SRI LANKA STANDARD 587:1982
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SPECIFICATION FOR
STENCIL PAPER

BUREAU OF CEYLON STANDARDS

SPECIFICATION FOR STENCIL PAPER

SLS 587:1982
(Attached AMD 124)

Gr.7

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Sri Lanka.

Sri Lanka 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 does not purport to include all the necessary provisions of a contract.

SRI LANKA STANDARD
SPECIFICATION FOR STENCIL PAPER

FOREWORD

This Sri Lanka Standard was authorized for adoption and publication by the Council of the Bureau of Ceylon Standards on 1982-11-24, after the draft, finalized by the Drafting Committee on Stencil Paper, had been approved by the Chemicals Divisional Committee.

All standard values in this specification are given 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 analysis, shall be rounded off in accordance with CS 102. The number of significant places to be 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, valuable assistance derived from the relevant publications of the Indian Standards Institution is gratefully acknowledged.

1 SCOPE

This specification prescribes the requirements and the methods of sampling and tests for waxless stencil paper used on duplicating machines.

2 REFERENCES

CS 3 Paper sizes

CS 102 Presentation of numerical values

SLS 169 Ink, duplicating, for single drum rotary machines

SLS 428 Random sampling methods

SLS 470 Correcting fluid for duplicating machine stencil

SLS 474 Testing of paper and board for tensile strength

SLS 604 Ink, duplicating, for twin cylinder rotary machines

3 DEFINITIONS

For the purpose of this specification, the following definitions shall apply.

3.1 elongation : The ratio of the increase in length of the test specimen to the original test span at the time of break in a tensile test carried under prescribed conditions, expressed as a percentage.

3.2 tensile strength : The maximum tensile stress developed in a test specimen before break on a tensile test carried under prescribed conditions. Tensile strength is expressed as the force in newtons per unit width of the test specimen.

3.3 stub : The portion of the backing sheet above the perforated line in a stencil paper.

4 REQUIREMENTS

4.1 General requirements

4.1.1 The stencil paper shall be of suitable fibrous tissue coated with non-wax based film forming material.

4.1.2 The stencil paper when cut on the typewriter or by a stylus by hand, shall be capable of rendering impressions when worked on a duplicating machine with duplicating ink. The impressions shall be of good definition and shall be free from patches, pin-holes, marks, etc.

4.1.3 The stencil paper shall be free from any pronounced and disagreeable odour.

4.1.4 The stencil paper shall permit visibility of guides placed under it.

4.2 Elongation

The elongation, the mean of two values measured in machine direction and cross direction shall be not more than 6 per cent when tested by the method prescribed in Appendix A.

4.3 Tensile strength

The tensile strength, the mean of two values measured in machine direction and cross direction shall be not less than 345 N/m when tested by the method prescribed in SLS 474.

4.4 Mass of coating

The mass of the coated stencil paper shall be not less than 48 g/m^2 and the mass of soluble coating of stencil shall be not less than 35 g/m^2 when determined by the method prescribed in Appendix B.

4.5 Performance

4.5.1 *Duplicating quality*

The stencil paper shall be capable of producing not less than 750 clear copies and then, after three days, another 500 copies without distortion, cracks or other failures that impair legibility when tested as prescribed in Appendix C.

4.5.2 *Cut-outs and filling*

The stencil paper shall withstand the cut-outs and filling test as prescribed in Appendix D.

4.5.3 *Use with stylus*

The stencil paper shall show complete and uniform displacement of the coating without tearing or pulling the paper when tested with a stylus as specified in Appendix C.

4.5.4 *Correcting properties*

There shall be no noticeable difference in the quality of duplication by stencils before and after correcting compound has been applied when tested as specified in Appendix C.

4.6 Moisture resistance

The stencil paper shall withstand the moisture resistance test as prescribed in Appendix E.

4.7 Keeping quality

The stencil paper shall be capable of retaining its serviceability under normal storage conditions for not less than 2 years from the date of manufacture. The stencil paper, when tested by the accelerated ageing test as prescribed in Appendix F shall pass the test.

4.8 Backing sheet

Each sheet of stencil paper shall be properly backed with a backing sheet. The top of the backing sheet shall contain suitable punches to enable it to be properly fastened to the duplicating machine.

4.9 Interleaving sheets

Each stencil paper shall be interleaved with a sheet of carbon paper, which shall at least cover the typing area of the stencil paper.

