SRI LANKA STANDARD 715 : 1985

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SPECIFICATION FOR

RUBBER ERASERS

SRI LANKA STANDARDS INSTITUTION

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SLS 715:1985

Gr. 5

SRI LANKA STANDARDS INSTITUTION
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This standard does not purport to include all the necessary provisions of a contract.

SRI LANKA STANDARD
SPECIFICATION FOR RUBBER ERASERS

FOREWORD

This Sri Lanka Standard Specification was authorized for adoption and publication by the Council of the Sri Lanka Standards Institution on 1985-11-20, after the draft, finalized by the Drafting Committee on Rubber Erasers, had been approved by the Technical Advisory Committee on Rubber and Rubber Products and the Chemicals Divisional Committee.

Clauses 4.3 and 6 of this specification call for agreement between the purchaser and the supplier.

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 shall be rounded off in accordance with CS 102. The number of significant places retained in the rounded off value shall be the same as that of the specified value in this specification.

In the preparation of this specification valuable assistance derived from the publications of the Canadian Government Specification Board and South African Bureau of Standards is gratefully acknowledged.

1 SCOPE

This specification prescribes requirements and methods of sampling and test for rubber erasers for removing pencil writing, ink pen writing, ballpoint pen ink writing, typewriting, carbon copy characters and for drawing cleaning.

2 REFERENCES

CS 102 Presentation of numerical values

SLS 297 Method of testing vulcanized rubber

Part 4 Determination of hardness

Part 5 Accelerated ageing test

SLS 428 Random sampling methods.

3 TYPES

Erasers covered by this specification shall be of the following types:

3.1 Type 1 - Drawing;

3.2 Type 2 - Pencil; and

3.3 Type 3 - Ink, ballpoint pen ink, typewriter and carbon.

4 REQUIREMENTS

4.1 Material

4.1.1 Erasers of Type 1 shall mainly contain vulcanized vegetable oil known commercially as factice.

4.1.2 Erasers of Type 2 and Type 3 shall be made of a compound of rubber. Type 3 erasers in addition shall contain an abrasive which shall blend thoroughly into the compound.

4.1.3 Erasers shall not contain any deleterious substances.

4.2 Workmanship

Erasers shall be uniform in quality and shall be clean, smooth and free from foreign matter, cuts, tears and holes. Styles other than cylindrical shall be processed to ensure round even edges.

4.3 Shape and size

Erasers shall be of shape and size as specified by the purchaser.

4.4 Construction

4.4.1 *Wood encased erasers*

Wood encased erasers shall be of such a design that they can be sharpened in a pencil sharpener.

4.4.2 *Combination erasers*

Combination erasers shall be such that one end can be used for removing pencil writing and the other end for removing ink or ballpoint pen ink writing.

5 OTHER REQUIREMENTS

5.1 Hardness

Hardness of the erasers when tested in accordance with SLS 297:Part 4 shall be as in Table 1.

TABLE 1 - Hardness

Type	Hardness, IRHD
1	25 - 40
2	40 - 70
3	70 - 90

5.2 Resistance to accelerated ageing

When aged for 7 days at 70 ± 1 °C in accordance with SLS 297:Part 5 and tested for hardness in accordance with SLS 297:Part 4, the hardness of the erasers shall not change by more than 10 IRHD. The aged erasers shall erase satisfactorily for the purpose intended under normal usage conditions.

5.3 Erasing qualities

5.3.1 When tested as described in Appendix A, erasers of Type 1 and Type 2 shall produce substantially complete erasures, with not more than slight smudging and not more than a slight amount of removal of surface paper, the number of strokes required not exceeding the limit given below.

Type	Number of strokes
Type 1 - Drawing	05
Type 2 - Pencil	10

5.3.2 Erasers of Type 3 shall erase satisfactorily when used for the purpose intended and there shall be not more than slight smudging and wear of the surface paper.

6 PACKAGING

Erasers shall be suitably packed in boxes as agreed to between the purchaser and the manufacturer.

7 MARKING

7.1 The boxes shall be marked legibly and indelibly with the following information:

a) Type of eraser (whether drawing pencil, ink, typewriter, carbon or pencil and ink);

b) Manufacturer's name and address (with the country of origin);

c) Registered trade mark, if any;

d) Number of erasers; and

e) Batch number or month and year of manufacture.

7.2 If the boxes in turn are packed in crates, the crates shall be marked legibly and indelibly with the following information:

a) Type of eraser;

b) Manufacturer's name and address;

c) Registered trade mark, if any; and

d) Number of boxes.

8 SAMPLING

8.1 Lot

In any consignment all the erasers of the same type, shape and size manufactured under essentially the same conditions shall constitute a lot.

8.2 Defective eraser

Any eraser failing to conform to one or more of the requirements of this specification shall be considered as a defective eraser.

8.3 Scale of sampling

8.3.1 Samples shall be selected from each lot for ascertaining its conformity to the requirements of this specification.

8.3.2 The number of erasers to be selected at random from a lot for sampling shall depend upon the size of the lot and shall be in accordance with Columns 1 and 2 of Table 2.

