
Leather - Terminology

ICS: 59.140.30

Published by Ethiopian Standards Agency

©ESA

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 1640:2007, "Leather - Terminology", published by the Bureau of Indian Standards.
Acknowledgement is made for the use of information from the above publication.

Leather - Terminology

1. Scope

This standard defines the terms strictly relating to hides, skins and in the Indian leather trade and industry.

2. Terms and definitions

For the purpose of this standard the following definitions shall apply

2.1.

abrasion resistance

the reciprocal of the loss in thickness of leather after a definite amount of abrasive action on it. an important property of sole leather.

2.2.

abyssinia hides

abyssinian cattle are of the zebu type with a definite hump. the raw hide is usually washed to give 'bathed' hides. the chief centre of the trade is the town of addis ababa, from which is derived the common trade description of all abyssinian hides as 'addis ababa bathed' or 'addis ababa unbathed'.

2.3.

acid bates

bates that can be used in the pH range of 3-5; active even at 20°C; smoothens the grain; less drastic than alkaline bates; can be used on chromed stock also after an acid wash to remove the free chrome in the leather.

2.4.

acid colours

group of aniline dyes which are compounds of organic acids and an inorganic base, usually sodium hydroxide. a strong acid, such as sulphuric or formic acid, has to be added to the dye bath in order to liberate the organic acids which are responsible for the dyeing (see also 'dye').

2.5.

acid number

the quantity of base, expressed in milligrams of potassium hydroxide that is required to neutralize the acid constituents present in one gram of oil, fat, wax and fatty acid.

2.6.

acid salt ratio

the ratio of acids and total neutral salt present in the tanning material or its extract, both being expressed in terms of milliequivalent per 100 g of air-dried material. it is a measure of astringency of a vegetable tanning material.

2.7.

acid soaking

soaking with the addition of acid to accelerate the process in respect of hides and skins cured by drying.

2.8.

acidity

in the leather trade, the term represents the acid content of the liquor (tan liquor) which is expressed in terms of milligram equivalent per litre. actually, acidity represents the hydrogen ion (H⁺) or hydronium ion (H₃O⁺) concentration and as the degree of dissociation for different acids varies, acidity is generally expressed in terms of pH value. the term is also used for referring to the acidity of tanned leathers.

2.9.

acrylic syntan

essentially a polymer of acrylic and/or methacrylic acid with a small amount of an agent like sodium alginate incorporated into the polymer.

acorn cup — see 'cavalonia'.

2.10ES 1180:2021

activated sludge process

a biological wastewater treatment process in which a mixture of wastewater and activated sludge is agitated and aerated. the activated sludge is subsequently separated from the treated wastewater by sedimentation or returned to the process as need may be.

2.11.

ageing

keeping or resting in a heap or pile for a certain time with a view to maturing or seasoning.

2.12.

aggregation

the dyestuffs and vegetable tannins form addition compound but the degree of aggregation depends largely on ionic groups present. this to an extent controls the dyeing of leathers.

2.13.

air-dried hides

hides cured by exposure of the flesh side to mild rays of the sun until they are dry.

2.14.

airing off

slightly drying the stock (leather) after application of finish.

2.15.

airless spray

spraying with hydraulic pressure instead of compressed air.

2.16.

air speed drying

very rapid air drying in which relatively high temperatures and controlled humidity are used.

2.17.

albumins

a kind of simple corpuscular proteins containing sulphur and coagulable by heat and soluble in water itself (for example, egg albumin known as egg white).

2.18.

alcohol precipitation value

this value gives a measure of the total soluble matter in a tannin solution which may be precipitated by absolute alcohol. it is determined as follows:

take 10 ml of 2.5 percent tannin solution and evaporate to dryness to give the total soluble matter. take another 10 ml of solubles in a 100 ml graduated flask and make up to the mark with absolute alcohol, shake and filter. evaporate 50 ml of the filtrate in a small flask. the weight of the residue is subtracted from the weight of total solubles obtained earlier and the difference is expressed as percentage of the total soluble matter precipitated by alcohol.

