SRI LANKA STANDARD 846 : 1989

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SPECIFICATION FOR

STAMP PAD INK

SRI LANKA STANDARDS INSTITUTION

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SLS 846:1989

Gr. 7

SRI LANKA STANDARDS INSTITUTION
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SRI LANKA STANDARDS INSTITUTION

SRI LANKA STANDARD

SPECIFICATION FOR STAMP PAD INK

FOREWORD

This Sri Lanka Standard was authorized for adoption and publication by the Council of the Sri Lanka Standards Institution on 1989-05-12, after the draft, finalized by the Drafting Committee on Stamp Pad Ink, had been approved by the Chemicals Divisional Committee.

Clause 5 of this specification calls for agreement between the purchaser and the supplier.

All standard values given in this specification are in SI units.

For the purpose of deciding whether a particular requirement of this specification is complied with, the final value, observed or calculated, expressing the result of a test or an analysis, shall be rounded off in accordance with CS 102. The number of significant places retained in the rounded off value should be the same as that of the specified value in this specification.

In the preparation of this specification, the assistance obtained from the publications of the International Organization for Standardization, the American Society for Testing and Materials and the Bureau of Indian Standards is gratefully acknowledged.

1 SCOPE

This specification prescribes the requirements and methods of sampling and test for stamp pad ink used for stamping with rubber stamps off fabric or foam pads.

2 REFERENCES

ISO	8787	Paper and Board - Determination of Capillaryrise - Klemm method.
CS	102	Presentation of numerical values.
SLS	428	Random sampling methods.
SLS	678	Methods of testing of paper for bursting strength.
SLS	...	Printing and writing paper (under preparation).

3 TYPES

Stamp pad ink covered under this specification shall be of the following types:
Type 1 - Ink for general purpose; and
Type 2 - Ink for quick drying.

4 REQUIREMENTS

4.1 General requirements

Stamp pad ink shall be in a fluid condition, and free from undissolved matter. It shall contain no saccharine material, gums or other foreign matter.

4.2 Other requirements

4.2.1 *Colour*

4.2.1.1 Stamp pad ink shall be provided in any one of the following colours;

a) Black;
b) Blue;
c) Green;
d) Red; and
e) Violet.

4.2.1.2 The colour of ink shall match with the appropriate reference ink when tested as prescribed in Appendix A.

4.2.2 *Performance*

Stamp pad ink shall produce clear impressions when tested as prescribed in Appendix B.

4.2.3 *Glycerol (glycerine) content*

The glycerol content of Type 1 ink, shall be not less than 50 per cent (V/V) and not more than 60 per cent (V/V) and Type 2 ink, shall be not less than 35 per cent (V/V) and not more than 45 per cent (V/V) when tested as prescribed in Appendix C.

4.2.4 *Colour fastness*

The colour fastness of inks shall be not less than that of the reference ink made from the appropriate dye in concentrations recommended in Appendix A, when tested as prescribed in Appendix D.

5 PACKAGING AND MARKING

5.1 Stamp pad ink shall be packed in containers of 100 ml or in any other size as agreed to between the purchaser and the supplier. Each container may in turn be packed in a suitable package. These shall be marked legibly and indelibly with the following information:

a) Name of the product;
b) The words "General purpose" or "Quick drying";
c) Colour;

d) Registered trade mark, if any;
e) Brand name, if any;
f) Net volume, in millilitres;
g) Name and address of the manufacturer (including country of origin);
h) Batch or code number; and
j) Date of manufacture.

5.2 These packages or containers may be suitably packed in carton as agreed to between the purchaser and the supplier. Each box shall be marked legibly and indelibly with the following information:

a) Name of the product;
b) Colour;
c) Number of units per box;
d) Name and address of the manufacture; and
e) Batch or code number.

6 SAMPLING

6.1 Lot

In any consignment all the containers of the same size, containing ink of the same type and belonging to one batch of manufacture or supply shall constitute a lot.

6.2 General requirements of sampling

In drawing, preparing, storing and handling test samples the following precautions shall be observed.

6.2.1 The material being sampled, the sampling instruments and the sample containers shall be protected from adventitious contamination.

