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Leather — Crust full chrome upper leather — Specifications and test methods

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Foreword

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This document was prepared by Technical Committee ISO/TC 120, *Leather*, Subcommittee SC 2, *Tanned leather*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Leather is widely used in the footwear industry. Although different tanning agents can be used to make leather, chromium III is still the most important agent in the tanning of leather for footwear. This document specifies requirements for various types of crust full chrome upper leather which are used in the footwear industry for making upper leather.

Leather — Crust full chrome upper leather — Specifications and test methods

1 Scope

This document specifies requirements, methods of testing and methods of sampling for crust full chrome upper leather to be used in all types of footwear (see Table 1).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 2418, *Leather — Chemical, physical and mechanical and fastness tests — Sampling location*

ISO 2588, *Leather — Sampling — Number of items for a gross sample*

ISO 3376, *Leather — Physical and mechanical tests — Determination of tensile strength and percentage elongation*

ISO 3377-2, *Leather — Physical and mechanical tests — Determination of tear load — Part 2: Double edge tear*

ISO 3379, *Leather — Determination of distension and strength of surface (Ball burst method)*

ISO 4045, *Leather — Chemical tests — Determination of pH and difference figure*

ISO 4048, *Leather — Chemical tests — Determination of matter soluble in dichloromethane and free fatty acid content*

ISO 5398-1, *Leather — Chemical determination of chromic oxide content — Part 1: Quantification by titration*

ISO 5402-1, *Leather — Determination of flex resistance — Part 1: Flexometer method*

ISO 11640, *Leather — Tests for colour fastness — Colour fastness to cycles of to-and-fro rubbing*

ISO 14268, *Leather — Physical and mechanical tests — Determination of water vapour permeability*

ISO 17070, *Leather — Chemical tests — Determination of tetrachlorophenol-, trichlorophenol-, dichlorophenol-, monochlorophenol-isomers and pentachlorophenol content*

ISO 17075-1, *Leather — Chemical determination of chromium(VI) content in leather — Part 1: Colorimetric method*

ISO 17075-2, *Leather — Chemical determination of chromium(VI) content in leather — Part 2: Chromatographic method*

ISO 17226-1, *Leather — Chemical determination of formaldehyde content — Part 1: Method using high-performance liquid chromatography*

ISO 17229, *Leather — Physical and mechanical tests — Determination of water vapour absorption*

ISO 17234-1, *Leather — Chemical tests for the determination of certain azo colourants in dyed leathers — Part 1: Determination of certain aromatic amines derived from azo colourants*

ISO 17234-2, *Leather — Chemical tests for the determination of certain azo colorants in dyed leathers — Part 2: Determination of 4-aminoazobenzene*

ISO 23910, *Leather — Physical and mechanical tests — Measurement of stitch tear resistance*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
upper leather
leather for making the upper part of footwear

3.2
crust full chrome upper leather
leather which is tanned, fat liquored and dried before finishing

Note 1 to entry: If the leather has been dyed, the crust is termed as dyed crust

3.3
casual footwear
footwear designed and manufactured as suitable for out-of-work leisure and spare-time activities

[SOURCE: ISO 19952:2005, 28]

3.4
cold weather footwear
footwear designed and manufactured to give specific protection to the wearer during use in sub-zero temperatures and in ice or snow or on frozen underfoot surfaces

Note 1 to entry: Also suitable for specific cold environments.

[SOURCE: ISO 19952:2005, 38]

3.5
fashion footwear
footwear designed and manufactured for light wear in which style is prevalent

[SOURCE: ISO 19952:2005, 59]

3.6
general purpose sports footwear
footwear designed and manufactured as suitable for wear during a variety of non-specialist sporting activities, for example jogging, occasional racket sports or court games such as netball and light general training

[SOURCE: ISO 19952:2005, 74]

3.7
indoor footwear
footwear designed and manufactured as having adequate durability and comfort for wear indoors, around the house, unsuitable for use as a town shoe and unlikely to offer protection from inclement weather or harsh wear environments

[SOURCE: ISO 19952:2005, 88]

3.8
infants' footwear
footwear designed and manufactured as suitable for everyday wear by children from size 16 to 22

Note 1 to entry: see ISO 19952:2005, 116.

[SOURCE: ISO 19952:2005, 89]

3.9
school footwear
footwear designed and manufactured for everyday wear at school for children and teenagers from size 23 to 38

Note 1 to entry: see ISO 19952:2005, 116.

[SOURCE: ISO 19952:2005, 129]

3.10
town footwear
footwear designed and manufactured as suitable for everyday wear at the office, for shopping or similar wear environments

Note 1 to entry: Normally durability and comfort are more important than design or fashion content with this type of footwear.

[SOURCE: ISO 19952:2005, 161]

4 Characteristics

4.1 Physical characteristics

The physical characteristics shall meet the requirements for upper leather given in Table 1.

Table 1 — Physical characteristics

	Characteristic	Test method	General purpose sport footwear, school footwear, casual footwear, men's town footwear	Cold weather footwear	Women's town footwear	Fashion footwear, infants' footwear, indoor footwear
1	Tensile strength[a] (N/mm^2)	ISO 3376	Bovine ≥ 15 Goat ≥ 12 Sheep ≥ 10	Bovine ≥ 15 Goat ≥ 12 Sheep ≥ 10	≥ 10	≥ 10
2	Elongation at break[a] (%)	ISO 3376	Bovine: 45 to 75 Goat: 40 to 75 Sheep: 35 to 75	Bovine: 45 to 75 Goat: 40 to 75 Sheep: 35 to 75	Bovine: 45 to 75 Goat: 40 to 75 Sheep: 35 to 75	Bovine: 45 to 75 Goat: 40 to 75 Sheep: 35 to 75
3	Tear strength[a] (N)	ISO 3377-2	Bovine ≥ 70 Goat ≥ 40 Sheep ≥ 20	Bovine ≥ 70 Goat ≥ 40 Sheep ≥ 20	Bovine ≥ 60 Goat ≥ 40 Sheep ≥ 20	Bovine ≥ 50 Goat ≥ 40 Sheep ≥ 20
4	Distension of grain at crack (mm)	ISO 3379	≥ 7	≥ 7	≥ 7	≥ 7
5	Grain crack load (N)	ISO 3379	≥ 200	≥ 200	≥ 200	≥ 200
6	Colourfastness to rubbing (colour change and staining of inside surface in unlined footwear)	ISO 11640	After 40 cycles with perspiration solution: ≥ 2/3	After 40 cycles with perspiration solution: ≥ 2/3	After 40 cycles with perspiration solution: ≥ 2/3	After 40 cycles with perspiration solution: ≥ 2/3
7	Stitch tear resistance (N)	ISO 23910	Bovine ≥ 70 Goat ≥ 40 Sheep ≥ 20	Bovine ≥ 70 Goat ≥ 40 Sheep ≥ 20	Bovine ≥ 60 Goat ≥ 40 Sheep ≥ 20	Bovine ≥ 50 Goat ≥ 40 Sheep ≥ 20
8	Water vapour permeability	ISO 14268	≥ 0,8 $mg/cm^2 \cdot h$	≥ 0,8 $mg/cm^2 \cdot h$	≥ 0,8 $mg/cm^2 \cdot h$	≥ 0,8 $mg/cm^2 \cdot h$
9	Water vapour absorption	ISO 17229	≥ 15 mg/cm^2	≥ 15 mg/cm^2	≥ 15 mg/cm^2	≥ 15 mg/cm^2

[a] Mean value of each direction (parallel and perpendicular to the backbone).

[b] Without visible damage (no crack).