
Specification for chrome re-tans upper leather

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Foreword

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

In preparing this Ethiopian Standard reference has been made to the following:
IS 2961:1973, "Specification for chrome re-tans upper leather ", published by the Bureau of Indian standards.

Acknowledgement is made for the use of information from the above publication.

Specification for chrome re-tans upper leather

1. Scope

This Ethiopian standard specifies the requirements for chrome re-tanned upper leather from inputs of skins and hides. The standard covers only such leathers are partially or completely tanned with basic chromium salts initially, followed by re-tannage, including mordanting with vegetable or synthetic tanning materials or in combination with both of these materials.

2. Normative reference

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 1180, Leather – Terminology

ES ISO 2589, Leather — Physical and mechanical tests — Determination of thickness

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

ES 1192, Leather - Determination of double hole stitch tear strength

ES 1190, Leather – Determination of flexing endurance

ES ISO 2417, Leather — Physical and mechanical tests — Determination of the static absorption of water

ES ISO 105 A02, Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour

ES ISO 105-A03, Textiles — Tests for colour fastness — Part A03: Grey scale for assessing staining

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

ES ISO 15700, Leather — Tests for colour fastness — Colour fastness to water spotting

ES ISO 4047, Leather — Determination of sulphated total ash and sulphated water-insoluble ash

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

ES ISO 5397, Leather — Determination of nitrogen content and "hide substance" — Titrimetric method

ES 1191, Leather- determination of total water- soluble matter, water-insoluble inorganic matter and water- soluble organic matter

ES 1188, Leather - Determination of chromium as chromic oxide

ES ISO 4045, Leather - Chemical tests - Determination of pH

ES 1194, Leather- Determination of bound organic substances and degree of tannage

ES 1193, Leather - Determination of mildew resistance including wet-blue leather

3. Terminology

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

4. General Manufacturing norms or requirements of chrome re-tan upper leather

For chrome re-tanned upper leather is wet blue skin or hide , shall be re-tanned with syntans, dyed, fat liquored, dried, chemically and mechanically finished; so as to render at least the required fullness, softness (as per the intended products), roundness, non-stretchy property, rub resistance, color fastness, water repellent and leveled to the substance with not more than 0.1mm variation. The final finished material shall have clean flesh side with uniform color shade and physical appearance on the grain side.

5. Requirements

5.1. Tanning

The material shall be tanned first with basic chromium salts, followed by re-chrome basic chromium sulfate and re-tanned with syntans, dyed, fat liquored, dried, chemically and mechanically finished;.

5.2. Fungicidal Additives

At the end of the tanning operation and before drying, suitable fungicides shall be incorporated in the leather in required proportions. Fungicides used to promote mildew resistance in leather shall be effective and non-toxic. The leather shall show no growth of mildew when examined visually after the completion of test prescribed in ES 1193.

5.3. Physical Requirements

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

5.4. Chemical Requirements

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

5.5. Size and Shape

The leather shall be supplied in the form of full pieces or sides, trimmed free of toggle punch and nail marks.

Table 1 - Physical requirement for chrome re-tanning upper leather

No	Characteristics	Requirements	Method of test
1	Thickness	As agreed to between the purchaser and the supplier	ES ISO 2589
2	Tolerance on agreed thickness	± 0.1 mm	ES ISO 2589
3	Tensile strength, N/mm ² , min	20.0	ES ISO 3376
4	Elongation at break, percent	40 to 80	ES ISO 3376
5	Tongue tear resistance, kg/cm ² thickness, Min	45.0	ES 1192
6	Flexural endurance (Bally), Min	75 000 flexes without cracking of the grain	ES 1190
7	Water absorption, increase in weight percent, Max: a) in 30 minutes b) in 24 hours	60 85	ES ISO 2417
8	Color fastness to rubbing (wet and dry)	Not less than a rating of 4 in each case	ES ISO 105 A02 ES ISO 105-A03 ES ISO 11640 ES ISO 15700

Table 2 - Chemical requirements for chrome re-tans upper leather

No	Characteristics	Requirements	Method of test
1	Total ash, percent by mass, Max	2.5 over Cr ₂ O ₃ content	ES ISO 4047
2	Solvent extractable substance, percent by mass	4.0 to 9.5	ES ISO 4048
3	Hides substance, percent by mass, Min	55	ES ISO 5397
4	Water soluble matter, percent by mass, Max	3.5	ES 1191
5	Chromium (as Cr ₂ O ₃), percent by mass, Min	2.5	ES 1188
6	pH of water soluble, Min	3.5	ES ISO 4045
7	Differential number	shall not exceed 0.7	ES ISO 4045
8	Bound organic substance, percent by mass	5 to 20	ES 1194

NOTE — Calculation on requirements (1) to (5) and (8) are based on zero percent moisture basis.

6. Packing

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

6.1.1. The leather shall be so packed that it shall during transit and in storage be protected against moisture, exposure to direct sunlight and mechanical damage.

7. Marking

7.1. The packages shall be marked with the name of the manufacturer or recognized trade-mark, if any; type; number of pieces of leather; total area, weight; and month, and year of the manufacture.

7.2. The area of the leather shall be marked legibly in square decimeters on individual pieces at the tail end of the flesh side.

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