
Guidelines for identification of finished leather for export

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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 8170:1981, "Guidelines for identification of finished leather for export ", published by the Bureau of Indian standards.

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

Guidelines for identification of finished leather for export

1. Scope

This standard lays down guidelines for ready identification of different varieties of finished leather particularly for export purposes. It does not specify quality of individual finished leather.

2. Terms and Definitions

For the purpose of this standard, the definitions given in Appendix A shall apply.

3. Guidelines for identification

3.1. Manufacturing/Processing Operations - A brief description of all the manufacturing processes and operations undergone during manufacture of finished leathers is given below. Numerals 1 to 19 as explained below represent these operations and are used in column-3 of Table 1:

Table 1

Numeral	Representing operations
1	Leveling the substance with a tolerance of ± 0.2 mm if not specified otherwise (see Table 1) portions of a skin or hide excluding bellies and shanks (see Fig. 1)
2	Retanning: providing required fullness and compactness with the help of syntan, vegetable tanning agents as well as enhancing the degree of tannage.
3	Dyeing : Any leather treated with dye(s) thus imparting a light/pastel/medium/dark-shade
4	Fatliquoring
5	Stuffing/currying
6	Oiling
7	Setting
8	Staking /boarding
9	Dry drumming
10	Producing a reasonably clean flesh side by mechanical means
11	Buffing to produce a suede nap
12	Raising a suede nap by dry drumming/plush wheeling/buffing
13	Shaving and/ or buffing of the grain side
14	Protective coat
15	Glazing
16	Plating/ embossing(see note 2)
17	Ironing/polishing(see note 2)
18	Plush wheeling/ wheel staking
19	Rolling

NB:- Dye means a synthetic dye/vegetable dye/ syntan

NOTE 1 - Shaving and/or snuffing may be done along the back bone or fully.

NOTE 2 -The object of glazing, plating, ironing and polishing may be to produce a distinct luster except in the case of matt finished leathers, such as grain clothing and upholstery. Glazing followed by hot ironing, if necessary, shall be done on leathers where a protective coat based on proteinous materials is given. Plating/ embossing and/or hot ironing may be done on leathers where a protective coat based on synthetic resins is given.

3.2. Physical Condition and Characteristics - In addition to satisfying the specified manufacturing/processing operational norms, the leather should lend itself for classification as an accepted variety of a particular finished leather, as declared in terms of its physical characteristics given in column 2 of Table 1.

3.2.1. Table 1 describes the appropriate and minimum operational conditions and norms against each type of finished leather currently being exported from this country. Any leather which is not specifically mentioned under 3.3 and Table 1 may be examined in the light of a similar item indicated therein.

