TECHNICAL REPORT

ISO/TR 20882

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Footwear — Performance requirements for components for footwear — Lining and insocks

Chaussures — Exigences de performance pour les composants des chaussures — Doublures et premières de propreté

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In exceptional circumstances, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/TR 20882 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 309, *Footwear*, in collaboration with Technical Committee ISO/TC 216, *Footwear*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Footwear — Performance requirements for components for footwear — Lining and insocks

1 Scope

This Technical Report establishes the performance requirements for lining and insock components for footwear (not for finished footwear), irrespective of the material, in order to assess the suitability for the end use and/or fitness for purpose. It also establishes the test methods to be used to evaluate the compliance with the requirements.

This Technical Report applies to lining and insocks for all kinds of footwear as defined in Clause 3.

This Technical Report is intended to be used as a reference between the manufacturer and the supplier. It is not intended for third party certification.

2 Normative references

The following referenced documents are indispensable for the application 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 31-0, *Quantities and units — Part 0: General principles*

ISO 17694, *Footwear — Test methods for uppers and lining — Flex resistance*

ISO 17696, *Footwear — Test methods for uppers, lining and insocks — Tear strength*

ISO 17697, *Footwear — Test methods for uppers, lining and insocks — Seam strength*

ISO 17699, *Footwear — Test methods for uppers and lining — Water permeability and absorption*

EN ISO 17700, *Footwear — Test methods for uppers, linings and insocks — Colour fastness to rubbing*

ISO 17704, *Footwear — Test methods for uppers, lining and insocks — Abrasion resistance*

ISO 17705, *Footwear — Test methods for uppers, lining and insocks — Thermal insulation*

ISO 17709, *Footwear — Sampling location, preparation and duration of conditioning of samples and test pieces*

EN ISO 19952, *Footwear — Vocabulary*

ISO 20869, *Footwear — Test methods for outsoles, insoles, lining and insocks — Water soluble content*

ISO 22649, *Footwear — Test methods for insoles and insocks — Water absorption and desorption*

ISO 22652, *Footwear — Test methods for insoles, lining and insocks — Perspiration resistance*

ISO 22653, *Footwear — Test methods for lining and insocks — Static friction*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 19952 apply.

4 Requirements

4.1 General

This Technical Report establishes two different types of performance requirement.

The essential requirements shall all be taken into account. The additional ones can be additionally agreed by the component supplier and the footwear manufacturer as indicated in 4.2 to 4.10.

The results of each single analytical determination, as well as the average values, shall be rounded off in accordance with ISO 31-0.

When taken from finished footwear, samples shall be prepared in accordance with ISO 17709.

4.2 Performance requirements for lining and insock components for general purpose sports footwear

4.2.1 Essential requirements (lining)

These essential requirements shall be fulfilled in all cases. See Table 1.

Table 1 — Test methods and properties for general sports footwear — Essential requirements for linings

Test method	Property	Requirement	
ISO 17696	Tear strength	lining $\geqslant$ 15 N reinforcing lining $\geqslant$ 20 N (if it applies)	
ISO 17697	Lining seam strength	method A $\geqslant$ 4,0 N/mm	
EN ISO 17700	Colour fastness	method A staining $\geqslant$ 3 (grey scale) after 50 cycles with perspiration solution	
ISO 17704	Abrasion resistance	25 600 cycles dry 12 800 cycles wet	without hole through the thickness of the material component

4.2.2 Essential requirements (insocks)

These essential requirements shall be fulfilled in all cases. See Table 2.

Table 2 — Test methods and properties for general sports footwear — Essential requirements for insocks

Test method	Property	Requirement
EN ISO 17700	Colour fastness	method A staining ⩾ 3 (grey scale) after 50 cycles with perspiration solution
ISO 17704	Abrasion resístance	25 600 cycles dry 12 800 cycles wet
ISO 22649	Insocks water absorption and desorption	(method B) absorption ⩾ 70 mg/cm^2 desorption ⩾ 60 %

4.2.3 Additional requirements (lining)

These additional requirements should be agreed by both component supplier and footwear manufacturer. See Table 3.