2.19.

aldehyde leather

white washable leather prepared usually from sheep or lambskin splits or degrains and tanned with formaldehyde or other aldehydes.

2.20.

alkaline bating

bating with either pancreatic or microbial enzymes, which are active in the alkaline range.

2.21.

aluminium tanning

tanning with basic aluminium sulphate stabilized with a masking agent like citrate. tanning is completed by basifying to pH 4.2.

2.22.

alum tanning or tannage

a technique of preparing leather solely with a mixture the essential active ingredient of which is an aluminium salt, often, but not necessarily alum, for example, alum, salt, egg yolk and flour. the natural colour of the leather is white (see also 'tawing paste').

2.23.**ammunition leather —**

vegetable, chrome and combination tanned leather curried and finished for making military boots (see 'army grain' and 'russet'),

2.24.**amphoterics**

aliphatic amines condensed with novolaks using mannich reaction in organic solvents. the products are soluble in water though there are no sulfonic groups and are amphoteric in character.

2.25.**angular spray**

spraying of finishes at different angles to produce a two-tone effect; also known as shadow spray.

2.26.**analytical strength solution**

a solution of 04 + 0.025 percent tannin content.

2.27.**aniline dyed**

leather that has been dyed with aniline dyes and has not received any colour from pigmented finish.

2.28.**aniline dyes**

dyes synthesized from coal-tar products also known as synthetic dyes.

2.29.**aniline finished**

a natural or dyed leather finished by application of transparent surface coating, clear or coloured with dye.

2.30.**aniline leather**

leather finished with transparent finishing materials so that the grain pattern may be visible.

2.31.**aniline stained**

leather that has been stained by brushing, padding or spraying aniline dyes and has not received any coating of pigmented finish.

2.32.**anionic fat liquor**

emulsion of fats and oils in which the colloidal droplets of oil and fats are negatively charged, for example, fat liquor made with soap solution.

2.33.**annatto**

a dye of vegetable origin, orange-red in colour obtained from fruits of a shrub *bixa orellana* linn., fam. bixaceae., a native tree of south america.

2.34.**antique grain**

a surface pattern of markings or creases, usually irregular, in which the hollows or valleys are given a contrasting colour to produce a two tone or two-colour effect. the creases are produced by embossing, boarding or other similar means.

2.35.**antique leather**

leather of rough, irregular and wrinkled grain produced by pleating the skins and creasing them lightly in sacks or nets and treating them in strong tan solutions. antique leathers are dyed to multi-coloured effects. the leather is used for furniture and automobile upholstery.

2.36.

aqueous finishes

finishes dispersed in water medium.

2.37.

arabian goatskins

skins from arabia. these are of good texture and reasonably fine grain. they are usually well flayed and efficiently preserved by salting.

2.38.

arabian sheep

the arabian sheep are of two classes, namely: (a) black faced (or black headed), and (b) white faced. the hairy covering of both types is not soft enough to be classed as wool and is of little value. these sheep are small and not overfed so that the skin are not greasy nor is their texture too weak.

2.39.

areolar tissue

the fibrous and fatty tissues which connect hide or skin loosely to the underlying parts of the animal body.

2.40.

arm staking

a process employed to soften skin by hand.

2.41.

army grain

embossed grained leather used for military leather goods (see also 'ammunition leather' and 'russet').

2.42.

astringency

It is the property of contracting the tissues shown by many chemicals including tannins, but in its generic sense it refers to the peculiar sensation of contraction or constriction on the tongue produced by substances containing tannins.

note —a numerical classification of the various tannins and vegetable tanning materials according to their degree of astringency is not possible, since a number of factors are involved. the astringency appears to be a function of the molecular size of the tannin, the proportion of tannin to total solubles (degree of purity), the hydrogen ion concentration of the solution, the electrical charge of the particles, nature of anions and neutral salts present (acid-salt ratio), temperature, and tannin content of the solution,

2.43.

automobile leather

leather used for upholstery motor car cushions.

2.44.

band knife

an endless band of steel sharpened on one edge.

2.45.

band knife splitting machine

splitting machine fitted with a band knife used for splitting the hides and skins laterally into different layers.

