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SPECIFICATION FOR MOULDED SOLID RUBBER SOLES AND HEELS

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BUREAU OF CEYLON STANDARDS

SPECIFICATION FOR MOULDED SOLID RUBBER SOLES AND HEELS

S.L.S. 252 : 1973

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COLOMBO 3.

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.

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SRI LANKA STANDARD SPECIFICATION FOR MOULDED SOLID RUBBER SOLES AND HEELS

FOREWORD

This Sri Lanka Standard has been prepared by the Drafting Committee on Footwear. 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 5th December, 1973.

In this standard, the requirements for rubber soles and heels which are intended for the manufacture of footwear as well as repair of footwear have been specified. The design aspect of soles and heels and the composition of the rubber mix have been kept out of the scope of the standard prescribing only the essential physical requirements.

This standard is intended, chiefly, to cover the technical provisions relating to moulded solid rubber soles and heels. All standard values given in this standard use in SI units.

In reporting the result of a test or analysis made in accordance with this standard, if the final value, observed or calculated shall be rounded off in accordance with C.S. 102 : Ceylon Standard on Presentation of Numerical Values.

In the preparation of this standard, valuable assistance derived from the publications of the Indian Standards Institution is acknowledged.

1. SCOPE

1.1 This standard prescribes the requirements and methods of sampling and test for rubber full-soles with or without heels, half-soles and heels sold as finished products.

1.1.1 This standard does not cover microcellular rubber soling, resin rubber soling, and very soft moulded rubber soles and heels normally used for canvas or all rubber footwear.

2. REQUIREMENTS

2.1 Material – The rubber used for soles and heels shall be compounded from natural or synthetic rubbers or their blend with or without the use of reclaimed rubber.

2.1.1 The rubber shall be vulcanized. The vulcanized rubber shall be homogeneous and free from pores and sulphur blooms. The surface shall be free from blemishes and defects. All cured spew and moulding flashes shall be neatly trimmed from the rubber so as to have clean edges.

2.2 Design – The soles and heels shall be cleated or non-cleated with stippled or other background pattern, as agreed to between the purchaser and supplier.

2.3 Construction – The nail holes and washer nail holes in heels shall be suitably spaced so that the heel may be securely attached to the boot or shoe. These in respect of gents sizes shall be not less than 7 holes and not more than 11 holes along the edge of the heel between the cleats, where cleats exist, situated at distance of approximately 20 mm.

2.3.1 The provision for holes in the soles shall be optional and shall be subject to agreement between the purchaser and supplier.

2.4 Size and thickness – The size and thickness of the soles and heels shall be as agreed to between the purchaser and the supplier.

2.4.1 The thickness at the waist or seat of full-sole may be less than the substance of the fore-part by the amount not exceeding 1.5 mm subject to the substance of waist and seat being not less than 2 mm, unless otherwise specified by the purchaser. The thickness shall be measured by the method described in clause 2.4.2.

2.4.2 Measurement of thickness

2.4.2.1 Full-Soles – Measure the thickness at any point along the edge of the sole, excluding any raised or sunk pattern which covers a minor portion

of the surface area of the fore-part or any thickening at the toe. Measure the substance from the top of the pattern with stippled or any other background pattern not exceeding 0.5mm in depth.

2.4.2.2 **Half-Soles** - Measure the thickness at any point along the edge of the sole, excluding any raised or sunk pattern which covers a minor portion of the surface area and excluding any level at the waist or thickening at the toe. Measure the substance from the top of the pattern with stippled or any other background pattern not exceeding 0.5 mm in depth.

2.4.2.3 **Heels** – Measure the substance at the back of the heel including any chevrons or protuberances at that point but excluding nail holes around and disregarding any recess on the reverse side of the heel.

2.5 **Physical requirements** – The material shall comply with the physical requirements as given in clauses 2.5.2 to 2.5.7 using test pieces obtain, obtained in accordance with clause 2.5.1.

2.5.1 Test pieces for physical tests shall be prepared where possible directly from the representative sample selected in accordance with Clause 4 except in the case of small heels, when suitable sheets of the material of the same composition vulcanized under identical conditions as the article shall be provided by the supplier.