Table 3 — Test methods and properties for general sports footwear — Additional requirements for linings

Subclause	Test method	Property	Requirement
4.2.3.1	ISO 17699	Lining water vapour permeability and absorption	WVP ⩾ 2,0 mg/cm^2.h if WVP of upper < 0,8 mg/cm^2.h then WVA of lining ⩾ 8,0 mg/cm^2
4.2.3.2	ISO 20869	Water soluble substances content	⩽ 1,5 % sulfated ashed water soluble (SAWS) ⩽ 16 % total water soluble (TWS) (testing not necessary to certain lining materials) [a]
4.2.3.3	ISO 22652	Perspiration resistance	After five cycles the component shall not develop any cracks when bent, and must keep 80 % tear resistance (testing not necessary to certain lining materials) [a]
4.2.3.4	ISO 22653	Static friction	⩾ 0,7
4.2.3.5	ISO 17694	Flex resistance	dry 15 000 cycles without visible damage

[a] This requirement is considered essential for leather.

4.2.4 Additional requirements (insocks)

These additional requirements should be agreed by both component supplier and footwear manufacturer. See Table 4.

Table 4 — Test methods and properties for general sports footwear — Additional requirements for insocks

Subclause	Test method	Property	Requirement
4.2.4.1	ISO 20869	Water soluble substances content	⩽ 1,5 % sulfated ashed water soluble (SAWS) ⩽ 16 % total water solubles (TWS) (testing not necessary to certain insocks materials) [a]
4.2.4.2	ISO 22652	Perspiration resistance	After five cycles the component shall not develop any cracks when bent, and must keep 80 % tear resistance (testing not necessary to certain insocks materials)
4.2.4.3	ISO 22653	Static friction	⩾ 0,7
4.2.4.4	ISO 17694	Flex resistance	dry 15 kc without visible damage
4.2.4.5	ISO 17696	Tear strength	insocks ⩾ 15 N

[a] This requirement is considered essential for leather.

4.3 Performance requirements for lining and insocks components for school footwear

4.3.1 Essential requirements (lining)

These essential requirements shall be fulfilled in all cases. See Table 5.

Table 5 — Test methods and properties for school footwear — Essential requirements for linings

Test method	Property	Requirement	
ISO 17696	Tear strength	lining ⩾ 15 N reinforcing lining ⩾ 20 N (if it applies)	
ISO 17697	Lining seam strength	method A ⩾ 3,5 N/mm	
EN ISO 17700	Colour fastness	method A staining ⩾ 3 (grey scale) after 50 cycles with perspiration solution	
ISO 17704	Abrasion resístance	25 600 cycles dry 12 800 cycles wet	without hole through the thickness of the material component

4.3.2 Essential requirements (insocks)

These essential requirements shall be fulfilled in all cases. See Table 6.

Table 6 — Test methods and properties for school footwear — Essential requirements for insocks

Test method	Property	Requirement
EN ISO 17700	Colour fastness	method A staining $\geqslant$ 3 (grey scale) after 50 cycles with perspiration solution
ISO 17704	Abrasion resistance	25 600 cycles dry 12 800 cycles wet
ISO 22649	Insocks water absorption and desorption	(method B) absorption $\geqslant$ 70 mg/cm^2 desorption $\geqslant$ 60 %

4.3.3 Additional requirements (lining)

These additional requirements should be agreed by both component supplier and footwear manufacturer. See Table 7.

Table 7 — Test methods and properties for school footwear — Additional requirements for linings

Subclause	Test method	Property	Requirement
4.3.3.1	ISO 17699	Lining water vapour permeability and absorption	WVP $\geqslant$ 2,0 mg/cm^2.h if WVP of upper $<$ 0,8 mg/cm^2.h then WVA of lining $\geqslant$ 8,0 mg/cm^2
4.3.3.2	ISO 20869	Water soluble substances content	$\leqslant$ 1,5 % sulfated ashed water soluble (SAWS) $\leqslant$ 16 % total water soluble, (TWS) (testing not necessary to certain lining materials) [a]
4.3.3.3	ISO 22652	Perspiration resistance	After three cycles the component shall not develop any cracks when bent, and must keep 80 % tear resistance (testing not necessary to certain lining materials)
4.3.3.4	ISO 22653	Static friction	$\geqslant$ 0,7
4.3.3.5	ISO 17694	Flex resistance	dry 15 000 cycles without visible damage

[a] This requirement is considered essential for leather.

4.3.4 Additional requirements (insocks)

These additional requirements should be agreed by both component supplier and footwear manufacturer. See Table 8.