4.10 Sizes

Unless otherwise specified, the size of the stencil paper, as expressed by the overall dimensions of the backing sheet (including the stub) shall be as follows:

Width (mm)	Length (mm)
230 ± 3	453 ± 3
443 ± 3	565 ± 3

4.11 Scale

The limits within which the typing can be done for different sizes of stencil paper including A3 or A4 size, as the case may be, shall be indicated on the stencil.

5 PACKAGING

Stencil papers shall be securely packed in packets of 25, 50 or 100 to prevent curling and other damage to the stencils under normal conditions of transportation and storage.

6 MARKING

The following information shall be legibly and indelibly marked.

6.1 On a stencil

a) Name and address of manufacturer; and

b) Batch or code number.

6.2 On a packet

a) Name and size of the material;

b) Number of sheets in a packet;

c) Name and address of the manufacturer;

d) Month and year of manufacture; and

e) Batch or code number.

6.3 The stencil papers and packets may also be marked with the Certification Mark of the Bureau of Ceylon Standards, illustrated below on permission being granted for such marking by the Bureau of Ceylon Standards.

NOTE - The use of the Bureau of Ceylon Standards Certification Mark (SLS Mark) is governed by the provisions of the Bureau of Ceylon Standards Act and the regulations framed thereunder. The SLS Mark on products covered by a Sri Lanka Standard is an assurance that these have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control, which is devised and supervised by the Bureau and operated by the producer. SLS marked products are also continuously checked by the Bureau for conformity to the relevant standards as a further safeguard. Details of conditions under which a permit for the use of the Certification Mark is granted to manufacturers or processors may be obtained from the Bureau of Ceylon Standards.

7 SAMPLING

The method of drawing representative samples of the material shall be as prescribed in Appendix G.

8 METHODS OF TEST

Tests for the requirements laid down in 4 shall be carried out as prescribed in Appendices A, B, C, D, F and SLS 474.

9 CONFORMITY TO STANDARD

The lot shall be considered as conforming to the requirements of this specification if the following conditions are satisfied.

9.1 Each packet examined as in G.5.1 satisfies the relevant requirements.

9.2 The number of sheets which fail to satisfy any one or more requirements when examined as in G.5.2 is less than or equal to the corresponding acceptance number given in Column 4 of Table 1.

9.3 The sheets of each sub-sample tested as in G.5.3 satisfy the relevant requirements.

9.4 The sheets tested as in G.5.4 satisfy the relevant tests.

APPENDIX A

TEST FOR DETERMINATION OF ELONGATION AT BREAK

A.1 APPARATUS

Equipment as specified in SLS 474 (See 4.3) and with means of measuring elongation of the test specimen to the nearest 0.5 mm at the time of break.

A.2 PROCEDURE

Carry out the test as prescribed in SLS 474 and at the time of break measure the distance between the closest points at which the test piece is firmly gripped to the nearest 0.5 mm.

A.3 CALCULATION

$$\text{Elongation at break (as a percentage)} = \frac{d_2 - d_1}{d_1} \times 100$$

where,

d_1 = initial distance, in millimetres, between the closest points at which the test piece is firmly gripped.

d_2 = the distance, in millimetres, between the closest points at which the test piece is firmly gripped, at the time of break.

APPENDIX B

TEST FOR DETERMINATION OF MASS OF COATING

B.1 TEST PIECE

B.1.1 Condition a sheet of stencil paper as prescribed in B.2.1.1 and cut out a test piece measuring 100 mm x 100 mm. Weigh it to the nearest milligram.

B.2 DECOATING

B.2.1 Take a suitable quantity of acetone in a beaker and immerse the test piece in the solvent, until the tissue is clean. During this operation, hold the test piece with forceps and agitate. Repeat the operation with a fresh quantity of solvent. After the coating has been completely removed, dry the decoated stencil paper, condition it (See B.2.1.1) and weigh to the nearest milligram.

B.2.1.1 *Conditioning*

Suspend the test piece in a conditioning chamber in which a relative humidity of 65 ± 5 per cent and a temperature of 27 ± 2 °C is maintained (temperature should not vary by more than ± 1 °C in a given series of tests) in such a way that conditioning atmosphere has free access to all its surfaces. The test piece shall be deemed to have reached the equilibrium when the result of two consecutive weighings at an interval of one hour do not differ by more than 0.5 per cent of the total mass.

B.3 CALCULATION

B.3.1 Mass of coated stencil, $g/m^2 = \frac{m_1}{A}$

where,

m_1 = mass, in g, of test piece as determined in B.1.1; and

A = area, in m^2, of the test piece.