6.2.2 The sampling instrument shall be clean and dry when used.

6.2.3 The contents shall be thoroughly mixed when taking samples from selected containers.

6.2.4 The samples shall be filled in clean, dry, air-tight glass containers with suitable stoppers and each of the sample containers shall be marked with necessary details of sampling.

6.2.5 The sample containers shall be of such a size that they are almost completely filled with the sample.

6.3 Scale of sampling

6.3.1 Samples shall be tested from each lot for ascertaining the conformity of the product to the requirements of this specification.

6.3.2 The number of containers or packages to be selected from the lot shall be in accordance with Table 1.

TABLE 1 - Scale of sampling

Number of containers or packages in the lot (1)	Number of containers or packages to be selected (2)
Up to 25	2
26 to 90	3
91 to 150	5
151 to 280	8
281 and above	13

6.3.3 If the containers or packages are packed in cartons, 10 per cent of the cartons, subject to a minimum of two cartons shall be selected and as far as possible an equal number of containers shall be drawn from each carton so selected to form a sample as given in Table 1.

6.3.4 The cartons and the containers shall be selected at random. In order to ensure randomness of selection, random number tables as given in SLS 428 shall be used.

6.4 **Preparation of samples**

6.4.1 Before drawing the samples, the material in the containers shall be thoroughly mixed by shaking or stirring. Samples shall then be drawn with the help of a suitable sampling intrument.

6.4.2 A small quantity of about 5 ml shall be drawn from each container selected as in 6.3.2 or 6.3.3 and shall be mixed to form a composite sample. The sample thus obtained shall be divided into three equal parts and transferred into three sample containers, one for the purchaser, another for the supplier and the third for the referee.

6.4.3 Three portions each of about 4 ml shall be drawn from each container selected as in 6.3.2 or 6.3.3 and transfered to separate containers. Make three identical sets such that each set has an individual sample representing each container.

6.5 **Reference sample**

Reference sample shall consists of one composite sample and a set of individual samples. It shall be kept at a place agreed to between the purchaser and the supplier and shall be used in case of dispute.

6.6 Number of tests

6.6.1 Each carton selected as in 6.3.3 shall be examined for packaging and marking requirements.

6.6.2 Each container and/or package selected as in 6.3.2 or 6.3.3 shall be examined for packaging and marking requirements as the case may be.

6.6.3 Each individual sample prepared as in 6.4.3 shall be tested for the requirements given in 4.2.1, 4.2.2 and 4.2.4.

6.6.4 The composite sample prepared as in 6.4.2 shall be tested for the glycerol content.

7 METHODS OF TEST

7.1 Tests shall be carried out as prescribed in Appendices A to D of this specification.

7.2 Reagents of analytical grade and distilled water or water of equivalent purity shall be used.

8 CRITERIA FOR CONFORMITY

A lot shall be declared as conforming to the requirements of this specification, if the following conditions are satisfied.

8.1 Each carton examined as in 6.6.1 satisfies the relevant requirements.

8.2 Each container and/or package examined as in 6.6.2 satisfies the relevant requirements.

8.3 Each individual sample when tested as in 6.6.3 satisfies the relevant requirements.

8.4 The composite sample when tested as in 6.6.4 satisfies the relevant requirements.

APPENDIX A
DETERMINATION OF COLOUR

A.1 PROCEUDRE

Prepare reference inks of different colours by dissolving specified proportions of the dye stuffs indicated in Table 2 in a glycerol-water mixtures containing 55 per cent (V/V) or 40 per cent (V/V) of glycerol for Type 1 and Type 2 respectively.

Place marks using normal force and at the same time with the ink under test and with the reference ink of the same colour, on a Whatman No.40 filter paper or an equivalent, and compare the colour of the marks.

TABLE 2 - Percentage of dye stuffs in reference ink

Sl. No. (1)	Colour (2)	Name of dye (3)	Colour Index (4)	Hue (5)	Per cent by mass (6)
i)	Black	Nigrosine	50420	Acid black 2	7
ii)	Blue	Victoria blue	44045	Basic blue 26	4
iii)	Green	Brilliant green	42040	Basic green 1	3
iv)	Red	Crocein scarlet MOO	27290	Acid red 73	3
v)	Violet	Methyl violet	42535	Basic violet 1	3

APPENDIX B
TEST FOR PERFORMANCE

B.1 APPARATUS

B.1.1 *Blotting paper*, having a substance of 140 ± 4 g/m^2, minimum bursting factor of 7 (in accordance with SLS 678) and minimum abosrbency of 30 mm per minute (in accordance with ISO 8787).