Table 8 — Test methods and properties for school footwear — Additional requirements for insocks

Subclause	Test method	Property	Requirement
4.3.4.1	ISO 20869	Water soluble substances content	⩽ 1,5 % sulfated ashed water soluble (SAWS) ⩽ 16 % total water soluble (TWS) (testing not necessary to certain insocks materials) [a]
4.3.4.2	ISO 22652	Perspiration resistance	After three cycles the component shall not develop any cracks when bent, and must keep 80 % tear resistance (testing not necessary to certain insocks materials)
4.3.4.3	ISO 22653	Static friction	⩾ 0,7
4.3.4.4	ISO 17694	Flex resistance	dry 15 000 cycles without visible damage
4.3.4.5	ISO 17696	Tear strength	insocks ⩾ 15 N

[a] This requirement is considered essential for leather.

4.4 Performance requirements for lining and insocks components for casual footwear

4.4.1 Essential requirements (lining)

These essential requirements shall be fulfilled in all cases. See Table 9.

Table 9 — Test methods and properties for casual footwear — Essential requirements for linings

Test method	Property	Requirement	
ISO 17696	Tear strength	lining ⩾ 15 N reinforcing lining ⩾ 20 N (if it applies)	
ISO 17697	Lining seam strength	method A ⩾ 4,0 N/mm	
EN ISO 17700	Colour fastness	method A staining ⩾ 3 (grey scale) after 50 cycles with perspiration solution.	
ISO 17704	Abrasion resístance	25 600 cycles dry 12 800 cycles wet	without hole through the thickness of the material component

4.4.2 Essential requirements (insocks)

These essential requirements shall be fulfilled in all cases. See Table 10.

Table 10 — Test methods and properties for casual footwear — Essential requirements for insocks

Test method	Property	Requirement
EN ISO 17700	Colour fastness	method A staining $\geqslant$ 3 (grey scale) after 50 cycles with perspiration solution.
ISO 17704	Abrasion resistance	25 600 cycles dry 12 800 cycles wet
ISO 22649	Insocks water absorption and desorption	(method B) absorption $\geqslant$ 70 mg/cm^2 desorption $\geqslant$ 60 %

4.4.3 Additional requirements (lining)

These additional requirements should be agreed by both component supplier and footwear manufacturer. See Table 11.

Table 11 — Test methods and properties for casual footwear — Additional requirements for linings

Subclause	Test method	Property	Requirement
4.4.3.1	ISO 17699	Lining water vapour permeability and absorption	WVP $\geqslant$ 2,0 mg/cm^2.h if WVP of upper $<$ 0,8 mg/cm^2.h then WVA of lining $\geqslant$ 8,0 mg/cm^2
4.4.3.2	ISO 20869	Water soluble substances content	$\leqslant$ 1,5 % sulfated ashed water soluble (SAWS) $\leqslant$ 16 % total water soluble (TWS) (testing not necessary to certain lining materials) [a]
4.4.3.3	ISO 22652	Perspiration resistance	After five cycles the component shall not develop any cracks when bent, and must keep 80 % tear resistance (testing not necessary to certain lining materials)
4.4.3.4	ISO 22653	Static friction	$\geqslant$ 0,7
4.4.3.5	ISO 17694	Flex resistance	dry 15 000 cycles without visible damage

[a] This requirement is considered essential for leather.

4.4.4 Additional requirements (insocks)

These additional requirements should be agreed by both component supplier and footwear manufacturer. See Table 12.

Table 12 — Test methods and properties for casual footwear — Additional requirements for insocks

Subclause	Test method	Property	Requirement
4.4.4.1	ISO 20869	Water soluble substances content	⩽ 1,5 % sulfated ashed water soluble (SAWS) ⩽ 16 % total water soluble (TWS) (testing not necessary to certain insocks materials) [a]
4.4.4.2	ISO 22652	Perspiration resistance	After five cycles the component shall not develop any cracks when bent, and must keep 80 % tear resistance (testing not necessary to certain insocks materials)
4.4.4.3	ISO 22653	Static friction	⩾ 0,7
4.4.4.4	ISO 17694	Flex resistance	dry 15 000 cycles without visible damage
4.4.4.5	ISO 17696	Tear strength	insocks ⩾ 15 N

[a] This requirement is considered essential for leather.

4.5 Performance requirements for lining and insocks components for men's town footwear

4.5.1 Essential requirements (lining)

These essential requirements shall be fulfilled in all cases. See Table 13.