B.3.2 Coating on the paper, $g/m^2 = \frac{m_1 - m_2}{A}$

where,

m_1 = mass, in g, of the test piece before decoating;

m_2 = mass, in g, of the test piece after decoating; and

A = area, in m^2, of the test piece.

NOTE - Paper scale calibrated to give direct reading in g/m^2 may be used for weighing the test piece.

APPENDIX C

TEST FOR PERFORMANCE

C.1 APPARATUS

C.1.1 *Duplicating machine*, an electrically operated single drum rotary type or twin cylinder rotary machine.

C.1.2 *Duplicating ink*, conforming to SLS 169 or SLS ...Ink; duplicating for twin cylinder rotary machines (under preparation).

C.1.3 *Duplicating paper*, white duplicating paper of size A4 (Refer CS 3) having a substance of 75 g/m^2 with a tolerance of ± 4 per cent.

C.1.4 *Correcting fluid*, conforming to SLS 470.

C.1.5 *Stylus*, having a round (not sharp) point.

C.2 PROCEDURE

C.2.1 Cut on the stencil, 25 lines of typed matter, each nearly 150-mm long, with an electric typewriter having clean type using all the letters of the alphabet, both upper and lower case along with numerals and symbols.

C.2.2 *Use with stylus*

On the lower unused portion of the stencil paper in **C.2.1**, draw circles of radii not less than 10-mm and squares of sides not less than 10-mm, using a stylus (**C.1.5**). Examine the impressions of these figures obtained in **C.2.5**.

C.2.3 *Legibility of typing*

Hold the cut stencil (See **C.2.1** and **C.2.2**) against a lighted background. The stencil paper shall be such that the cut stencil can be read easily against a lighted background.

C.2.4 *Correcting properties*

Block out a typed line of letters cut in the test specified in **C.2.1** with the correcting fluid (**C.1.4**). Type over the blocked-out line using the same typewriter. Examine whether there is any noticeable difference in the quality of duplication of the impressions in **C.2.5**.

C.2.5 *Duplicating quality*

C.2.5.1 Clean the screen and the impression roller carefully and put them in proper position on the duplicating machine. Apply a sufficient quantity of duplicating ink and run the machine till the ink spreads evenly on the rollers. Fix the stencil, cut as in **C.2.1** and **C.2.2** and subjected to tests in **C.2.3** and **C.2.4** securely in position and apply some more ink and again run the machine at a speed of 125 ± 5 copies per minute. The stencil shall produce a minimum of 750 clear copies without distortion, cracks or other failures that impair legibility.

C.2.5.2 After performing the test in **C.2.5.1** remove excess ink on the stencil using a blotting paper and store the stencil carefully in a folder at a temperature of 27 ± 2 °C and relative humidity of 65 ± 5 per cent. After 3 days repeat the test in **C.2.5.1**. The stencil shall produce a minimum of 500 clear copies without distortion, cracks or other failures that impair legibility.

APPENDIX D

TEST FOR CUT OUTS AND FILLING

D.1 PROCEDURE

Type five sets of lines each having e, o and 8 on the stencil paper with an electric typewriter properly spaced so as to cover the whole stencil. The stencil paper shall be considered satisfactory if the impressions are clear and distinct without any evidence of cut outs and tendency of filling up of the letters before as well as after the test is made on a duplicating machine.

APPENDIX E

TEST FOR RESISTANCE TO MOISTURE

E.1 PROCEDURE

Take 100 mm x 100 mm of stencil paper with backing sheet. Put a drop of distilled water on the backing sheet (in between the stencil and backing sheet) and place in between two glass plates (100 mm x 100 mm x 6 mm). Place a mass of one kilogram on it and allow to stand for 5 minutes. Separate the stencil from the backing sheet with a steady pull. The stencil shall be considered to have satisfied the requirement of the test if it separates from the backing sheet without any indication of sticking or disintegration.

APPENDIX F

TEST FOR ACCELERATED AGEING

F.1 PROCEDURE

Cut a strip of a stencil paper along with the backing sheet 30 mm x 100 mm and keep it between two pieces of flat glass plates (30 mm x 100 mm x 6 mm) and place a mass of one kilogram on it. Keep the whole assembly for 3 hours inside a hot oven in which the temperature is maintained at 100 ± 5 °C. At the end of three hours the stencil paper shall show no tendency to stick to backing sheet and no evidence of bristleness. There shall be no appreciable change of colour of the stencil paper when compared with the original unheated portion of the sample.

