board or glass inclined at an angle of 45 degrees with the lower edge of the sheet overhanging slightly to keep the excess ink from soiling the back. Using a medicine dropper, place three drops of ink on the same spot at the top of the sheet and allow them to flow down forming a streak. Do this for the sample ink under test and for the color in intensity standard as described hereunder: The sample ink shall be at least as dark in overall color intensity as the standard after air drying. (This test is intended to define color intensity and not shade of color such as overtones of red or green in the "blue-black" color).

Color Intensity Standards

(a) Blue-Black Ink - To 1000 ml. of distilled water at 140°F in a 1500 ml. beaker, add the following dyestuffs with gentle agitation:

- 2.700 grams Geigy Helvetia Blue Ex. High Conc., or equivalent
- 2.000 grams Geigy Soluble Blue HT, or equivalent
- 1.300 grams Geigy Acid Yellow T Supra, or equivalent
- 2.5 ml. 10% Sulfuric Acid (by weight).*

* Prepare 500 ml. stock solution of 10% by weight aqueous H_2SO_4 by adding 29 ml. conc. C.P. H_2SO_4 (sp. gr. 1.84) to 471 ml. distilled water and stirring.

Stir solution gently for 30 minutes at 140°F., cover beaker with a watch-glass to keep out room dust, and allow to stand overnight at room temperature in order to cool and stabilize the solution. Vacuum filter the solution through a Buchner funnel and a 12-1/2 cm. disc of Whatman #41H (or equivalent) filter paper into a 2-liter suction flask. Carefully transfer the solution to a 1000 ml. volumetric flask and made up to the mark with distilled water. Transfer the color standard to a clean glass-stoppered brown bottle and store in the dark. Solutions more than 60 days old should not be used, chiefly because of possible deterioration from mold growth.

(b) Black Ink - The same procedure is followed as described for the blue black standard, except that the following dyestuff mixture is used (per 1000 ml. distilled water):

- 4.600 grams Geigy Helvetia Blue Ex. High Conc., or
equivalent
- 2.400 grams Geigy Erio Rubine B Supra, or equivalent
- 8.000 grams Geigy Acid Yellow T Supra, or equivalent
- 2.5 ml. 10% Sulfuric Acid (by weight)

7.3.1.2 Light Fastness - Using a sheet of 32M, 8 1/2 x 11" white bond paper to Class B.3 of CGSB specification 9-GP-1, block out an area 2 1/2 x 9-3/4" with pencil parallel with the long dimension of the paper, using one side edge as a 2 1/2" border. Rule lines with a draftman's ruling pen, adjusting the line width of 0.025 ± 0.005" with the ink and the paper being used. Rule lengthwise 4 groups of 5 lines spaced 1/16" apart, with 3/16" spacing from each 9-3/4" border and 3/8" spacing between groups. Age ruled lines in room light for one week before ultra violet exposure. This insures full development of the iron complex in the permanent inks. Expose the sheet of spaced lines to a Fade-O-Meter type carbon-arc lamp as described in Method 2, Para. 2 of CGSB Test Schedule 53-GP-0 for 20, 40, 60 and 100 hours with the sheet 10 inches from the lamp.

The ink is acceptable if the lines are still clearly visible after 100 hours exposure.

7.3.1.3 Resistance to Water - Ink streaks shall be made on bond paper as described in Section 7.3.1.1 using the sample ink only. The bottom inch of the sheet shall be cut off and discarded, after which a strip 1 inch wide shall be cut off at right angles to the streaks. This strip shall be soaked in distilled water at room temperature for a period of 18 hours after having been aged in room light for one week. The strip is then dried in the air. The ink streaks shall appear legible after the test.

7.3.1.4 Stability - Heat a 2 oz. sample of ink in an air-tight stoppered bottle at 125°F for a period of 30 days. Then place the sample in a refrigerator at approximately 40°F for a period of 30 days. After returning to room temperature the sample shall show no sediment when filtered through a Whatman No. 1 filter paper.

7.3.1.5 Acidity - The pH of the ink shall be not less than 1.5 when determined by using the apparatus described in Method 17 of CGSB Test Schedule 53-GP-0.

7.3.2 Writing Tests

7.3.2.1 Feathering - Using a sheet of white 32M bond paper of Class B. 3 of CGSB specification 9-GP-1, draw a series of lines using a steel pen. The lines shall be sharp and free from "feathered" or ragged edges and shall not "strike through" the paper.

7.3.2.2 Clogging - Allow a filled fountain pen, which is known to be in good working condition, to remain in an atmosphere at 10-20% R. H. and $73 \pm 3.5^\circ\text{F}$ for a period of 5 days. The pen shall start to write without pressure and without skipping or other impairment in the ink flow.

8. NOTES

8.1 Ordering Data - should contain the type of ink and container size required.

8.2 This specification does not cover all types and grades of writing inks available but only those generally required by the Government.

Correspondence regarding this specification should be addressed to the Secretary, Canadian Government Specifications Board, National Research Council, Ottawa, Canada.