Table 13 — Test methods and properties for men's town footwear — Essential requirements for linings

Test method	Property	Requirement	
ISO 17696	Tear strength	lining ⩾ 10 N reinforcing lining ⩾ 20 N (if it applies)	
ISO 17697	Lining seam strength	method A ⩾ 3,5 N/mm	
EN ISO 17700	Colour fastness	method A staining ⩾ 3 (grey scale) after 50 cycles with perspiration solution	
ISO 17704	Abrasion resistance	25 600 cycles dry 6 400 cycles wet	without hole through the thickness of the material component

4.5.2 Essential requirements (insocks)

These essential requirements shall be fulfilled in all cases. See Table 14.

Table 14 — Test methods and properties for men's town footwear — Essential requirements for insocks

Test method	Property	Requirement
EN ISO 17700	Colour fastness	method A staining ⩾ 3 (grey scale) after 50 cycles with perspiration solution
ISO 17704	Abrasion resistance	25 600 cycles dry 6 400 cycles wet
ISO 22649	Insocks water absorption and desorption	(method B) absorption ⩾ 60 mg/cm^2 desorption ⩾ 60 %

4.5.3 Additional requirements (lining)

These additional requirements should be agreed by both component supplier and footwear manufacturer. See Table 15.

Table 15 — Test methods and properties for men's town footwear — Additional requirements for linings

Subclause	Test method	Property	Requirement
4.5.3.1	ISO 17699	Lining water vapour permeability and absorption	WVP ⩾ 2,0 mg/cm^2.h if WVP of upper < 0,8 mg/cm^2.h then WVA of lining ⩾ 8,0 mg/cm^2
4.5.3.2	ISO 20869	Water soluble substances content	⩽ 1,5 % sulfated ashed water soluble (SAWS) ⩽ 16 % total water soluble (TWS) (testing not necessary to certain lining materials) [a]
4.5.3.3	ISO 22652	Perspiration resistance	After three cycles the component shall not develop any cracks when bent, and must keep 80 % tear resistance (testing not necessary to certain lining materials)
4.5.3.4	ISO 22653	Static friction	⩾ 0,6
4.5.3.5	ISO 17694	Flex resistance	dry 15 000 cycles without visible damage

[a] This requirement is considered essential for leather.

4.5.4 Additional requirements (insocks)

These additional requirements should be agreed by both component supplier and footwear manufacturer. See Table 16.

Table 16 — Test methods and properties for men's town footwear — Additional requirements for insocks

Subclause	Test method	Property	Requirement
4.5.4.1	ISO 20869	Water soluble substances content	⩽ 1,5 % sulfated ashed water soluble (SAWS) ⩽ 16 % total water soluble (TWS) (testing not necessary to certain insocks materials)[a]
4.5.4.2	ISO 22652	Perspiration resistance	After three cycles the component shall not develop any cracks when bent, and must keep 80 % tear resistance (testing not necessary to certain insocks materials)
4.5.4.3	ISO 22653	Static friction	⩾ 0,6
4.5.4.4	ISO 17694	Flex resistance	dry 15 000 cycles without visible damage
4.5.4.5	ISO 17696	Tear strength	insocks ⩾ 10 N

[a] This requirement is considered essential for leather.

4.6 Performance requirements for lining and insocks components for cold weather footwear

4.6.1 Essential requirements (lining)

These essential requirements shall be fulfilled in all cases. See Table 17.

Table 17 — Test methods and properties for cold weather footwear — Essential requirements for linings

Test method	Property	Requirement	
ISO 17696	Tear strength	lining ⩾ 15 N reinforcing lining ⩾ 20 N (if it applies)	
ISO 17697	Lining seam strength	method A ⩾ 4,0 N/mm	
EN ISO 17700	Colour fastness	method A staining ⩾ 3 (grey scale) after 50 cycles with perspiration solution	
ISO 17704	Abrasion resistance	25 600 cycles dry 12 800 cycles wet	without hole through the thickness of the material component
ISO 17705	Thermal insulation	⩾ $24 \cdot 10^{-3}$ $m^2 \cdot °C/W$	

4.6.2 Essential requirements (insocks)

These essential requirements shall be fulfilled in all cases. See Table 18.

