SRI LANKA STANDARD 795 : PART 3 : 1989

UDC 684 . 7 : 678 . 743

SPECIFICATION FOR

COATED FABRICS

PART 3 - POLYVINYL CHLORIDE (PVC) COATED FABRICS FOR WATER RESISTANT CLOTHING

SRI LANKA STANDARDS INSTITUTION

SPECIFICATION FOR COATED FABRICS

PART 3 : POLYVINYL CHLORIDE (PVC) COATED FABRICS FOR WATER RESISTANT CLOTHING

SLS 795 : 1989

Gr. 6

SRI LANKA STANDARDS INSTITUTION
53, Dharmapala Mawatha,
Colombo 3,
Sri Lanka.

DRAFTING COMMITTEE ON COATED FABRICS

CONSTITUTION

CHAIRMAN	*REPRESENTING*
Mr K.J. Wanasingha	Industrial Development Board
MEMBERS	
Mr R.A.D.C. Gunasekara	Government Supplies Department
Mr R.P. Herath	Sri Lanka Central Transport Board
Mr P.P. Jayasinghe	Rubber Research Institute
Major D.S.C. Kempitiya	Sri Lanka Army
Mr Lal Kulasena	Leatherettes (Ceylon) Limited
Mr K.F.G. Perera	The Leathercloth Company Limited
Mr A.S. Premadasa	Department of Posts
Mr D.M. Siriwardena	Sri Lanka Police
Mr D.R. White	Richard Pieris & Company Limited
Mr K.B. Wijekoon	Ceylon Institute of Scientific and Industrial Research
Mr M.V. Wijesingha	Sandhya Industries

TECHNICAL SECRETARIAT

SRI LANKA STANDARDS INSTITUTION

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 COATED FABRICS

PART 3 : POLYVINYL CHLORIDE (PVC) COATED FABRICS FOR WATER RESISTANT CLOTHING

FOREWORD

This Sri Lanka Standard was authorized for adoption and publication by the Council of the Sri Lanka Standards Institution on 1989-12-14, after the draft, finalized by the Drafting Committee on Coated Fabrics, had been approved by the Chemicals Divisional Committee.

Part 1 of this standard covers polyvinyl chloride (PVC) coated woven fabrics for upholstery and part 2 covers polyvinyl chloride (PVC) coated knitted fabrics for upholstery.

This part of the standard covers only the Polyvinyl Chloride (PVC) coated fabrics mainly used for water resistant clothing.

Clauses 4.3, 4.4, and 5.2 of this specification call 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 shall be the same as that of the specified value in this specification.

In the preparation of this specification, the assistance derived from the publications of the International Organization for Standardization, the British Standards Institution and the Bureau of Indian Standards is gratefully acknowledged.

1 SCOPE

This part prescribes the requirements, methods of sampling and test for fabrics coated on one side with a suitably plasticized coating, pigmented or otherwise, of vinyl chloride or co-polymer, the major constituent of which is vinyl chloride and which are intended for use in water resistant clothing.

2 REFERENCES

ISO 5978 Rubber or plastics coated fabrics determination of blocking resistance.

ISO 6451 Plastics coated fabrics - Polyvinyl chloride coatings rapid method for checking fusion.

IS	2244	Glossary of terms relating to treated fabrics.
CS	62	Determination of colour fastness of textile material to day light.
CS	63	Determination of colour fastness of textile material to rubbing.
CS	102	Presentation of numerical values.
SLS	287	Methods for determination of water repellency and resistance to water penetration of fabrics.
SLS	428	Random sampling methods.
SLS	732	Tests for plastics. Part 1 Qualitative evaluation of bleeding of colourant.
SLS	761	Tests for Rubber of plastic coated fabrics Part 1 Determination of roll characteristics Part 2 Determination of tear strength Part 3 Determination of breaking strength and elongation at break Part 4 Determination of resistance to damage by flexing (dynamic method) Part 5 Standard atmospheres for conditioning and testing Part 6 Determination of coating adhesion. Part 7 Determination of bursting strength.
SLS	795	Part 1 Polyvinyl chloride (PVC) coated woven fabrics for upholstery.