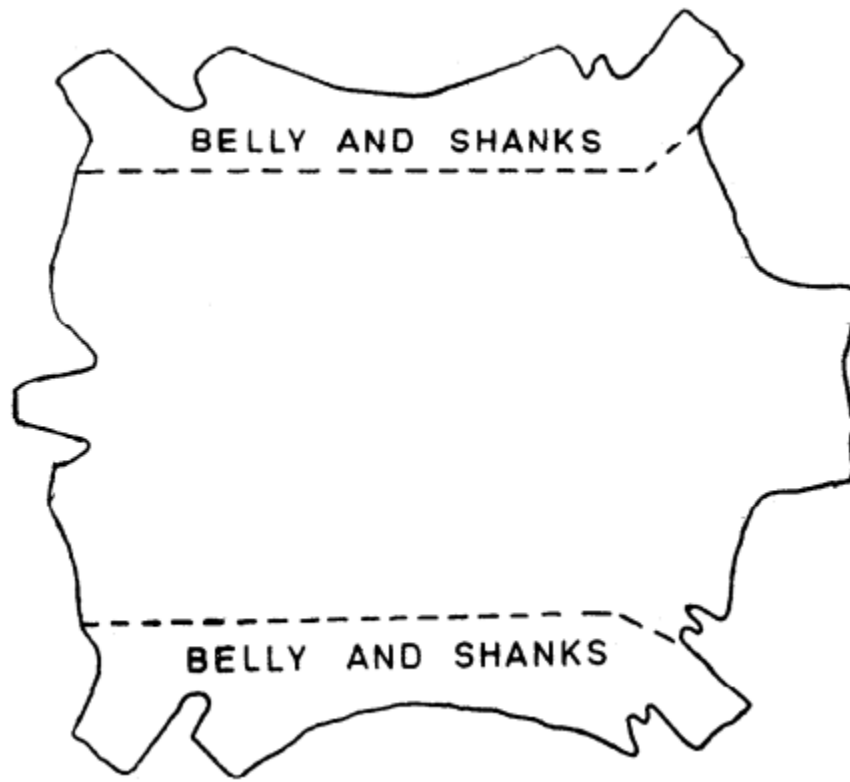


Fig-1 illustration of area of hide and skin excluding belly and shank

3.3. Broad Classification -The finished leathers have been categorized in Table 1 under the following heads:

- a) Clothing leathers,
- b) Fur leathers.
- c) Glove leathers,
- d) Industrial leathers,
- e) Lining leathers,
- f) Luggage leathers,
- g) Miscellaneous leathers,
- h) Shoe upper leathers,
- i) Sole leathers,
- j) Upholstery leathers.

Table-1 Identification of finished leathers

(Clauses 0.5, 3.1, 3.2, 3.2.1 and 3.3)

Variety of finished leathers (1)	Brief description (2)	Minimum operations involved in manufacture (3)
a) clothing leathers		
1) From cow hides and calf skins	Shall be chrome/ combination tanned. Shall be soft and have drape	
i. Grain clothing/Nappa clothing/Jerkin/ Jacket leathers	Shall be drum dyed and shall be finished with a protective coat	1, 3,4, 7, 8, 16 or 17 10, 14 and (also case of leathers tanned with vegetable tanning materials)
ii. Suede clothing/Suede garment leathers	May be drum dyed, having suede nap on the flesh side	1, 2, 3(optional), 4,7,8,11 and 12
2. From Goat and Sheep Skins	Shall be chrome/combination tanned	
i. Glazed garment/Glazed Napa leathers	Shall be drum dyed and: finished with protective coat and with a protective glazed. Shall be soft and have drape .	1,2,3,4, 7,8, 10, 14 and 15
ii. Grain or Napa garment/clothing/Jerkin leathers	Shall be drum dyed. Shall be soft and have drape. Shall be finished with a protective coat	1, 3,4, 7, 8, 16 or 17 10, 14 and (also 2 in case of leathers Tanned with vegetable tanning materials)
iii. Fur suede/Hair on suede/ Shearling suede leathers	Shall be tanned with fur or hair on, the flesh side having suede nap. Shall be soft	4,8,9 and 11
iv. Suede clothing/Suede garment/Shirting suede leathers	May be drum dyed, having suede nap on the flesh side. Shall be soft and have drape	1, 2, 3 7, 8, (optional 11 and 12), 4,
v. Tie and dye leathers:		
Grain finished	Usually dyed on the grain side with different patterns and shades. Shall be soft	1, 2,3, 4, 7, 8 and 10
Suede finished	Same as for grain finished leathers but dyed on the flesh side with different patterns and shades. Shall be soft and drape and suede nap	1, 2, 3, 4, 7, 8, 11, and 12
b) Fur Leathers	Made from hides/calf/skins/fur bearing skins. Mineral/syntan/aldehyde/vegetable/ combination tanned with fur or hair-on	4, 8 and 10
c) Glove Leathers		
1) Dress Glove/Fine Gloving Leathers	Made from kid/lamb/sheep/goat skins usually chrome/aluminum/combination tanned. Shall be soft and capable of being stretched without springing back (run). Minimum run shall be 25 percent	
i) Grain finished	Shall be dyed to a level and uniform shade and plush wheeled on the grain	1, 3, 4,8, 10 and 17 or 18
ii) Suede finished	May be drum dyed to a level and uniform shade with full penetration and have suede nap on the flesh side	1,2, 3 (optional), 4, 8, 11 and 12
2) Utility Glove Leathers	Made from kid/lamb/sheep/goat/ calf skins/cow and buffalo hide and usually chrome/aluminum/ combination tanned	