Table 18 — Test methods and properties for cold weather footwear — Essential requirements for insocks

Test method	Property	Requirement
EN ISO 17700	Colour fastness	method A staining $\geqslant$ 3 (grey scale) after 50 cycles with perspiration solution
ISO 17704	Abrasion resistance	25 600 cycles dry 12 800 cycles wet
ISO 17705	Thermal insulation	$\geqslant 24 \cdot 10^{-3}$ m^2 °C/W
ISO 22649	Insocks water absorption and desorption	(method B) absorption $\geqslant$ 70 mg/cm^2 desorption $\geqslant$ 60 %

4.6.3 Additional requirements (lining)

These additional requirements should be agreed by both component supplier and footwear manufacturer. See Table 19.

Table 19 — Test methods and properties for cold weather footwear — Additional requirements for linings

Subclause	Test method	Property	Requirement
4.6.3.1	ISO 17699	Lining water vapour permeability and absorption	WVP $\geqslant$ 2,0 mg/cm^2.h if WVP of upper $<$ 0,8 mg/cm^2.h then WVA of lining $\geqslant$ 8,0 mg/cm^2
4.6.3.2	ISO 20869	Water soluble substances content	$\leqslant$ 1,5 % sulfated ashed water soluble (SAWS) $\leqslant$ 16 % total water soluble (TWS) (testing not necesssary to certain lining materials) [a]
4.6.3.3	ISO 22652	Perspiration resistance	After five cycles the component shall not develop any cracks when bent, and must keep 80 % tear resistance (testing not necessary to certain lining materials)
4.6.3.4	ISO 22653	Static friction	$\geqslant$ 0,7
4.6.3.5	ISO 17694	Flex resistance	dry 15 000 cycles without visible damage

[a] This requirement is considered essential for leather.

4.6.4 Additional requirements (insocks)

These additional requirements should be agreed by both component supplier and footwear manufacturer. See Table 20.

Table 20 — Test methods and properties for cold weather footwear — Additional requirements for insocks

Subclause	Test method	Property	Requirement
4.6.4.1	ISO 20869	Water soluble substances content	⩽ 1,5 % sulfated ashed water soluble (SAWS) ⩽ 16 % total water soluble (TWS) (testing not necessary to certain insocks materials) [a]
4.6.4.2	ISO 22652	Perspiration resistance	After five cycles the component shall not develop any cracks when bent, and must keep 80 % tear resistance (testing not necessary to certain insocks materials)
4.6.4.3	ISO 22653	Static friction	⩾ 0,7
4.6.4.4	ISO 17694	Flex resistance	dry 15 000 cycles without visible damage
4.6.4.5	ISO 17696	Tear strength	insocks ⩾ 15 N

[a] This requirement is considered essential for leather.

4.7 Performance requirements for lining and insocks components for women's town footwear

4.7.1 Essential requirements (lining)

These essential requirements shall be fulfilled in all cases. See Table 21.

Table 21 — Test methods and properties for women's town footwear — Essential requirements for linings

Test method	Property	Requirement	
ISO 17696	Tear strength	lining ⩾ 10 N reinforcing lining ⩾ 20 N (if it applies)	
ISO 17697	Seam strength	method A ⩾ 3,0 N/mm	
EN ISO 17700	Colour fastness	method A staining ⩾ 3 (grey scale) after 50 cycles with perspiration solution	
ISO 17704	Abrasion resistance	25 600 cycles dry 3 200 cycles wet	without hole through the thickness of the material component

4.7.2 Essential requirements (insocks)

These essential requirements shall be fulfilled in all cases. See Table 22.

Table 22 — Test methods and properties for women's town footwear — Essential requirements for insocks

Test method	Property	Requirement
EN ISO 17700	Colour fastness	method A staining $\geqslant$ 3 (grey scale) after 50 cycles with perspiration solution
ISO 17704	Abrasion resistance	25 600 cycles dry 3 200 cycles wet
ISO 22649	Insocks water absorption and desorption	(method B) absorption $\geqslant$ 60 mg/cm^2 desorption $\geqslant$ 60 %

4.7.3 Additional requirements (lining)

These additional requirements should be agreed by both component supplier and footwear manufacturer. See Table 23.

