CES 51

Compulsory Ethiopian Standard

Fourth Edition

2021

Leather – Sole leather - Specification

ICS: 59.140.30
Published by Ethiopian Standards Agency

Foreword

This Ethiopian Standard has been prepared under the direction of the Technical Committee for Leather and Leather products(TC 74) and published by the Ethiopian Standards Agency (ESA).

This Compulsory Ethiopian Standard cancels and replaces CES 51:2015.

Application of this standard is COMPULSORY with respect to clause 4.7(table 3).
A Compulsory Ethiopian Standard shall have the same meaning, interpretation and application of a "Technical Regulation" as implied in the WTO-TBT Agreement.

Implementation of this standard shall be effective as of 01 October 2013.

Leather – Sole leather - Specification

1. Scope

This Ethiopian standard specifies the requirements for sole leather.

2. Normative references

The following referenced documents are indispensable for the application of this Ethiopian standard. Only the latest edition of the documents (including any amendments) shall be applicable.

ES ISO 2417, Leather – Physical and mechanical tests-Determination of static absorption of water

ES ISO 2418, Leather – Chemical, physical and mechanical fastness test – Sampling

ES ISO 2419, Leather – Physical and mechanical test – Sample preparation and conditioning.

ES ISO 2420, Leather – Physical and mechanical test - Determination of apparent density

ES ISO 2588, Leather - Sampling – Number of items for a gross sampling

ES ISO 4045,Leather- Determination of pH;

ES ISO 4044, Leather-Preparation of chemical test samples

ES ISO 4047, Leather – Determination of sulphated total ash and sulphated water insoluble ash.

ES 1195, Leather – Determination of bound organic substances and degree of tannage.

ES 1191, Leather – Determination of total water-soluble matter water-soluble inorganic matter and water soluble organic matter.

3. Definitions

For the purpose of this standard the definitions in ES 1180 shall apply.

4. Requirements

4.1 General

The material shall be a bovine hide.

4.2 Tanning

The hide shall be tanned with natural vegetable tanning materials or their extracts or either of these in combination with or without syntans. The leather shall be fully tanned.

4.3 Finishing

The grain shall be tight in the butt area and shall be well set out and rolled to make it smooth and clean. The material shall be trimmed.

4.4 Fungicide additives

4.4.1 At the end of tanning operation and before drying suitable fungicides shall be incorporated in the leather in required proportions. Fungicides used to promote mildew resistance when determined in accordance with ES 1193 in leather shall be effective and non – toxic. The leather shall show no growth of mildew when examined visually after the completion of tests

4.4.2 On pelt or shaved weight basis the use of fungicides as per manufactures suggestion is recommended.

4.5 Physical requirements

The material should comply with the physical requirements specified in table 1 here in

Table 1. Physical requirements of sole leather

Ser. No.	Characteristics	Requirements	Method of tests
1	Tensile strength, N/mm^2, min.	20	ES ISO 3376
2	Elongation at break, % by mass, max.	35	ES ISO 3376
3	Resistance to grain cracking index	Should not crack on mandrel No. 1 and shall not show any sign of permanent loosening of grain in the form of wrinkles	ES ISO 3378
4	Water absorption, % by mass, max, a) In 30 minutes b) After 2 hours c) After 24 hours	10 40 50	ES ISO 2417 ES ISO 2417 ES ISO 2417
5	Apparent density, g/cm^2	0.90- 1.15	ES ISO 2420
6	Abrasion resistance rate of thickness loss, mm/Kcycle	Heavy use: max 19 Medium use: Max 25 Light use: max. 30	SATRA, TM 84

4.6 Chemical requirements

The material shall also comply with the chemical requirements specified in table 2 below.