ES 6814:2021

i) Grain finished	Shall be level in substance and soft. Shall be drum dyed and shall be finished with a protective coat	1, 3, 4, 8, 10, 14 and 16 or 17 or 18 (also 2 in case of leather tanned with vegetable tanning materials)
ii) Suede finished	Same as in (i) above including splits from and buffalo hides. Shall be drum dyed uniform and level shade, having suede nap on the flesh side	1, 3 (optional), 4, 8, 11 and 12 (also 2 in case of leather tanned with vegetable tanning materials)
d) Industrial Leathers		
i) Cycle Saddle Leathers	Made from butts of good quality ox/cow /buffalo hides of good substance. Tanned using vegetable or combination tannage curried with a mixture of suitable oils and fats. The grain side of the leather shall be well set out. Thickness tolerance of ± 0.5 mm.	1, 5 and 7
ii) Diaphragm/Gas Meter/Meter leathers	Made usually from lower grades of goat/calf/sheep skins. Chrome or combination tanned and shall not shrink linearly more than 3 percent after 10 minutes boiling test. Shall be level and uniform in substance and soft. The grain side shall be shaved and/or snuffed	1, 2, 4, 7, 8, 10 and 13
Hydraulic/Packing/Belting/Harness/ Washer Leathers	Made from butts of buffalo/ox/ heavy cow hides. Vegetable/ chrome/combination tanned, curried/stuffed and grain well set out. Thickness tolerance of ± 0.5 mm	1, 5 and 7
iii) picking band leathers	Made from butts of heavy cattle hides. Chrome/combination/Sulphur-oil-vegetable tanned. Left natural or dyed, stuffed with fatty materials and grain well set. May also be tanned hair-on. Thickness tolerance as agreed between the purchaser and the seller	1, 5 and 7
iv) strap/combing leathers	Same as for hydraulic leather (see No. 3). Grain shall be well set out and smooth	1, 5, 7
e) Lining Leathers		
1) From cattle Hides and Calf Skins	Usually chrome/vegetable/combination tanned. Thickness shall not exceed 1.4 mm	
i) Grain finished lining leathers	Shall be drum dyed and shall be finished with a protective coat	1, 3, 4, 7, 8, 10, 14 and 15 or 16 (also 2 in case of leathers tanned with vegetable tanning materials)
ii) Coloured lining leathers	Shall be drum dyed to a level and uniform shade and have reasonable softness and roundness. (Note 2 under 3.1 is not applicable)	1, 3, 4, 7, 8, 10 and 16 or 17 (also 2 in case of leathers tanned with vegetable tanning materials)
iii) Lining suede/ Heel grip leathers	May be drum dyed, having suede nap on the flesh side	1, 3 (optional), 4, 7, 8 and 11 (also 2 in case of leathers tanned with vegetable tanning materials)
From Goat/Kid/ Lamb Sheep Skins	Usually chrome/vegetable/combination tanned	
i) Grain finished lining leathers	Shall be drum dyed and shall be finished with a protective coat	1, 3, 4, 7, 8, 10, 14 and 15 or 16 (also 2 in case of leathers tanned with vegetable tanning materials)
ii) Lining suede/ Heel grip suede leathers	May be drum dyed, having a suede nap on the flesh side, and reasonable softness	1, 3 (optional), 4, 7, 8, and 11 (also 2 in case of leathers with vegetable tanning materials)
f) Luggage Leathers		
1) Case Hide or Side/ Suitcase/	Made from cow and buffalo hides and calf	1, 3, 4, 7, 8, 10, 14 and 15 or 16