Table 23 — Test methods and properties for women's town footwear — Additional requirements for linings

Subclause	Test method	Property	Requirement
4.7.3.1	ISO 17699	Lining water vapour permeability and absorption	WVP $\geqslant$ 2,0 mg/cm^2.h if WVP of upper $<$ 0,8 mg/cm^2.h then WVA of lining $\geqslant$ 8,0 mg/cm^2
4.7.3.2	ISO 20869	Water soluble substances content	$\leqslant$ 1,5 % sulfated ashed water soluble (SAWS) $\leqslant$ 16 % total water soluble (TWS) (testing not necessary to certain lining materials) [a]
4.7.3.3	ISO 22652	Perspiration resistance	After three cycles the component shall not develop any cracks when bent, and must keep 80 % tear resistance (testing not necessary to certain lining materials)
4.7.3.4	ISO 22653	Static friction	$\geqslant$ 0,5
4.7.3.5	ISO 17694	Flex resistance	dry 15 000 cycles without visible damage

[a] This requirement is considered essential for leather.

4.7.4 Additional requirements (insocks)

These additional requirements should be agreed by both component supplier and footwear manufacturer. See Table 24.

Table 24 — Test methods and properties for women's town footwear — Additional requirements for insocks

Subclause	Test method	Property	Requirement
4.7.4.1	ISO 20869	Water soluble substances content	⩽ 1,5 % sulphated ashed water soluble (SAWS) ⩽ 16 % total water soluble (TWS) (testing not necessary to certain insocks materials) [a]
4.7.4.2	ISO 22652	Perspiration resistance	After three cycles the component shall not develop any cracks when bent, and must keep 80% tear resistance (testing not necessary to certain insocks materials)
4.7.4.3	ISO 22653	Static friction	⩾ 0,5
4.7.4.4	ISO 17694	Flex resistance	dry 15 000 cycles without visible damage
4.7.4.5	ISO 17696	Tear strength	insocks ⩾ 10 N

[a] This requirement is considered essential for leather.

4.8 Performance requirements for lining and insocks components for fashion footwear

4.8.1 Essential requirements (lining)

These essential requirements shall be fulfilled in all cases. See Table 25.

Table 25 — Test methods and properties for fashion footwear — Essential requirements for linings

Test method	Property	Requirement	
ISO 17696	Tear strength	lining ⩾ 10 N reinforcing lining ⩾ 20 N (if it applies)	
ISO 17697	Lining seam strength	method A ⩾ 2,5 N/mm	
ISO 17704	Abrasion resistance	12 800 cycles dry 3 200 cycles wet	without hole through the thickness of the material component

4.8.2 Essential requirements (insocks)

These essential requirements shall be fulfilled in all cases. See Table 26.

Table 26 — Test methods and properties for fashion footwear — Essential requirements for insocks

Test method	Property	Requirement	
ISO 17704	Abrasion resistance	12 800 cycles dry 3 200 cycles wet	without holes in the wearing surface
ISO 22649	Insocks water absorption and desorption	(method B) absorption ⩾ 60 mg/cm^2 desorption ⩾ 60 %	

4.8.3 Additional requirements (lining)

These additional requirements should be agreed by both component supplier and footwear manufacturer. See Table 27.

Table 27 — Test methods and properties for fashion footwear — Additional requirements for linings

Subclause	Test method	Property	Requirement
4.8.3.1	ISO 17699	Lining water vapour permeability and absorption	WVP $\geqslant$ 2,0 mg/cm^2.h if WVP of upper $<$ 0,8 mg/cm^2.h then WVA of lining $\geqslant$ 8,0 mg/cm^2
4.8.3.2	EN ISO 17700	Colour fastness	method A staining $\geqslant$ 3 (grey scale) after 50 cycles with perspiration solution
4.8.3.3	ISO 20869	Water soluble substances content	$\leqslant$ 1,5 % sulfated ashed water soluble (SAWS) $\leqslant$ 16 % total water soluble (TWS) (testing not necessary to certain lining materials) [a]
4.8.3.4	ISO 22652	Perspiration resistance	After three cycles the component shall not develop any cracks when bent, and must keep 80 % tear resistance (testing not necessary to certain lining materials)
4.8.3.5	ISO 22653	Static friction	$\geqslant$ 0,4
4.8.3.6	ISO 17694	Flex resistance	dry 15 000 cycles without visible damage

[a] This requirement is considered essential for leather.

4.8.4 Additional requirements (insocks)

These additional requirements should be agreed by both component supplier and footwear manufacturer. See Table 28.

