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**Ceylon Standard Specification for washable
blue-ink for fountain pens**

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BUREAU OF CEYLON STANDARDS

SPECIFICATION FOR WASHABLE BLUE-INK
FOR FOUNTAIN PENS

C. S. 59: 1969
(Attached AMD 261)

Gr.3


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BUREAU OF CEYLON STANDARDS
53, Dharmapala Mawatha,
COLOMBO 3.

C. S. 59: 1969

Ceylon Standards are subject to periodical revision in order to accommodate the progress made by industry. Suggestions for improvement will be recorded and brought to the notice of the Committees to which the revisions are entrusted.

This standard makes reference to the following Ceylon Standard
C. S. 33 - Specification for laundry soaps.

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CEYLON STANDARD SPECIFICATION FOR WASHABLE BLUE INK FOR FOUNTAIN PENS

FOREWORD

This Ceylon Standard Specification has been prepared by the Drafting Committee on Writing Inks. It was approved by the Agricultural and Chemicals Divisional Committee of the Bureau of Ceylon Standards and was authorized for adoption and publication by the Council of the Bureau on 13th January, 1969.

This specification relates to washable blue ink suitable for use with fountain pens.

The publications of the British and Indian Standards Institutions have been of assistance in the preparation of this standard.

1. SCOPE

This specification prescribes the requirements and methods of test for washable blue ink for use with fountain pens.

2. DEFINITIONS

The term "washable" in connection with fountain pen inks means that they are capable of being washed from fabrics by the use of soap and water and **not** that they are fast to washing as the term is applied to dyed fabrics and paints.

3. REQUIREMENTS

The ink shall comply with the following requirements: (The composition of the standard reference ink shall be as given in the Appendix).

3.1 Composition

The blue dye content shall be sufficient to match the colour of the standard reference ink.

3.2 Corrosive action

Corrosive action of the ink shall be measured on brass and shall not exceed 3.5 per cent when tested as per method given in Sub-clause 6.1.

3.3 Freedom from sediment

The ink shall show no greater sediment than that of freshly prepared standard reference ink when tested by the method given in Sub-clause 6.2.

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3.4 **Stability**

The ink when tested as in Sub-clause 6.3 shall be as free from deposit, surface growth and scale, as freshly prepared standard reference ink, tested concurrently.

3.5 **Resistance to fading**

Stripes made on paper as described in Sub-clause 6.4.1. shall show resistance to fading not less than freshly prepared standard reference ink when exposed to daylight in the manner described in Sub-clause 6.4.2

3.6 **Washability**

The ink shall be at least as washable as the standard reference ink when tested in the manner described in Sub-clause 6.5.

3.7 **Flow properties**

The ink shall be deemed suitable for fountain pen use, if it gives satisfactory writing performance after having been stored in the manner described in Sub-clause 6.6.

4. PACKING AND MARKING

4.1 The type, size, shape and seal of the containers shall be subject to mutual agreement between the purchaser and vendor. If containers are of glass, they shall be of alkali-free quality. If plain uncoloured glass is used an outer container which excludes light shall be used.

4.2 Each of the containers used shall be marked with the following information:

- (i) name of manufacturer;
- (ii) registered trade-mark;
- (iii) exact hue of the material (preferably shown with a thick line of the same hue on a white background);
- (iv) volume of material in the container;
- (v) date of manufacture of the ink;
(this may be in code).

5. SAMPLING

5.1 **Lot.** All containers of the same size in a single consignment of the material drawn from a single batch of manufacture shall constitute a lot.

If a consignment is declared or known to consist of different batches of manufacture, or of different sizes of containers, the containers belonging to the same batch and of the same size shall be grouped together and each such group shall constitute a separate lot.

- 5.2 The number (n) of containers to be drawn from a lot shall depend on the size of the lot (N) and shall be in accordance with Table 1.

TABLE 1.
Scale of sampling

Lot size (N)	No. of containers to be taken (n)
(1)	(2)
Up to 100	3
101 to 300	4
301 to 500	5
501 to 800	7
801 and above	10

- 5.3 Additional number of containers may be drawn from the lot if the total quantity of the material taken out proves to be inadequate for all the tests and these containers shall be taken at random from the lot.

5.4 Test Sample

- 5.4.1 Each container in the sample shall be examined for sediment. If any of the containers are found to contain sediment the whole lot shall be declared as not conforming to this specification.
- 5.4.2 If the containers in the sample are free from sediment, the contents of all the "n" containers taken shall be mixed well, and a representative sample not less than 500 ml total volume shall be drawn.

6. TESTS

Samples shall be tested from each lot for ascertaining the conformity of the material to the requirements of the specification. Tests shall be carried out as prescribed below.

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6.1 Determination of corrosion

6.1.1 Apparatus

Brass pieces, containing 70 per cent copper and 30 per cent zinc, having the dimensions approximately 25mm x 25mm x 0.3mm. All the surfaces of the brass pieces shall be smooth and well polished.

6.1.2 Procedure

Thoroughly clean the brass pieces with ethyl alcohol and ether. Dry at $105^{\circ} \pm 2^{\circ}\text{C}$ and weigh accurately to the nearest milligramme. Suspend the brass piece by means of silk thread in 50 ml of ink contained in a beaker. Keep it completely immersed and without touching the beaker for 7 days at room temperature. The beaker shall remain covered during this period. After 7 days, remove the brass piece, wash with water and wipe with a soft lint free cloth. Rinse with alcohol and dry as before to constant weight.

