

BUREAU OF INDIAN STANDARDS

DRAFT FOR COMMENTS ONLY

(Not to be reproduced without permission of BIS or used as an Indian Standard)

भारतीय मानक मसौदा
स्वेड अस्तर चमड़ा — विशिष्टि

(IS 14583 का पहला पुनरीक्षण)

Draft Indian Standard

Suede Lining Leather — Specification

(First Revision of IS 14583)

(ICS 59.140.01)

**Leather, Tanning Materials and Allied Products
Sectional Committee, CHD 17**

Last Date for Comments: 22nd September 2024

Leather, Tanning Materials and Allied Products Sectional Committee, CHD 17

FOREWORD

(Formal clause will be added later)

Suede-lining leather is one of the most commonly used raw materials in shoe making. Generally, full chrome, semi-chrome, or vegetable-tanned crusts are used for suede leathers. Suede nap is produced either on the grain side or flesh side depending upon the selection of the crust/wet blue and the end use of the leather. This standard considers the suede leathers with suede nap on the flesh side.

For lining, suede leathers are commonly used because of their property of breathing or moisture absorption. However, if applicable, the purchaser and the supplier may decide on special requirements concerning the intended applications. In such a scenario, the tolerance prescribed shall apply to the nominal values declared by the manufacturer.

This standard was first published in 1998. This revision has been undertaken to incorporate the functional and other essential properties of suede lining for shoes and other products such as wallets, bags, and garments. Similarly, the list of harmful chemical substances that could be present in the suede lining leather with prescribed limits is included.

In this revision, following major modifications have been done:

- i. A new type of suede lining leather has been incorporated;
- ii. New physical and chemical requirements have been added;
- iii. The list of harmful chemical substances that could be present in the suede lining leather with prescribed limits is also incorporated

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value,

observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2: 2022 'Rules for rounding off numerical values (*second revision*)' .

Draft Indian Standard

Suede Lining Leather — Specification

(First Revision)

1 SCOPE

This standard prescribes the requirements, methods of testing and sampling for suede lining leather.

2 REFERENCES

The Indian Standards listed in Annex A contain provisions through which this Indian Standard evolved and reviewed. At the time of publication, the editions indicated are valid. However, all the standards are eligible for periodic revisions, and consensus may be reached between the purchaser and supplier before application. Hence, the interested parties or stakeholders are encouraged to explore the possibility of applying the most recent edition of the Indian Standards listed in Annex A.

3 TERMINOLOGY

For the purpose of this standard the definitions given in IS 1640 shall apply.

4 TYPES

Suede lining leather shall be classified in following four types:

Type 1 — Semi chrome lining leather

Type 2 — Vegetable tanned lining leather

Type 3 — Full chrome tanned lining leather

Type 4 — Metal-free/Organic tanned lining leather

5 REQUIREMENTS

5.1 General

The leather shall be uniformly dyed and have a good suede nap on the flesh side. The thickness of such suede lining leather shall not vary by more than 0.1 mm on either side from the nominal thickness to be declared by the supplier. The material shall be full-chrome, vegetable, semi-chrome, metal-free or organic-tanned leather.

5.2 Treatment with Preservatives

At the end of the tanning process and before drying, the leather shall be treated with suitable biocides in requisite proportions to promote mildew resistance. The material shall show no growth of mildew when examined visually. The chosen biocides shall be effective against microorganisms, non-toxic or within the prescribed limits listed in Table 3.

NOTE – Ever since the restriction on Pentachlorophenol (PCP) was proposed, alternative biocides viz. TCMTB, PCMC, OPP, and OIT, were introduced as preservatives in leather processing. However, citing the toxicology studies, advocacies by the consumer groups to add the other chlorophenol variants of mono, di, tri, and tetra to the restriction list gained momentum. Though the prevalence of PCP in leather processing is negligible, the data from test houses suggests that the other variants of chlorophenols, including its isomers, are still reported but on a declining trend. Given this, the list of chlorophenols expanded to enhance the screening scope to comply with hazardous chemical substances (Table 3). Conversely, the alternative preservatives with allowable limits were prescribed based on the optimisation studies of application.

5.3 Finishing

The leather shall be dyed uniformly and shall have good suede nap on the flesh side to any shade as agreed between the purchaser and the supplier. The flesh side of the leather shall have a suede nap and the grain side shall be shaved, and/or snuffed.

5.4 Physical Requirement(s)

The leather shall comply with the physical requirements given in Table 1.