Table 28 — Test methods and properties for fashion footwear — Additional requirements for insocks

Subclause	Test method	Property	Requirement
4.8.4.1	EN ISO 17700	Colour fastness	method A staining $\geqslant$ 3 (grey scale) after 50 cycles with perspiration solution
4.8.4.2	ISO 20869	Water soluble substances content	$\leqslant$ 1,5 % sulfated ashed water soluble (SAWS) $\leqslant$ 16 % total water soluble (TWS) (testing not necessary to certain insocks materials) [a]
4.8.4.3	ISO 22652	Perspiration resistance	After three cycles the component shall not develop any cracks when bent, and must keep 80 % tear resistance (testing not necessary to certain insocks materials)
4.8.4.4	ISO 22653	Static friction	$\geqslant$ 0,4
4.8.4.5	ISO 17694	Flex resistance	dry 15 000 cycles without visible damage
4.8.4.6	ISO 17696	Tear strength	insocks $\geqslant$ 10 N

[a] This requirement is considered essential for leather.

4.9 Performance requirements for lining and insocks components for infants' footwear

4.9.1 Essential requirements (lining)

These essential requirements shall be fulfilled in all cases. See Table 29.

Table 29 — Test methods and properties for infants' footwear — Essential requirements for linings

Test method	Property	Requirement	
ISO 17696	Tear strength	lining $\geqslant$ 10 N reinforcing lining $\geqslant$ 20 N (if it applies)	
ISO 17697	Lining seam strength	method A $\geqslant$ 2,5 N/mm	
ISO 17704	Abrasion resistance	12 800 cycles dry 3 200 cycles wet	without hole through the thickness of the material component

4.9.2 Essential requirements (insocks)

These essential requirements shall be fulfilled in all cases. See Table 30.

Table 30 — Test methods and properties for infants' footwear — Essential requirements for insocks

Test method	Property	Requirement	
ISO 17704	Abrasion resistance	12 800 cycles dry 3 200 cycles wet	without holes in the wearing surface
ISO 22649	Insocks water absorption and desorption	(method B) absorption $\geqslant$ 60 mg/cm^2 desorption $\geqslant$ 60 %	

4.9.3 Additional requirements (lining)

These additional requirements should be agreed by both component supplier and footwear manufacturer. See Table 31.

Table 31 — Test methods and properties for infants' footwear — Additional requirements for linings

Subclause	Test method	Property	Requirement
4.9.3.1	ISO 17699	Lining water vapour permeability and absorption	WVP $\geqslant$ 2,0 mg/cm^2.h if WVP of upper $<$ 0,8 mg/cm^2.h then WVA of lining $\geqslant$ 8,0 mg/cm^2
4.9.3.2	EN ISO 17700	Colour fastness	method A staining $\geqslant$ 3 (grey scale) after 50 cycles with perspiration solution
4.9.3.3	ISO 20869	Water soluble substances content	$\leqslant$ 1,5 % sulfated ashed water soluble (SAWS) $\leqslant$ 16 % total water soluble (TWS) (testing not necessary to certain lining materials) [a]
4.9.3.4	ISO 22652	Perspiration resistance	After three cycles the component shall not develop any cracks when bent, and must keep 80 % tear resistance (testing not necessary to certain lining materials)
4.9.3.5	ISO 22653	Static friction	$\geqslant$ 0,4
4.9.3.6	ISO 17694	Flex resistance	dry 15 000 cycles without visible damage
[a] This requirement is considered essential for leather.			

4.9.4 Additional requirements (insocks)

These additional requirements should be agreed by both component supplier and footwear manufacturer. See Table 32.

Table 32 — Test methods and properties for infants' footwear — Additional requirements for insocks

Subclause	Test method	Property	Requirement
4.9.4.1	EN ISO 17700	Colour fastness	method A staining $\geqslant$ 3 (grey scale) after 50 cycles with perspiration solution
4.9.4.2	ISO 20869	Water soluble substances content	$\leqslant$ 1,5 % sulfated ashed water soluble (SAWS) $\leqslant$ 16 % total water soluble (TWS) (testing not necessary to certain insocks materials) [a]
4.9.4.3	ISO 22652	Perspiration resistance	After three cycles the component shall not develop any cracks when bent, and must keep 80 % tear resistance (testing not necessary to certain insocks materials)
4.9.4.4	ISO 22653	Static friction	$\geqslant$ 0,4
4.9.4.5	ISO 17694	Flex resistance	dry 15 000 cycles without visible damage
4.9.4.6	ISO 17696	Tear strength	insocks $\geqslant$ 10 N
[a] This requirement is considered essential for leather.			

4.10 Performance requirements for lining and insocks components for indoor footwear

4.10.1 Essential requirements (lining)

These essential requirements shall be fulfilled in all cases. See Table 33.