Hand Bag/Luggage/Cash Leathers	skins, goat and sheep skins. Chrome/vegetable/combination tanned. Shall be drum dyed and shall be finished with a protective coat	(also 2 in case of leathers tanned with vegetable tanning materials)
g) Miscellaneous Leathers		
1) Book Binding Leathers	Made from kid/goat/lamb/sheep/ calf skins, usually vegetable/ chrome/ combination tanned. Shall be given suitable treatment to prevent rotting. Shall be drum dyed and shall be finished with a protective coat	1, 3,4, 7,8, 10, 14 and 15 or 16 (also 2 in case of leathers tanned with vegetable tanning materials)
2) Skiver Leathers	Usually chrome/vegetable/combination tanned. Shall have a substance of not more than 0.3 mm	1,2,3 and 4
3) Chamois Leathers	Made from goat/sheep skins from which the grain is removed by splitting or shaving. Tanned by processes involving oxidation of fish, marine and/or synthetic oils either solely (full oil chamois) or first aldehyde tannage and then such (combination chamois), Shall be degreased, wrung out, dried and buffed on both sides to produce a velvety nap. Shall be free from dust particles as far as possible	1,8,11 and 12
4) Laminated leathers	Chrome/Combination tanned leathers laminated with textile, PVC or urethane transfer films. Sometimes acrylic or nitrocellulose films are also used. They are finally, plated or embossed.	1, 4, 7, 8, 10, 14 and 16 (also 2 in case of leathers tanned with vegetable materials)
5) Screen/Block/Flock printed Leathers	Made from all types of hides and skins or splits and usually chrome/vegetable/ combination tanned	
	i) Screen or block printed on the grain or suede side into designs using coat tar dyes/pigments. Shall be suitably fixed so as to be reasonably fast to wet and dry rubbing	Grain: 1, 3, 4, 7, 8, 10, 14 and 15 or 16(also 2 in case of leathers tanned with vegetable materials) Suede: 1, 2, 3 (optional), 4, 7, 8, 11 and 12
	ii) Flock printed: printed on the grain or suede side with synthetic fibers (flocks) by suitable techniques.	Grain: 1, 3,4, 7, 8 and 10 (also 2 in case of leathers tanned with vegetable materials) Suede: 1, 2, 3 (optional), 4, 7, 8, 11 and 12
6) Embossed leather	Made from all types of hides and skins Including splits. Usually chrome/vegetable/combination tanned. May be full grain or corrected grain. Shall be drum dyed and shall be finished with a protective coat and embossed.	1, 3, 4, 7,8, 10, 14 and 16 (also 2 in case of leathers tanned with vegetable materials)
7) purse/wallet leather	Made from all types of hides and skins. Usually chrome/vegetable/ combination tanned. May be full grain or corrected grain. shall be drum dyed and shall be finished with a protective coat	1, 3,4, 7,8, 10, 14 and 15 or 16 (also 2 in case of leathers tanned with vegetable materials)
h) Shoe Upper Leathers		
1)From cattle hides and calf skins	Unless otherwise specified shall Be chrome/combination tanned. Leather processed for upper part of-footwear	