6.1.3 Calculation

$$\text{Percentage loss in weight} = \frac{W_0 - W_1}{W_0} \times 100.$$

where W_0 = original weight of brass used
and W_1 = final weight of the brass

6.2 Determination of sediment

Shake the ink thoroughly, withdraw 10 ml and transfer to a clean dry centrifuge tube. Place the tube in the counterpoised head and centrifuge the ink for 2 minutes at 1800 rev/min. Remove the tube carefully without shaking and decant the liquid ink slowly. Inspect the bottom and sides of the tube for sediment.

Carry out the determination concurrently on the standard reference ink.

6.3 Determination of stability

6.3.1 Place 25ml of the ink in a 50ml unclipped beaker, cover with filter paper and allow it to remain at room temperature for 2 weeks.

Examine the inks visually for sediment.

6.3.2 Store in the sealed containers in which the ink is to be supplied, for 4 weeks in a hot air oven at 50°C . After cooling for one hour repeat the test described in Sub-clause 6.2.

6.4 Resistance to fading**6.4.1 Preparation of stripes**

Place a sheet of cream wove paper of substance 60g/m^2 and of sizing 30 sec. flat and unwrinkled on a piece of board or glass plate with a smooth surface. Fix the board or glass so that the surface of the paper makes an angle of 45° with the vertical. Take 1 ml of the ink in a one millilitre pipette and allow the nozzle just to touch the paper near the top edge, the pipette remaining vertical. Release the ink carefully to form across the paper a perfect stripe of uniform width and intensity and free of wavy effect.

Dry the stripe in air for 15 minutes and remove the paper from the board. Cut off a strip of paper 4cm width from the bottom of the sheet at right angles to the stripe and reject it. Repeat the experiment with the standard reference ink at the same time and under the same conditions.

6.4.2 Procedure

Mount the specimens prepared (i.e. with the sample ink and freshly prepared standard reference ink) as indicated in Sub-clause 6.4, on an exposure rack facing due South, and sloping at an angle from the horizontal approximately equal to latitude of the place where the exposure is made (i.e. approximately 8° in Ceylon). The rack should be placed so that the shadows of the surrounding objects will not fall on the exposed specimens and covered with window glass to protect the specimens from the weather, the glass being not less than 5 cm from the specimens; adequate ventilation shall be provided.

Arrange the test specimen and the standard specimen with an opaque cover across half of each of the specimens. Expose the test specimen and the standard specimen simultaneously for 24 hours per day for such time as is necessary to perceive a distinct change in the colour of the standard specimen when compared with the covered half.

The loss in intensity or fading of the test specimen should not be greater than that of the standard specimen.

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6.5 Determination of washability

6.5.1 Materials required

- (i) **Cotton** Bleached cotton sheeting free from filling and dressing
- (ii) **Soap solution** Prepared by dissolving 5g of laundry soap (complying with Type I of C.S. 33*) in 1 litre of distilled water, heating gently if necessary.

6.5.2 Procedure

Cut the fabric into six squares 5cm x 5cm. From a clean medicine dropper, place one drop of ink on each of the six pieces of the fabric. Allow the pieces to dry for one hour by suspending them in the air at room temperature.

Immerse the cotton pieces in successive changes of water at room temperature until no further colour bleeds out. Place the pieces in a beaker containing 0.5 per cent soap solution. Raise the temperature of the solution to 50°C and maintain at that temperature for 30 minutes. Rinse the piece in water and dry by suspending in the air at room temperature.

6.6 Method of storage

A cleaned neck-filling fountain pen is filled with the ink being tested and checked for satisfactory writing.

The pen is then placed capped in a vertical position with the nib upwards and left unused for five days at ambient room temperature.

APPENDIX

Standard Reference Ink

The standard reference ink shall have the following composition:

Hydrochloric acid (sp.gr.1.18)	3.25 ml
Phenol	1.0 g

Blue dye, Ink Blue, (British Colour Index† 42780, ammonium salt of trisulphonated triphenyl para rosaniline)	7 g
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Dissolved in distilled water to one litre.

All materials employed shall be of analytical grade quality.

* Specification for laundry soaps.

† Colour Index, Second Edition 1956, published by the Society of Dyers and Colourists.

AMD 261

**Amendment No. 1 approved on 2000-03-23
to CS 59 : 1969**

**CEYLON STANDARD SPECIFICATION FOR WASHABLE BLUE-INK FOR
FOUNTAIN PENS**

Clause 3 PACKAGING AND MARKING

Insert the following as (i) in 3.2 and number accordingly.

- (i) Name of the material;

SRI LANKA STANDARDS INSTITUTION

The Sri Lanka Standards Institution (SLSI) is the National Standards Organization of Sri Lanka established under the Sri Lanka Standards Institution Act No. 6 of 1984 which repealed and replaced the Bureau of Ceylon Standards Act No. 38 of 1964. The Institution functions under the Ministry of Science & Technology.

The principal objects of the Institution as set out in the Act are to prepare standards and promote their adoption, to provide facilities for examination and testing of products, to operate a Certification Marks Scheme, to certify the quality of products meant for local consumption or exports and to promote standardization and quality control by educational, consultancy and research activity.

The Institution is financed by Government grants, and by the income from the sale of its publications and other services offered for Industry and Business Sector. Financial and administrative control is vested in a Council appointed in accordance with the provisions of the Act.

The development and formulation of National Standards is carried out by Technical Experts and representatives of other interest groups, assisted by the permanent officers of the Institution. These Technical Committees are appointed under the purview of the Sectoral Committees which in turn are appointed by the Council. The Sectoral Committees give the final Technical approval for the Draft National Standards prior to the approval by the Council of the SLSI.

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