APPENDIX G

SAMPLING

G.1 GENERAL REQUIREMENTS OF SAMPLING

G.1.1 Sampling shall not be carried out in an exposed place.

G.1.2 Samples shall be protected from abnormal exposure to heat and light and shall not be allowed to come in contact with any fluid.

G.1.3 Samples shall be handled as little as possible and contact with moist fingers shall be avoided.

G.2 LOT

All the packets in a single consignment containing stencil papers of the same size and from the same batch of manufacture shall constitute a lot.

G.3 SCALE OF SAMPLING

G.3.1 The conformity of a lot to the requirements of this specification shall be determined on the basis of tests carried out on the samples selected from the lot.

G.3.2 The number of packets to be selected from a lot for sampling shall depend on the size of the lot and shall be in accordance with Columns 1 and 2 of Table 1.

G.3.3 Packets and sheets shall be selected at random. In order to ensure randomness of selection, random number tables as given in SLS 428 shall be used.

TABLE 1 - Scale of sampling

No. of packets in the lot	No. of packets to be selected	No. of sheets to be selected	Acceptance no.	Sub-sample size		
				Sub sample 1	Sub sample 2	Sub sample 3
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Up to 25	03	12	01	05	01	01
26 to 100	05	20	02	05	02	02
101 to 150	08	32	03	08	03	03
151 to 300	13	52	05	08	05	05
300 and above	20	80	07	10	08	08

G.3.4 From each of the packets selected as in G.3.2, four sheets shall be selected at random to give the total number of sheets in accordance with Column 3 of Table 1.

G.4 REFERENCE SAMPLE

If a reference sample is required, the number of sheets to be selected from the lot shall be three times the value specified in Column 3 of Table 1. For this purpose, 12 sheets shall be selected at random from the packets selected as in G.3.2. These sheets shall be divided into three parts, one for the purchaser, another for the vendor and the third for reference.

G.5 NUMBER OF TESTS

G.5.1 Each packet selected as in G.3.2 shall be examined for marking and the packet shall be opened and examined for the proper provision of backing sheets and interleaving sheets (4.9) (This may be done at the place of inspection).

G.5.2 All the sheets selected as in G.3.4 shall be examined for odour (4.1.3), transparency (4.1.4), quality of backing sheets (4.8) and for dimensions (4.10 and 4.11).

G.5.3 If the lot has been found satisfactory with the requirements tested as in G.5.2, three sub-samples of each having size as given in Columns 5, 6 and 7 of Table 1 shall be randomly drawn from the sample selected as in G.3.4 and subjected to the following tests.

Sub-sample 1, Elongation (4.2) and tensile strength (4.3).

Sub-sample 2, Cut outs and filling 4.5.2.

Sub-sample 3, Moisture resistance (4.6) and keeping quality (4.7).

G.5.4 A lot which has been found satisfactory under G.5.1, G.5.2 and G.5.3 shall then be tested for performance (4.5) and mass of coating (4.4). For this purpose, one test shall be conducted for each of these characteristics, if the lot size is 300 or below and two tests in other cases. A sub-sample of stencil sheets required for these tests shall be taken from those selected under G.3.4.

Amendment No. 01 to SLS 587 : 1982

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EXPLANATORY NOTE

Most of the stencil papers available in the market do not conform to the limits specified in the above standard for the mass of coated stencil paper and the mass of soluble coating of stencil, even though they comply with the performance requirements specified therein.

As such, this amendment is introduced to modify the limits specified for the mass of coated stencil paper and the mass of soluble coating of stencil.

AMD 124

AMENDMENT NO. 01 APPROVED ON 1989-12-14

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Clause 4.4 Mass of Coating

Delete the existing text in Clause **4.4** and substitute the following :

"4.4 Mass of Coating"

The mass of the coated stencil paper shall be not less than 40 g/m^2 and the mass of soluble coating of stencil shall be not less than 27 g/m^2 when determined by the method prescribed in Appendix **B**.

SLS CERTIFICATION MARK

The Sri Lanka Standards Institution is the owner of the registered certification mark shown below. Beneath the mark, the number of the Sri Lanka Standard relevant to the product is indicated. This mark may be used only by those who have obtained permits under the SLS certification marks scheme. The presence of this mark on or in relation to a product conveys the assurance that they have been produced to comply with the requirements of the relevant Sri Lanka Standard under a well designed system of quality control inspection and testing operated by the manufacturer and supervised by the SLSI *which includes surveillance inspection of the factory, testing of both factory and market samples.*

Further particulars of the terms and conditions of the permit may be obtained from the Sri *Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.*

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