2.5.2 **Dry heat test** – It shall be capable of withstanding without developing any signs of brittleness, or tackiness, treatment for a period of 24 hours at a temperature 100 ± 1°C in air at atmospheric pressure in a suitable apparatus. For the purposes of this test, the test pieces may be entire articles or samples cut thereof.

2.5.3 **Relative density** - The relative density of the composition when determined by the method described in SLS 297* shall be not greater than 1.50.

2.5.4 **Resistance to abrasion** - The abrasion index (AI) of the sole and heel compounds shall when tested on the Du Pont machine described in SLS 297* be not less than 75 before, and not less than 75 per cent of the original value after ageing at 100 ± 1°C for 24 hours.

2.5.5 **Hardness**

2.5.5.1 The hardness when determined by the method described in SLS 297* shall be not less than 65 IRHD (International Rubber Hardness Degrees).

2.5.5.2 After ageing at 100 ± 1°C for 24 hours, hardness shall not have changed by more than $\pm \frac{5}{0}$ IRHD

2.5.6 **Flexing resistance and cut growth**

The initial crack should occur after a minimum of 60,000 cycles and 600 per cent cut growth should occur after a minimum of 120,000 cycles when determined using a Ross flexing machine according to the method described in SLS 297*

3. MARKING AND PACKING

3.1 Each sole and heel shall be indelibly marked with the manufacturer's indentification and size of the footwear for which it is intended.

3.2 The material shall be packed as agreed to between the purchaser and supplier.

4. SAMPLING

4.1 For the purpose of ascertaining the conformity of soles and heels in a consignment to this standard, the scale of sampling and criteria for conformity shall be as prescribed in Appendix A.

* SLS 297: Methods of testing vulcanized rubbers.

4.2 Unless otherwise agreed to between the purchaser and supplier, sampling and tests shall be carried out within 3 months from the date of receipt of the material by the purchaser.

APPENDIX A

(See Clause 4)

SAMPLING OF RUBBER SOLES AND HEELS

A-1 SCALE OF SAMPLING

A.1.1 **Lot** – All rubber soles or heels in a consignment belonging to the same size, pattern, type and batch of manufacture shall constitute a lot.

A.1.2 Samples shall be selected and examined from each lot separately for ascertaining the conformity of the material to the requirements of the specification.

A.1.3 The number of rubber soles or heels to be selected from any lot shall depend on the size of the lot and shall be in accordance with col. 1 and 2 of Table 1.

A.1.3.1 The rubber soles and heels shall be selected at random from the lot.

TABLE 1 – SCALE OF SAMPLING AND PERMISSIBLE NUMBER OF DEFECTIVES

No. of rubber soles or heels in the lot	Visual characteristics		Dimensional characteristics	
	Sample Size	Permissible No. of defectives	Sample Size	Permissible No. of defectives
(1)	(2)	(3)	(4)	(5)
Up to 500	13	1	6	0
501 to 1 000	20	1	10	1
1 001 to 3 000	32	2	16	1
3 001 to 5 000	50	3	25	2
5 002 and above	80	5	40	3

A-2 NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

A-2.1 Visual characteristics - All the soles or heels drawn under clause A-1.3 shall be first examined for visual characteristics as given in clauses 2.1, 2.2 and 2.3. If the number of samples failing to satisfy any one or more of the requirements is less than or equal to the corresponding permissible number of defectives given in col. 3 of Table 1, the lot shall be declared to have a satisfied the requirements for these characteristics, otherwise not.

A-2.2 Thickness and other dimensional characteristics - The lot which has been found satisfactory in respect of visual characteristics under clause A-2.1 shall next be examined for thickness and other dimensional characteristics. For this purpose, the number of samples to be chosen from among those selected under clause A-2.1, is given in col. 4 of Table 1.

If the number of defectives found under this test is less than or equal to the permissible number given in col. 5 of Table 1, the lot shall be considered to have satisfied the dimensional characteristics, otherwise not.

A-2.3 Physical requirements - The lot accepted under clauses A-2.1 and A-2.2 shall be examined for physical requirements. For this purpose test pieces shall be taken from samples or from specially prepared test sheets required in clause 2.5.1. For each physical requirement, 2 samples shall be taken for physical tests if the lot size is 1 000 and below and 3 samples if it is above 1 000. There shall be no failures, if the lot is to be accepted under this clause.

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

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.

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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