3 DEFINITIONS

For the purpose of this specification the following definition shall apply:

3.1 **blocking** : An unintentional adherence between materials.

4 REQUIREMENTS

4.1 General requirements

The coated fabric shall be made by coating suitably the base fabric with polyvinyl chloride (PVC) or suitable co-polymer of polyvinyl chloride. The coated fabric shall be flexible and shall not emit an unpleasant odour during normal service. The base fabric shall be made up of natural or synthetic yarn.

4.2 Appearance

The coating of the fabric shall be uniformly applied and shall be free from visible flaws and cracks. When viewed under a magnification of x 10 the coated fabric shall be free from pin-holes. The base fabric shall not protrude through the coating.

4.3 Colour, grain (design/pattern) and finish

The colour, grain and finish of the coated fabric shall be as agreed to between the purchaser and the supplier.

4.4 Width

The usable width (see Note) of the coated fabric when measured in accordance with **SLS 761 : Part 1** shall be as agreed to between the purchaser and the supplier.

NOTE

The term "usable width" means the width of the fabric that is coated in such a manner that it complies with the requirements specified in 4.2.

4.5 Bleeding of colourant

The coated fabric when tested and examined in accordance with **SLS 732 : Part 1** shall not show any staining or marking.

4.6 Other requirements

The coated fabric shall comply with the requirements given in Table 1 when tested in accordance with the methods given in Column 4 of Table 1.

TABLE 1 - Requirements for PVC coated water resistant clothing

Sl. No. (1)	Characteristic (2)	Requirement (3)	Method of test (3)
i)	Total mass per unit area, g/m^2, min.	310	SLS 761 : Part 1
ii)	Tear strength*, N		SLS 761 : Part 2 Method A.1
	Longitudinal direction,min	12	
	Transverse direction, min.	12	
iii)	Coating adhesion N/50 mm,min	26	SLS 761 : Part 6
iv)	Breaking strength* N/50 mm,		SLS 761 : Part 3
	Longitudinal direction,min	150	
	Transverse direction, min.	150	
v)	Volatility of plasticizer, per cent, max.	5	SLS 795 : Part 1
vi)	Bursting strength kPa, min.	550	SLS 761 : Part 7
vii)	Fusion	No cracking or disintegration of face coating	ISO 6451
viii)	Flex cracking, number of cycles, min.	500 000	SLS 761 : Part 4
ix)	Resistance to water penetration, mm head of water, min.	1 100	SLS 287 : Method B
x)	Blocking	Separation without damage to coating	ISO 5978
xi)	Colour fastness		
	a) to light (Blue wool standard), min.	5	CS 62
	b) to rubbing (Grey scale rating), min.	4	CS 63

* *These tests are optional for PVC coated knitted fabrics.*

5 PACKAGING

5.1 The product shall be securely packed in the form of a roll so as to ensure safe transportation.

5.2 A roll may contain one or more pieces. If a roll consists of more than one piece, the number of pieces and the minimum length of each piece of the fabric shall be as agreed to between the purchaser and the supplier.

6. MARKING

6.1 The following information shall be legibly and indelibly marked on each roll or on a label securely attached:

a) The name of the product;
b) Name and address of the manufacturer (including the country of origin);
c) Length and width of the material, in metres;
d) Trade mark, if any;
e) Brand name, if any; and
f) Batch or code number.

NOTE

Attention is drawn to the certification facilities offered by the Sri Lanka Standards Institution. See the inside back cover of this specification.

7 SAMPLING

7.1 Lot

All the rolls of fabric belonging to one batch of manufacture or supply shall constitute a lot.

7.2 Scale of sampling

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

7.2.2 The number of rolls to be selected from a lot shall be in accordance with Table 2.

TABLE 2 - Scale of sampling

Number of rolls in the lot (1)	Number of rolls to be selected (2)
Up to 15	2
16 to 35	3
36 to 50	4
51 and above	5

7.2.3 The rolls shall be selected at random. In order to ensure randomness of selection, tables of random numbers as given in SLS 428 shall be used.