Table 2. Chemical requirements for sole – leather

Ser. No.	Characteristics	Required value	Method of test
1	Total ash, % by mass, max	3.0	ES ISO 4047
2	Water soluble matter, % by mass, min	15	ES 13592
3	Solvent extractable substances % by mass, max	6	ES ISO 4048
4	Hide substance, % by mass, min	40	ES ISO 5397
5	pH of water soluble, min	3.5	ES ISO 4045
6	Difference figure, % by mass, max	0.7	ES ISO 4045
7	Bound organic matter % by mass, min	1.0	ES 1194
8	Degree of tannage, %, by mass	60 – 95	ES 1194

4.7 Restricted Chemicals shall be as table 3 below

Table 3: - Restricted Chemical requirements

Characteristics	Requirement	Test method
Chromium VI content	Below 3 mg/kg	ES ISO 17075
Formaldehyde content	Below 300 mg/kg	ES ISO 17226
Pentachlorophenol (PCP)	5 ppm	ES ISO 17070
Lead (Pb)	Below 0.8mg/kg	ES ISO 17072
AZO Dyes	30 ppm of any of the amines	ES ISO 17234

5. Grading of sole leather

5.1 Vegetable sole leather is first sorted out according to its thickness as shown in table 4 below

Table 4. Classification of sole leather by thickness

Origin of hide	Category by thickness	Thickness in mm
cattle	Light	Less than 3.5
	Medium	3.5 – 5.4
	Heavy	5.5 and above

5.2 Grading of sole leather by cutting value

Vegetable sole leather from hide should be graded according to table 5 below.

Table 5. Grading of vegetable tanned sole leather by cutting value

grade	Useable area by % of total area	Description
I	75-100	The sole Leather will have good appearance smooth grain, uniform color but could have defects like hole, scratches, tick marks out side the but area.
II	65-74	The sole Leather will have good appearance smooth grain, uniform color but could have defects like hole, scratches, tick marks, scars, knife cuts, which are randomly spread on shoulder or butt area.
III	50-64	The sole Leather will have good appearance smooth grain, uniform color but could have defects like hole, scratches, tick marks, scars, deep knife cuts, brands which are randomly spread on shoulder or butt area.
IV	20-49	These leather will have prominent defects like holes deep knife cuts brands, varied thickness spread on shoulder or butt area
reject	Less than 20%	Leather with having a cutting value of less than 20%

6. Sampling

Sampling of sole leather should be carried out in according to the method of test specified in ES ISO 2418, ES ISO 2419, ES ISO 2588, ES ISO 4044.

7. Packaging

Sole leather should be packed in suitable packing materials such as polyethylene plastic bags or as agreed between the supplier and buyer.

8. Labeling

Each container of sole leather should be clearly labeled with the following information;

a) Name of the manufactures;

b) Type and grade of sole leather;

c) The number of pieces of leather in a package;

d) The total mass in kilograms;

e) Area in square feet

f) Batch number(s) or code number, and

g) And any other labeling information required by the purchaser.

9. Compliance with the standard.

A package of sole leather shall be deemed to comply with this Ethiopian standard if up on inspection and testing the provision in clause 4.7(table 3) is satisfied.

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Ethiopian Standards Agency

Organization and Objectives

The Ethiopian Standards Agency (ESA) is the national standards body of Ethiopia established in 2010 based on regulation No. 193/2010.ESA is established due to the restructuring of Quality and Standards Authority of Ethiopia (QSAE) which was established in 1998.

ESA's objectives are:-

- ❖ Develop Ethiopian standards and establish a system that enable to check whether goods and services are in compliance with the required standards,
- ❖ Facilitat the country's technology transfer through the use of standards,
- ❖ Develop national standards for local products and services so as to make them competitive in the international market.

Ethiopian Standards

The Ethiopian Standards are developed by national technical committees which are composed of different stakeholders consisting of educational institutions, research institutes, government organizations, certification, inspection, and testing organizations, regulatory bodies, consumer association etc. The requirements and/ or recommendations contained in Ethiopian Standards are consensus based that reflects the interest of the TC representatives and also of comments received from the public and other sources. Ethiopian Standards are approved by the National Standardization Council and are kept under continuous review after publication and updated regularly to take account of latest scientific and technological changes. Orders for all Ethiopian Standards, International Standard and ASTM standards, including electronic versions, should be addressed to the Documentation and Publication Team at the Head office and Branch (Liaisons) offices. A catalogue of Ethiopian Standards is also available freely and can be accessed in from our website.

International Involvement

ESA, representing Ethiopia, is a member of the International Organization for Standardization (ISO), and Codex Alimentarius Commission (CODEX). It also maintains close working relations with the international Electro-technical Commission (IEC) and American Society for Testing and Materials (ASTM).It is a founding member of the African Regional Organization for standardization (ARSO).

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