B.1.2 **Blotting paper stamp-pad**

Cut a piece of blotting paper measuring 75 mm x 75 mm and keep it on a piece of smooth glass sheet or other suitable smooth surface.

B.1.3 *Rubber stamp 1*, having at least two parallel lines of 1 mm thickness, separated by 10 mm and capable of giving sharp and clear impressions.

B.1.4 *Rubber stamp 2*, which gives impressions of cross mark.

B.2 PROCEDURE

B.2.1 Spread one millilitre of the material uniformly over the surface of the blotting paper stamp pad (B.1.2). Using the rubber stamp 1 (B.1.3), take the number of impressions specified in B.2.2 at a stretch, on writing paper conforming to SLS ...*. Keep the blotting paper stamp pad in a cupboard, without cover, for 24 hours. At the end of this period, take at least 9 further impressions with the rubber stamp from the stamp pad.

*Under preparation.

B.2.2 The ink shall be considered to have passed the requirements of the test if the following conditions are satisfied:

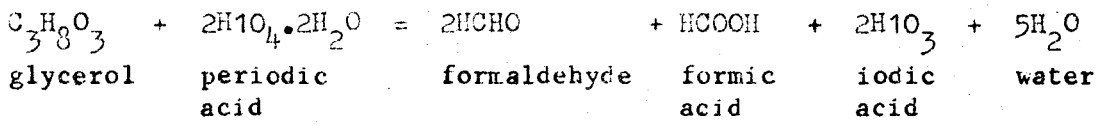
a) In case of Type 1, 16 impressions are clear and 9 impressions can still be taken after 24 hours.
b) In case of Type 2
   i) Ten impressions are clear; and
   ii) There is no setoff of ink when a piece of writing paper stamped with rubber stamp 2 (B.1.4) is folded immediately after stamping.

APPENDIX C
DETERMINATION OF GLYCEROL (GLYCERINE)

C.1 PRINCIPLE

The primary hydroxyl groups of glycerol are oxidized to form aldehyde by periodic acid, the secondary hydroxyl group of glycerol is oxidized to formic acid. The glycerol content can be calculated by an algebraic equation using the value obtained from acidimetric titration.

The chemical equation for the oxidation of glycerol is as follows:



C.2 REAGENTS

C.2.1 *Activated charcoal*, powder.

C.2.2 *Concentrated sulfuric acid*, rel. den. = 1.84.

C.2.3 *Methyl purple indicator solution*

C.2.4 *Periodic acid solution* - - Dissolve 11 g of periodic acid (HIO_4) in water and dilute to 1 litre.

C.2.5 *Standard sodium hydroxide solution* - Prepare 0.1 mol/l solution and standardize.

C.3 PROCEDURE

C.3.1 Weigh, to the nearest 0.001 g sample of ink equivalent approximately, to 1.50 g of glycerol (glycerine) in a 250-ml beaker. Add 150 ml of water and dissolve the ink by warming, if necessary. Add about 5 g of activated charcoal (C.2.1) and heat, over a waterbath, with stirring for 2 hours. Filter while still warm through a medium filter paper into a 500-ml volumetric flask, washing the filter thoroughly with cold water. Make up to volume and shake well. Pipette, 25 ml of the solution to a 250-ml volumetric flask and make up to volume.

NOTE

While testing black stamp pad ink, where nigrosine or similar dyes have been used, removal of the dyes with activated charcoal is sometimes not complete. In such cases, 5 ml of concentrated sulfuric acid (C.2.2) may be added before the addition of activated charcoal.

C.3.2 Pipette an aliquot (see Note) of the solution (C.3.1), into a 1-l Erlenmeyer glass stoppered flask. Add 2 drops of methyl purple indicator solution (C.2.3) and neutralize with standard sodium hydroxide solution (C.2.5). Add 50 ml of periodic acid solution (C.2.4), stopper, and swirl to mix thoroughly.