7.3 Number of tests

7.3.1 Each roll selected as in 7.2.2 shall be inspected for packaging and marking requirements.

7.3.2 Each roll selected as in 7.2.2 shall be examined for the requirements given in 4.1, 4.2, 4.3, 4.4, 4.5 and 4.6.

NOTES

1. *Ten equally spaced places shall be examined for freedom from pin-holes.*
2. *The method of selecting specimens from each sample shall be in accordance with Appendix A.*

8 METHODS OF TEST

8.1 Tests shall be carried out as specified in ISO 5978, ISO 6451, CS 62, CS 63, SLS 287, SLS 732, SLS 761 and SLS 795.

8.2 During the analysis, unless otherwise stated use only reagents of recognized analytical grade and only distilled water or water of equivalent purity.

8.3 Test specimens wherever necessary shall be conditioned in accordance with, SLS 761 : Part 5 by method of conditioning "A" or "B" as the case may be.

9 CRITERIA FOR CONFORMITY

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

9.1 Each roll inspected as in 7.3.1 satisfies the relevant requirements.

9.2 Each roll examined for requirements given in 4.1, 4.2, 4.3, 4.4 and 4.5 satisfies the relevant requirements.

9.3 The test results on coating adhesion, fusion, flex cracking, resistance to water penetration, blocking, colour fastness to light and colour fastness to rubbing satisfy the relevant requirements.

9.4 In case of lots having less than 16 rolls, each roll tested as in 7.3.2 satisfies the requirements for total mass per unit area, tear strength, breaking strength, volatility of plasticizer and bursting strength.

9.5 In case of lots having 16 or more rolls, the test results when tested as in 7.3.2 satisfy the following conditions.

9.5.1 The value of the expression $\bar{x}$ - 1.1 s, calculated using the test results on total mass per unit area, tear strength, breaking strength and bursting strength are not less than the specified value.

NOTES

1. *Mean ($\bar{x}$) = The sum of values of the observations divided by the number of observations.*
2. *Standard deviation (s) = The positive square root of the quotient obtained by dividing the sum of squares of the deviations of the observations from their mean by one less than the number of observations.*

9.5.2 The value of the expression $\bar{x}$ + 1.1 s, calculated using the test results on volatility of plasticizer is not more than the specified value.

APPENDIX A
METHOD OF SELECTION OF TEST SPECIMENS

The specimens for testing shall be selected from the sample in accordance with the scheme illustrated in Figure 1 which shows the positions from which the specimens for each type of test shall be taken, except that the specimens required for testing, bleeding of colourant and colour fastness to light shall be selected from any suitable portion of the sample.