ES 6814:2021

i) Aniline cattle/Aniline cow calf/ Aniline side leathers	Drum dyed and finished with protective coat, with visible grain	1,2,3, 4, 7, 8, 10, 14 and 15 or 16
ii) Semi-Aniline/ Aniline look/ Mock aniline sides or calf leathers	May be full grain or corrected grain. Shall be drum dyed and shall be finished with a protective coat	1, 2, 3, 4, 7, 8, 10, 14 and 15 or 16
iii) Box/Willow/ Coloured calf and s leather	Drum dyed and finished with protective coat	1, 2, 3, 4, 7, 8, 10, 14 and 16
iv) Retan/Corrected grain/Semi chrome upper leathers	May be full grain or corrected grain, Shall be drum dyed and shall be finished with a protective coat	1,2, 3, 4, 7, 8, 10, 14 and 16
v) Embossed/Printed/zug grain upper leather	May be full grain or corrected grain. Shall be drum dyed and shall be finished with a protective coat and embossed	1, 2, 3, 4, 7, 8, 10, 14 and 16
vi) Napa softy/bootie upper leathers	Shall be soft/pliable. Shall be drum dyed and shall be finished with a protective coat	1, 2, 3, 4, 7, 8, 10, 14 and 16 or 17
vii)Patent/Wet look/ Polyurethane finished leathers	Shall be finished with a protective coat where topping is done with polyurethane/ varnish lacquer to give a wet look/highly glossy surface	1, 2,3,4, 7, 8, 10 and 14
viii) Shrunken grain/Relax leathers	Shrunken grain or shrunken pattern produced in tanning or in retanning or by any other suitable process. Shall be drum dyed and shall be finished with a protective coat	1, 2, 3, 4, 8 or 9, and 14 10
ix) Hurache/ Woven/Mesh leathers	Shall be vegetable/retanned/combination tanned. Shall be drum dyed, lightly fatliquored and finished with a protective coat. Used for insole also	1, 2, 3,4, 7, 10, 14 and 15 or 16
x) Bunwar leather	Usually made from light weight cattle hides/ calf skins. Usually vegetable/ combination tanned and finished with a protective coat containing pigments and binders. The colour of the grain side, when finished with a protective coat shall be distinctly different from that of crust	1,4 or 6, 5, 7, 14 and 15 or 16 (also 2 in case of leathers tanned vegetable tanning materials)
xi) Kattai/Slipper/ Sandal leather	Usually made from buff calf skins and light weight cow hides. Vegetable/ combination tanned and finished with a protective coat containing pigments and binders. The colour of the grain side, when finished with a protective coat, shall be distinctly different from that of crust	, 4, 5, 7,8, 10, 14 and 15 or 16 (also 2 in case of leathers tanned with vegetable tanning materials)
xii) Metallic finished/Pearlized/ Pearl finished leather	May be full grain or corrected grain. Shall be finished with a protective coat where topping is done with metallic or pearl essence lacquers	1, 2, 3,4, 7, 8, 10, 14 and 16
xiii) Coloured Nubuck leather	Shall be drum dyed to a level and uniform shade with full dye penetration and shall have velvety nap on the grain side	1, 2,3,4, 8, 10 and 11
xiv) Hunting calf/ suede upper/ /shoe suede/Rough-out/ imitation Sambhar leather	Shall be drum dyed to a level and uniform shade, having the required nap on the flesh side	1, 2, 3, 4, 8, 11 and 12
xv) Burnishable leather	Shall be drum dyed and finished with a coat on the grain which will produce a distinct gloss on rubbing with a slight darkening of the shade, when tested according to the method given in A-22	1,2, 3, 4, 7, 8 and 10

2) Shoe upper leather Goat/Sheep Skins	Made from goat/kid/lamb/sheep skins and shall be chrome/combination tanned unless otherwise specified. Processed for upper part of footwear	1,2, 3, 4, 7, 8 and 10
i) Aniline upper leather	Drum dyed and finished with a protective coat, with a visible grain	1, 2, 3, 4, 7, 8, 10, 14 and 15 or 16
ii) Semi-aniline/ Aniline look/ Mock aniline upper leather	May be full grain or corrected grain. Shall be drum dyed and shall be finished with and protective coat	1, 2, 3, 4, 7, 8, 10, 14 and 15 or 16
iii) Glazed kid/ Glace kid/ Glazed goat or sheep/Coloured kid or goat leathers	Made from kid/goat/sheep skins. Shall be drum dyed and finished with a protective coat	1,2, 3, 4, 7, 8, 10, 14 and 15
iv) Goat or sheep upper/Resin finished kid or goat or sheep leathers	May be full gram or corrected grain. Shall be drum dyed and shall be finished with a protective coat based on binders (plated finish)	1,2, 3,4, 7, 8, 10, 14 and 16 or 17
v) Nappa softie/ bootie upper leather	Shall be soft/pliable. Shall -be drum dyed and shall be finished with a protective coat	1,2, 3, 4, 7, 8, 10, 14 and 16 or 17
vii) Patent/Wet look/ Polyurethane finished leather	Shall be finished with a protective coat where topping is done with polyurethane/ varnish lacquer to give a wet look/highly glossy surface	1, 2,3,4, 7, 8, 10 and 14
vii) Shrunken grain/ Relax leather/Crushed kid leather	Shrunken grain or shrunken pattern or crushed effect produced in tanning or in retanning or by any other suitable process. Shall be drum dyed and shall be finished with a protective coat	1,2, 3,4,8, 9, 10 and 14
viii) Gold and Silver kid/ Metallic finished/Pearlized/ Pearl finished leather	Gold and silver kid: Gold or silver foil papers are applied to the grain surface of the leather with suitable bottoming and plated	1, 2, 4, 7,8, 10 and 16
	Metallic finished/Pearl finished leather: Shall be finished with a protective coat where topping is done with metallic or pearl essence lacquers	1,2, 3,4, 7, 8, 10, 14 and 16
ix) Morocco leather	Made usually from goat skins by vegetable/combination tanning. Characteristic grain pattern developed by hand boarding or by mechanical means. Shall be drum dyed and finished with a protective coat	1, 2, 3, 4,7, 10, 14 and 15
x)Plaited/Mesh/ Woven/Strap/ Tressee leather	Made from goat skins usually. Vegetable/combination tanned, lightly fatliquored and toggle/ nail dried. Stiffness and squeaky noise are characteristics of this leather. Shall be drum dyed and shall be finished with a protective coat	1,2, 3, 4, 7, 10, 14 and 15 or 16
xi) Suede upper/ Shoe suede upper leather	Shall be drum dyed to a leve1 and uniform shade, having suede nap on the flesh side	1, 2, 3,4, 7, 8, 11 and 12
xii) Burnishable leather	Shall be drum dyed and finished with a coat on the grain which will produce a distinct gloss on rubbing with a slight darkening of the shade, when tested according to the method given in A-22	1,2, 3,4, 7,8 and 10
j) Sole Leathers		
1) Chrome tanned sole leather	Heavy substance leather. Made from	5 or 6 and 7