Table 33 — Test methods and properties for indoor footwear — Essentialal requirements for linings

Test method	Property	Requirement	
ISO 17696	Tear strength	lining ⩾ 10 N reinforcing lining ⩾ 20 N (if it applies)	
ISO 17697	Lining seam strength	method A ⩾ 2,0 N/mm	
EN ISO 17700	Colour fastness	method A staining ⩾ 3 (grey scale) after 50 cycles with perspiration solution	
ISO 17704	Abrasion resistance	6 400 cycles dry 1 600 cycles wet	without hole through the thickness of the material component

4.10.2 Essential requirements (insocks)

These essential requirements shall be fulfilled in all cases. See Table 34.

Table 34 — Test methods and properties for indoor footwear — Essential requirements for insocks

Test method	Property	Requirement	
EN ISO 17700	Colour fastness	method A staining ⩾ 3 (grey scale) after 50 cycles with perspiration solution	
ISO 17704	Abrasion resistance	6 400 cycles dry 1 600 cycles wet	without holes in the wearing surface

4.10.3 Additional requirements (lining)

These additional requirements should be agreed by both component supplier and footwear manufacturer. See Table 35.

Table 35 — Test methods and properties for indoor footwear — Additional requirements for linings

Subclause	Test method	Property	Requirement
4.2.3.1	ISO 17699	LIning water vapour permeability and absorption	WVP $\geqslant$ 2,0 mg/cm^2.h if WVP of upper $<$ 0,8 mg/cm^2.h then WVA of lining $\geqslant$ 8,0 mg/cm^2
4.10.3.2	ISO 20869	Water soluble substances content	$\leqslant$ 1,5 % sulfated ashed water soluble (SAWS) $\leqslant$ 16 % total water soluble (TWS) (testing not necessary to certain lining materials) [a]
4.10.3.3	ISO 22652	Perspiration resistance	After three cycles the component shall not develop any cracks when bent, and must keep 80 % tear resistance (testing not necessary to certain lining materials)
4.10.3.4	ISO 22653	Static friction	$\geqslant$ 0,4
4.10.3.5	ISO 17694	Flex resistance	dry 15 000 cycles without visible damage

[a] This requirement is considered essential for leather.

4.10.4 Additional requirements (insocks)

These additional requirements should be agreed by both component supplier and footwear manufacturer. See Table 36.

Table 36 — Test methods and properties for indoor footwear — Additional requirements for insocks

Subclause	Test method	Property	Requirement
4.10.4.1	ISO 20869	Water soluble substances content	$\leqslant$ 1,5 % sulphated ashed water soluble (SAWS) $\leqslant$ 16 % total water soluble (TWS) (testing not necessary to certain insocks materials) [a]
4.10.4.2	ISO 22649	Insocks water absorption and desorption	(method B) absorption $\geqslant$ 60 mg/cm^2 desorption $\geqslant$ 60 %
4.10.4.3	ISO 22652	Perspiration resistance	After three cycles the component shall not develop any cracks when bent, and must keep 80 % tear resistance (testing not necessary to certain insocks materials)
4.10.4.4	ISO 22653	Static friction	$\geqslant$ 0,4
4.10.4.5	ISO 17694	Flex resistance	dry 15 000 cycles without visible damage
4.10.4.6	ISO 17696	Tear strength	insocks $\geqslant$ 10 N

[a] This requirement is considered essential for leather.

5 Marking and labelling

Marking and labelling is optional.

If reference to this Technical Report is made, only lining and insocks complying with all the essential requirements can be marked. In this case, this shall be clearly marked by the manufacturer either directly on the product or by a label with the following additional information.

a) The manufacturer's name, trade mark or identification mark.

b) The type of footwear for which the lining or insock shall be used as indicated in Table 37.

c) Reference to this Technical Report.

d) If the component complies, additional requirements agreed between the component supplier and the footwear manufacturer may be specified in the marking or label making reference to the correspondent subclause.

Any reference to compliance with this Technical Report shall not be put in a part of the lining or insock which could be visible when the footwear is finished.

Table 37 — Codes for variouiis tzypes of footwear

Type of footwear	Code
General sports footwear	SP
School footwear	SC
Casual footwear	CS
Men's town footwear	MT
Cold weather footwear	CW
Women's town footwear	WT
Fashion footwear	FS
Infants' footwear	IF
Indoor footwear	IN

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