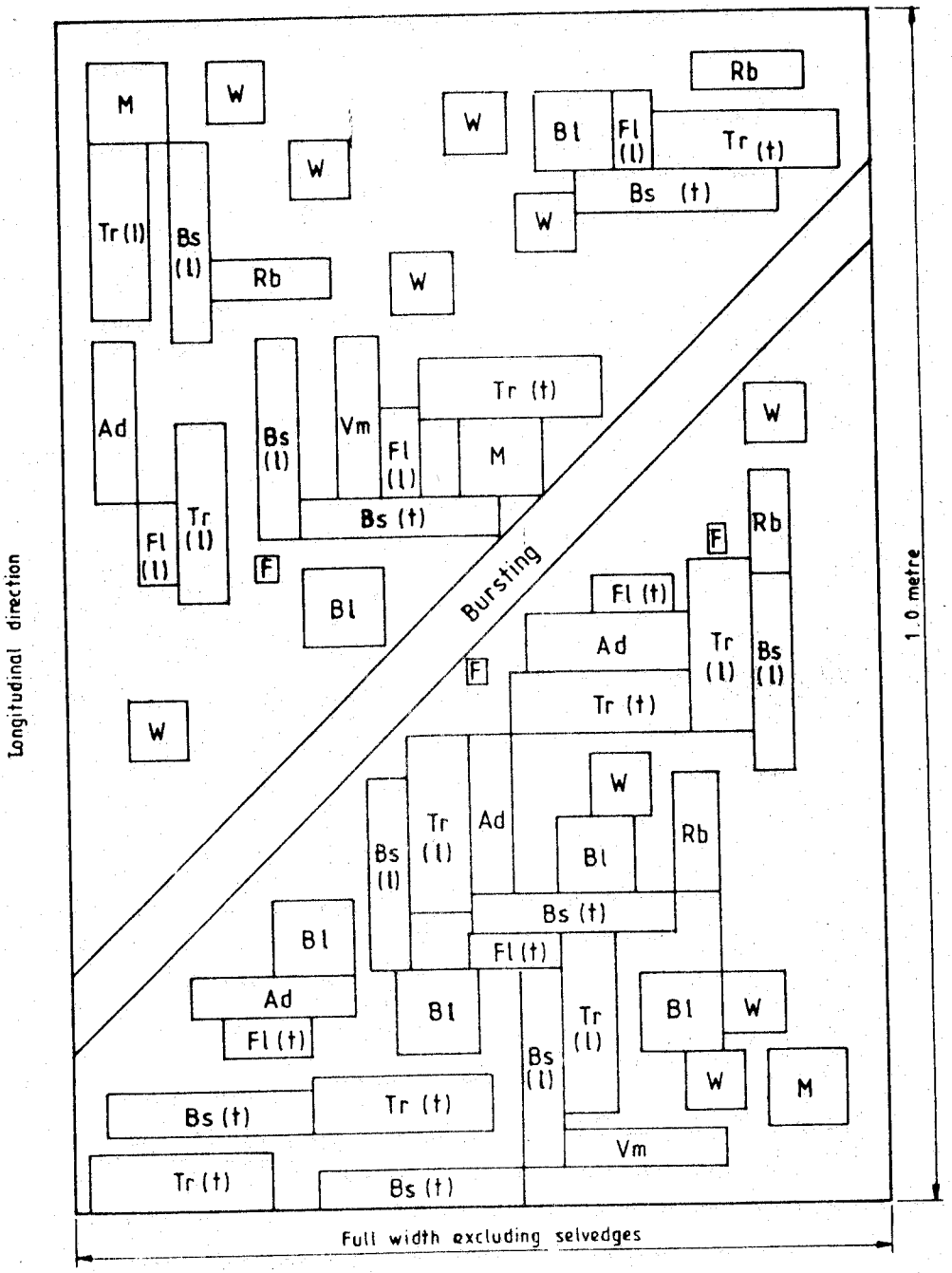

FIGURE 1 - Scheme for selection of test specimens.

Key

M	-	Mass determination (3 pieces 50 mm x 50 mm)
Tr(l)	-	Tear Strength (Longitudinal direction) (5 pieces 225 mm x 75 mm)
Tr(t)	-	Tear Strength (Transverse direction) (5 pieces 225 mm x 75 mm)
Bs(l)	-	Breaking Strength (Longitudinal direction) (5 pieces 200 mm x 50 mm)
Bs(t)	-	Breaking Strength (Transverse direction) (5 pieces 200 mm x 50 mm)
	-	Bursting Strength
Ad	-	Coating adhesion (4 pieces 100 mm x 50 mm)
Fl(l)	-	Flex cracking (Longitudinal direction) (3 pieces 105 mm x 65 mm)
Fl(t)	-	Flex cracking (Transverse direction) (3 pieces 105 mm x 65 mm)
Bl	-	Blocking (6 pieces 100 mm x 100 mm)
Vm	-	Volatility of plasticizer (2 pieces 100 mm x 100 mm)
F	-	Fusion (3 pieces 20 mm x 40 mm)
W	-	Resistance to water penetration (10 pieces diameter 50 mm)
Rb	-	Colour fastness to rubbing (wet and dry) (4 pieces 230 mm x 50 mm)

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.*

Printed at SLSI (Printing Unit)

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.

Printed at the Sri Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.