	buffalo or heavy ox hides. Shall be fully chrome tanned. Grain set well and smooth. Either waxed or oiled off. In case of natural chrome sole, a whitening season coat is given	
2) Vegetable tanned sole leather	Heavy substance leather. Made from buffalo or heavy ox hides. Shall be fully vegetable tanned. The grain side will be set smooth and rolled	4 or 6,7 and 19
k) Upholstery Leathers		
1) Nappa upholstery/Automotive Furniture upholstery leather	Made from cow and buffalo hides and calf skins, goat and sheep skins. Shall be chrome/vegetable/combination tanned and may be full grain or corrected grain. Shall be drum dyed and have a Nappa feel and shall be finished with a protective coat.	1, 3,4, 7,8, 10, 14 and 15 or 16 (also 2 in case of leathers tanned vegetable tanning materials)

Annex-A

Definitions of manufacturing operations

A-1. Buffing-An operation to produce a clean flesh surface on leather by the action of an emery wheel or a buffing machine.

A-2. Combination tanning - Tanning with more than one kind of tanning agent, such as a mineral tanning and vegetable tanning and/or syntan tanning and/or resin tanning and/or aldehyde tanning and/or oil tanning in any sequence, mineral tanning being compulsory.

A-3. Dry drumming -The process of drumming dry leather carried out to soften the leather and/or open up nap in suede leather.

A-4. Dyeing - Treating the leather with a solution of synthetic (coater) dye(s) to impart colour to it.

A-5. Embossing - Producing a raised pattern by pressure and heat upon the grain side of the leather. The pattern may be on a plate or roller according to the type of machine.

A-6. Fatliquoring - Treating the leather with oil and/or fat, emulsified in water for rendering the leather soft.

A-7. Glazing-The process of producing a high gloss by polishing grain surface of leather under heavy pressure of a roller of agate, glass or steel.

A-8. Ironing - Process of hot pressing the finished leather with a laundry iron to give the leather a smooth appearance. Ironing may be done by a hand iron or by an electrically heated ironing machine.

A-9. Levelling - Reducing by any mechanical means like splitting and/or shaving and/or buffing the substance of a particular side/piece of leather to uniform thickness throughout with an admissible tolerance.

A-10. Oiling - The process of rubbing oil on the grain side of wet or sammed leather with the object of making the leather soft and pliable; in the case of vegetable tanned leather also to protect the colour of tannage from darkening by oxidation.

A-11. Plating-Producing a smooth grain surface of leather by pressing it on a bed with a smooth heated metal plate under pressure using a hydraulic press or roller.

A-12. Plush wheeling - A mechanical operation for producing a fine and smooth surface on leather; also carried out to get velvety appearance on the flesh side of leather by revolving action of felt or plush wheel.