8.3.3 For the purpose of drawing erasers, at least 10 per cent of the packages shall be opened and the required number of erasers shall be selected by taking approximately equal number of erasers from each of the packages opened. In case the erasers are packed in boxes and the boxes in turn are packed in crates, at least 10 per cent of the crates shall be selected first. From each of the crates, thus selected, at least 10 per cent of the boxes shall be opened and the required number of erasers shall be selected by taking approximately equal number of erasers from each of the boxes opened.

TABLE 2 - Scale of sampling

No. of erasers in the lot (1)	No. of erasers to be selected (2)	Acceptance number (3)
Up to 100	8	1
101 to 300	13	1
301 to 800	20	2
801 to 2 500	32	3
2 501 to 10 000	50	5
10 001 and above	80	7

8.3.4 The erasers and packages shall be drawn at random. In order to ensure randomness of selection, random number tables given in SLS 428 shall be used.

8.4 Number of tests

All the erasers selected in accordance with 8.3.2 and 8.3.3 shall be tested for each of the requirements given in this specification.

8.5 Reference sample

If a reference sample is required number of erasers to be selected shall be three times the number given in Column 2 of Table 2. This sample shall be divided into three equal parts. One of these samples shall be given to the purchaser, one to the supplier and the third sample shall be stored in a place agreed to between the purchaser and the supplier to be used in case of a dispute between the two parties.

9 METHODS OF TEST

Tests shall be carried out as specified in Appendix A and Part 4 and Part 5 of SLS 297.

10 CONFORMITY TO STANDARD

A lot shall be considered as conforming to the requirements of this specification, if the number of defectives in the sample is less than or equal to the corresponding acceptance number of defectives given in Column 3 of Table 2.

APPENDIX A

TESTING FOR ERASING QUALITY

A.1 PRINCIPLE

Erasing quality of an eraser is determined by the number of strokes required to erase an inscribed pencil line without appreciable smudging and wear of surface paper.

A.2 TEST PIECES

Test pieces prepared shall be rectangular with a thickness of 5 ± 0.5 mm.

A.3 APPARATUS

The device to perform this test consists of a holder that clamps the test piece (or the pencil) in a vertical position with the specified loads and a horizontal platen which could be moved back and forth.

A.4 PROCEDURE

A.4.1 To produce the pencil lines required for erasing, clamp in the holder a 2B drawing pencil sharpened in a mechanical pencil sharpener to a point having a cylindrical diameter between 1.25 mm and 1.30 mm. The specified diameter may readily be produced by sharpening to a fine point in the mechanical pencil sharpener and then grinding down to a flat surface having the required diameter.

A.4.2 Securely fasten a piece of ledger paper to the horizontal platen. With a load of 500 g on the pencil move the platen so as to inscribe five lines approximately 50 mm long.

A.4.3 Clamp the test piece in a vertical position, so as to form an angle of 45 ^{o}C with the surface of the horizontal platen (see Fig. 1) and at a sufficient height from the platen so that the eraser shall not unduly flex while erasing. The test piece shall be clamped so that bulging of the eraser will not occur due to excessive pressure. With a load of 400 g on the edge of the test piece which rests on the flat horizontal platen, move the platen back and forth until each of the lines have been erased completely. When moving the platen, the edge of the test piece (5 ± 0.5 mm) shall run along the inscribed line, while having the erasing edge perpendicular to the line (see Fig. 1).

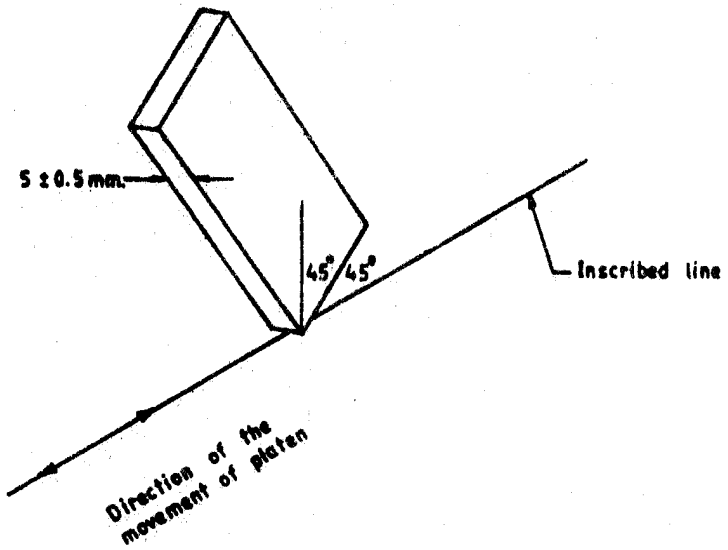

FIGURE 1 - Positioning of test piece (Isometric view)

A.4.4 Record the number of strokes required to erase each line completely and report the average number of strokes. Examine the paper for smudging and wear.

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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SRI LANKA STANDARDS INSTITUTION

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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.

All members of the Technical and Sectoral Committees render their services in an honorary capacity. In this process the Institution endeavours to ensure adequate representation of all view points.

In the International field the Institution represents Sri Lanka in the International Organization for Standardization (ISO), and participates in such fields of standardization as are of special interest to Sri Lanka.

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