NOTE

The aliquot should be chosen, such that 15 per cent to 20 per cent of the periodic acid is consumed during the oxidation. Considerable excess of periodic acid is required to complete the oxidation, and if more than 20 per cent is consumed the results should be disregarded and a smaller aliquot taken. On the other hand, smaller aliquot is not advisable, as it would magnify any titration errors.

C.3.3 Simultaneously prepare, a blank taking the same volume of water as in C.3.2 and allow to stand 50 minutes to 70 minutes at room temperature.

C.3.4 To the aliquot of the sample (C.3.2) and the blank (C.3.3) add 100 ml of water and 3 drops of methyl purple indicator and titrate with standard sodium hydroxide solution (C.2.5). Use 50-ml burette and record the volume to the nearest 0.05 ml.

C.4 CALCULATION

Calculation on the basis that 1 ml of 1 mol/l sodium hydroxide solution is equivalent to 0.09206 g of glycerol:

$$\text{Glycerol (glycerine), per cent by volume} = \frac{0.09206\ (V_2 - V_3)\ c}{m \times \frac{V_1}{5000}} \times \frac{100}{d}$$

$$= 367.065\ \frac{(V_2 - V_3)\ c}{m \times V_1} \times 100$$

where,

V_1 is the volume, in millilitres, of aliquot taken (C.3.2);

V_2 is the volume, in millilitres, of standard sodium hydroxide solution required for titration of the sample;

V_3 is the volume, in millilitres, of standard sodium hydroxide solution required for titration of the blank;

c is the concentration, in moles per litre, of the standard sodium hydroxide solution;

m is the mass, in grams, of the sample taken; and

d is the 1.254 {density of glycerol (glycerine) at 27 $\pm$ 2 ^{o}C}.

APPENDIX D
TEST FOR COLOUR FASTNESS

D.1 PREPARATION OF STRIPES

Place a sheet of paper having one minute cobb test value equivalent to cream wove/cream laid paper (see SLS ...*) with the felt side upwards and slightly stretched, on a piece of board or glass plate with a smooth surface. Adjust the board or glass plate so that the surface of the paper makes an angle of 45° with the vertical. Draw up one millilitre of ink in a 1-ml pipette and allow the nozzle just to touch the paper near the top edge, the pipette remaining vertical. Release the ink carefully to form a perfect stripe of uniform width across the paper. Prepare similar stripes with reference ink.

NOTE

When arranging the sheet of paper for making the stripes it is desirable to place it in such a way that the ink will flow in the machine direction. There is a slight but definite difference in the arrangement of the fibres in the machine direction and at right angles to it. If a piece of paper about 25 mm square is laid on water, it starts to curl up on two opposite edges and thus makes a shallow trough. The axis of the trough is parallel to the machine direction of the paper. If the ink flows across the machine direction the paper will become wrinkled across the stripes, these will then be unevenly coloured.

D.2 DAYLIGHT EXPOSURE

D.2.1 Procedure

Dry the stripe prepared in D.1 for 15 minutes and remove it from the board. Cut off a stripe of paper 40 mm in width from the bottom of the sheet at right angles to the stripe and reject it. Cut the remaining paper into stripe each 50 mm wide and at right angles to the stripes. Expose the stripe for 8 days to air and diffused daylight in the shade. At the same time and under the same conditions, perform the experiment with the reference ink (see Appendix A).

Dilute the ink and the reference ink with an equal volume of water and repeat the experiment.

The stripes of the ink shall show a close match to those of the reference ink and the stripes of the diluted ink shall show a close match to those of the diluted reference ink.

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* *Under preparation.*

D.3 ULTRA-VIOLET RAY EXPOSURE

D.3.1 **Procedure**

Place the papers containing the stripes of ink and the reference ink at a distance of 250 mm from an ultra-violet lamp of 125W and of long wave UV region mainly at 365 nm, and expose for a total period of 36 hours. Expose the papers containing the stripes of diluted ink and diluted reference ink in the same manner for a total period of 27 hours.

The darkness (intensity) of the stripes of the ink and the diluted ink shall be at least equal to that of the stripes of the reference ink and the diluted reference ink respectively.

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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.

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