Table 1 Physical Requirement(s) for Suede Lining Leather

(Clause 5.4)

Sl. No	Properties	Requirements	Method of Test , Ref to
(1)	(2)	(3)	(4)
i)	Thickness, mm	As agreed between the purchaser and supplier, with a tolerance of 0.1 mm	CHD/17/26105/ ISO 2589
ii)	Tensile strength, N/mm ² , <i>Min</i>	8.0	IS 5914 (Part 8) /ISO 3376
iii)	Tear Strength (Double edge), N, <i>Min</i>	15.0	IS 5914 (Part 5/Sec 2) / ISO 3377-2
iv)	Abrasion resistance	No hole formation	IS 8085 (Part 6) /ISO 17704
	a) For Shoes i) Dry 12,800 cycles ii) Wet 3,200 cycles		
v)	b) For Goods/Garments i) Dry 6,400 cycles ii) Wet 3,200 cycles	No hole formation	
	Colour fastness to rubbing (crocking), Grey scale rate, <i>Min</i>	Grade 3	IS 6191 LF:10
vi)	Colour fastness to water, Grey scale rate, <i>Min</i>	Grade 3	IS 6191 (Part 2) /ISO 11642
vii)	Colour fastness to perspiration, Grey scale rate, <i>Min</i>	Grade 3	IS 6191 (Part 6) /ISO 11641
viii)	Water vapour permeability, mg/cm ² /hr, <i>Min</i>	2.0	IS 5914 LP:21 Or IS 5914 (Part 1)/ ISO 17229
	Water vapour coefficient, mg/cm ² , <i>Min</i>	20.0	
NOTE — Test shall be conducted on wear side for abrasion, and fastness properties			

5.5 Chemical Requirement(s)

The leather shall comply with the chemical requirements given in Table 2.

Table 2 Chemical Requirements for Suede Lining Leather

(Clause 5.5)

Sl. No	Properties	Requirements				Method of Test , Ref to
		Type 1	Type 2	Type 3	Type 4	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	Solvent extractable substances, percent by mass, <i>Min</i>	8.0	12.0	8.0	8.0	IS 582 (Part 14)/ ISO 4048
ii)	Chromium as (Cr ₂ O ₃), percent by mass, <i>Min</i>	1.5	—	2.5	—	IS 582 (Part 10/Sec1)/

						ISO 5398-1
iii)	Fixed organic matter, percent by mass, <i>Range</i>	—	20 to 30	—	—	IS 582 LC:21
iv)	Water solubles, percent by mass, <i>Max</i>	2.0	10.0	1.0	5.0	IS 582 (Part 2)/ ISO 4098
v)	Water insoluble ash after deducting Cr ₂ O ₃ content, percent by mass, <i>Max</i>	2.0	1.0	2.0	2.0	IS 582 (Part 3)/ ISO 4047
vi)	Hide substance, percent by mass, <i>Min</i>	50.0	40.0	55.0	50.0	IS 582 (Part 12)/ ISO 5397
vii)	Mineral tanning agents Sum (Σ) of Cr, Al, Ti, Zr, Fe, percent by mass, <i>Max</i>	—	—	—	0.3	IS 582 (Part 6/Sec 2)/ ISO 17072-2
viii)	Degree of tannage, percent by mass, <i>Min</i>	—	45	—	—	IS 582 LC:21
ix)	pH of water solubles, <i>Min</i>	3.5	4.0	3.5	3.5	IS 582 (Part 9)/ ISO 4045

NOTE — Values of S No. (1) to (7) are based on zero percent moisture content.

5.6 Screening of Hazardous Chemicals

The leather shall conform to the requirements given in Table 3 when tested by the methods prescribed in column 4.

Table 3 Compliance with Hazardous Chemicals

(Clause 5.6)

Sl. No.	Critical Chemical Substances	Requirement	Method of Test , Ref to
(1)	(2)	(3)	(4)
i)	Aromatic amines of azo dyes (individual or sum of the listed amines), mg/kg, <i>Max</i>	30.0	IS 582 (Part 5/Sec 1)/ ISO 17234-1 or IS 582 (Part 5/Sec 2)/ ISO 17234-2
ii)	Chlorophenols (individual or sum of the listed chlorophenol variants, including isomers), mg/kg, <i>Max</i>	5.0	IS 14575/ISO 17070
iii)	Formaldehyde, mg/kg, <i>Max</i>	Adults: 150.0 Children: 75.0	IS 16297 (Part 1)/ ISO 17226-1 or IS 16297 (Part 2)/ISO 17226-2
iv)	Chromium VI, mg/kg, <i>Max</i>	3.0	IS 582 (Part 11/Sec 1)/ ISO 17075-1 or IS 582 (Part 11/Sec 2)/ ISO 17075-1&2