A-13. Protective coat - Covering coats applied on grain surface of leathers to protect it or to conceal defects on it. The protective coat shall consist mainly of binders with or without dyes and/or pigments. The former shall be based on (i) proteinous substances like casein and/or (ii) synthetic resins and/or lacquers, and finally fixed or topped with (i) casein formaldehyde and/or formaldehyde, (ii) lacquers and/or (iii) lacquer emulsions and/or (iv) vinyls and/or (v) polyurethanes, depending upon compatibility. The protective coat shall form a film which shall be detectable (see Note).

NOTE- If necessary microscopic examination of the surface at 32 times magnification shall be carried out to detect the protective coat. Binocular stereoscopic microscope with two converging objectives (magnifying power of each of the two eye pieces 8 x and magnifying power of each of the two objectives 4x) will be required. The object should be viewed at a total magnification of 8 x 4 times (32x). Stereoscopic microscope gives a three dimensional view of the object.

Leather sample to be examined is placed on the stage of the microscope with the grain facing the objectives and then the surface is focused. Two or three places in each of the five locations, namely, butt, belly (one on each side of the back bone line) and neck or shoulder are examined. To the naked eye, the grain surface may appear to be plain, but when focused under the microscope, innumerable depressions can be seen on the surface. These depressions are due to cleavage lines and hair pores. If a protective coat is sprayed on the grain surface, it will be present throughout including depressed areas and ~both the depressed and other areas will produce the same type of reflection which is clearly visible under the microscope. If the leather is glazed without having a protective coat, depressed areas will not be glazed due to the very narrow width of the depression, as they will not come in contact with the glass slab of the glazing machine. Thus, these two areas will produce two different types of reflection. From these reflections it can be easily detected whether protective coat is present or not. Again, if a thin protective coat, prepared with a pigment and a binder is applied on the grain surface, it is easily detectable from the presence of small solid particles. This is for guidance of certifying authorities only.

A-14. Retanning – The process of treating a tanned leather with a tanning material (see A-2).

A-15. Rolling - The process of subjecting heavy leather to the action of smooth brass or gun metal solid cylinder which moves on the grain surface of the leather under considerable pressure. The action makes the surface smooth and stiffens the feel. Light leathers may be sometimes rolled with a little pressure with the object of smoothening the grain surface but not stiffening the feel.

A-16. Setting - The process of stretching out the leather to remove growth and fold marks as well as any coarseness of the grain thereby making the leather surface flat and smooth.

A-17. Shaving - A mechanical operation of reducing the substance of leather to uniform thickness by scraping off layers from flesh or grain side.

A-18. Snuffing -The process of lightly buffing the grain side of leather usually done by the buffing machine.

A-19. Staking/boarding -The process of flexing and stretching the leather to separate fibres sticking together and thus making it soft, is staking. Boarding the leather consists in working-up a grain pattern by means of a cork board or by machine. The leather is also broken up and softened by boarding.

A-20. Stuffing/currying - Impregnation/incorporation of oils, fats, greases and waxes in leather to give it increased tensile strength, flexibility and water-resistant properties.

A-21. Suede nap by buffing -An operation to produce a velvety nap on the flesh side by buffing, using different grits of emery paper.

A-22. Coat for burnishable leathers - In case of burnishable leathers, the coat will be examined by adopting the following method:

Method - The grain surface of leather is swabbed with dewaxed cotton soaked in xylene (chemically 'pure) and left' for 5 to 10 seconds. The treated area is then slickered with a spatula or the blunt edge of a knife. A little of the applied xylene which will come out of the grain surface through the hair pores will be allowed to dry for 3 to 5 minutes. The treated area is now focused under the microscope. Presence of fine white crystals of the grain surface will indicate

that -it has been treated with paraffin wax or similar material. Two or three places in each of the five locations, namely, butt and belly (one on each side of the backbone) and neck or shoulder examined.

Type of Microscope Required: Binocular stereoscopic microscope with two converging objectives. Magnifying power of each of the eye pieces 8 x

Magnifying power of each of the objectives 4x

The object is viewed at a total magnification of $8 \times 4 = 32$ times (32 x). Stereoscopic microscope gives a three-dimensional view of the objects.

DRAFT

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,
- ❖ Facilitate 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.

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