v)	Preservatives		IS 582 (Part 8)/ ISO 13365-1
	a) 2-(thiocyanomethylthio)-benzothiazole, (TCMTB), mg/kg, <i>Max</i>	300	
	b) 4-chloro-3-methylphenol, (PCMC), mg/kg, <i>Max</i>	300	
	c) 2-phenylphenol, (OPP) mg/kg, <i>Max</i>	750	
	d) 2-octylisothiazol-3(2H)-one, (OIT), mg/kg, <i>Max</i>	100	
	e) Phenol, mg/kg, <i>Max</i>	100	
vi)	Alkylphenoethoxylates		CHD/17(24673)/ISO 18218-1
	a) Octylphenoethoxylate, mg/kg, <i>Max</i>	500	
	b) Nonylphenoethoxylate, mg/kg, <i>Max</i>	500	
vii)	Soluble mineral tanning agents		IS 582 (Part 6/Sec 1)/ ISO 17072-1
	a) Chromium (Cr), mg/kg, <i>Max</i>	100	
	b) Aluminium (Al), mg/kg, <i>Max</i>	100	
	c) Titanium (Ti), mg/kg, <i>Max</i>	100	
	d) Zirconium (Zr), mg/kg, <i>Max</i>	100	
	e) Iron (Fe), mg/kg, <i>Max</i>	100	
	Sum (Σ) of Cr, Al, Ti, Zr, Fe, mg/kg, <i>Max</i>	500	

6 PACKING AND MARKING

6.1 Packing

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

6.2 Marking

The leather shall be legibly marked on the grain side of each piece with the area expressed in square decimetres, with the following details:

- a) Batch No. or month and year of manufacture;
- b) Date of finishing;
- c) Identification mark for source of manufacture; and
- d) Type.

6.2.1 In addition to the leathers when packed in a bundle, the bundle shall be marked with the total area of leather in that bundle and number of total pieces of leather in the same.

6.2.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the products may be marked with the standard mark.

7 Sampling

Representative samples of the material shall be drawn and tested for their conformity with the requirements of this standard in accordance with the method of sampling prescribed in IS 5868.

ANNEX A

(Clause 2)

LIST OF REFERRED INDIAN STANDARD

<i>IS No.</i>	<i>Title</i>
IS 582	Methods of Chemical Testing of Leather (<i>first revision</i>)
Part 2: 2024/ ISO 4098: 2018	Determination of water - Soluble matter, water Soluble inorganic matter and water - Soluble organic matter (<i>first revision</i>)
Part 3: 2017/ ISO 4047: 1977	Determination of sulphated total ash and sulphated water - Insoluble ash (<i>second revision</i>)
Part 5	Determination of certain azo colorants in dyed leathers
Sec 1: 2024/ ISO 17234-1: 2020	Determination of certain aromatic amines derived from azo colorants (<i>first revision</i>)
Sec 2: 2018/ ISO 17234-2: 2011	Determination of 4-Aminoazobenzene
Part: 6	Determination of metal content
Sec 1: 2018/ ISO 17072-1: 2011	Extractable metals
Sec 2: 2018/ ISO 17072-2: 2011	Total Metal Content
Part 8: 2018/ ISO 13365 :2011	Determination of the preservative (TCMTB, PCMC, OPP, OIT) content in leather by liquid chromatography
Part 9: 2022/ ISO 4045: 2018	Determination of pH and difference figure
Part 10/ Sec 1: 2022/ ISO 5398-1: 2018	Determination of chromic oxide content Section 1 Quantification by titration
Part 11	Determination of chromium(VI) content in leather
Sec 1: 2022/ ISO 17075-1	Colorimetric method
Sec 2: 2022/ ISO 17075-2	Chromatographic method
Part 12: 2022/ ISO 5397:1984	Determination of nitrogen content and hide substance — Titrimetric method
Part 14: 2022/ ISO 4048:2018	Determination of matter soluble in dichloromethane and free fatty acid content
(Part 15/Sec1)/ ISO 18218-1	Leather Determination of ethoxylated alkylphenols (APEO) Sec 1: Direct method (<i>under preparation</i> with CHD/17/24673)
IS 5868 :1983	Method of sampling for leather (<i>first revision</i>)
IS 5914	Methods of physical testing of leather
Part 1: 2018/ ISO 17229: 2002	Determination of Water vapour absorption
Part 5/Sec 2: 2023/ ISO 3377-2:2016	Determination of tear load Section 2 Double edge tear
Part 11: 20XX / ISO 2589: 2016	Determination of Thickness (<i>under preparation</i> with CHD/17/26105)
IS 6191	Methods of Micro-Biological, Colour Fastness and Microcopic Tests for Leather
Part 2: 2017/ ISO 11642: 2012	Colour Fastness to Water
Part 6: 2023/ ISO 11641:2012	Colour Fastness to Perspiration
IS 8085 (Part 6): 2021/ ISO 17704: 2004	Methods of Test for Footwear Part 6 Abrasion Resistance of Uppers Linings and Insocks

IS 14575: 2024/ ISO 17070: 2015	Leather — Chemical Tests — Determination of Tetrachlorophenol-, Trichlorophenol-, Dichlorophenol-, Monochlorophenol- Isomers and Pentachlorophenol Content (<i>first revision</i>)
------------------------------------	--