2.46.

barbed wire scratches

scratches in hides and skins caused by protruding points of barbed wire.

2.47.

barometer

a modified hydrometer used for measuring the density of tan liquors.

$\text{obk} = (\text{sp gr} - 1) \times 1000$

2.48.

bark tannage

the process of tanning hides and skins with vegetable tanning materials.

2.49.

bark tanned

leather vegetable tanned mainly by means of the tannins contained in the barks of trees, the hides and skins in process coming in contact with the raw bark.

2.50. barkometer

a hydrometer used for determining the specific gravity of tanning solutions. a specific gravity of 1.000 is equivalent to 0° barkometer (bk), and each additional obk is equivalent to an increase of 0.001 in specific gravity.

2.51.

baseball leather

leather used for covers of baseballs. the better grades of balls have covers of alum-tanned horsehide. some cheaper grades are made of kip and sheepskins.

2.52.

basicity of chromic sulphate

when pure chromic sulphate is dissolved in water, it reacts chemically with water and produces an acid solution. more than one half of the acid thus formed can be neutralized with alkali, without causing precipitation of chromium hydroxide. the proportion of the acid that has been neutralized, to that producible from the pure chromic salt, expressed in percentage, is termed as the percent basicity of the chromic salt.

2.53.

basitication

treating the mineral tanned stock with a mild alkali like sodium bicarbonate with a view to form large aggregate of metallic compounds:

- a) by putting in additional oh groups onto the metal complex so that linear polymerization of the metal complex takes place through elation, and
- b) by forming additional ionized carboxyls needed for complexation with the tanning metal.

2.54.

basicity

see schorlemmer basicity, proctor basicity and freiberg basicity.

2.55.

bate

a mixture of deliming chemical and proteolytic enzymes, used for removal of non-essential proteins like globular proteins, mucins, elastins and residues of keratin by chemically reacting and dissolving them along with some fats from limed hides and skins. they also remove lime from hides and skins besides the others. bates contain proteolytic and lipatic enzymes and suitable deliming chemicals. bating renders the final leather fine and silky on the surface and soft and supple to the feel.

2.56.

bate pricks

pin holes visible on over bated hides and skins.

2.57.

bath, chromic acid (chromic acid liquor)

a name applied to the chromic bath used as the first bath in the two-bath chrome tanning process.

2.58.

bath, hypo (hypo liquor)

name applied to the solution of hypo used as the second or the reducing bath in the two-bath process of chrome tanning.

2.59.

bath, reducing

reducing liquor or hypo bath.

2.60. bating

a method of treating unhaired hides or skins with a warm aqueous solution of an enzyme in order to remove certain undesirable nitrogenous constituents.

2.61.

baume

a calibration scale (for liquids, especially acids) that is reducible to sp. gr. by the following formulae:

a) for liquids heavier than water $sp\ gr = 145 / (145 - n)$ at $60^{\circ}f$.

b) for liquids lighter than water $sp.gr. = 140 / (130 + n)$ at $60^{\circ}f$.

where n is the reading on the baume scale abbreviated as "be.

$1^{\circ}be = 6.9^{\circ}bk$

2.62.

beam house

department of tannery in which raw stock is washed, soaked, limed, unhaired, bated and prepared for tanning.

2.63.

beam house operations

soaking, liming, unhairing, fleshing, deliming, scudding, bating and pickling.

2.64.

belly

part of hide from under side of animal, usually less valuable than other portions. in flaying, hides are slit along the centre line of the belly so that when the hide is taken off, the belly is divided into two halves one lying on each side of the hide.

2.65.

belting leather

leather for machine belting generally made from the butt portion of high-grade cattle hides.

2.66.

belt leather

leather used for waist belts. it is usually considered a subclass of fancy leather and usually made from cattle hides, sheep and goatskins.

2.67.

bisulphiting

the treatment given to hot solutions of vegetable tannin extracts with sodium bisulphite in order to increase their solubilities.

2.68.

black catechu

according to pharmacopoeia of india, 1966, black catechu is synonymous with katha. it consists of the dried aqueous extracts prepared from the heartwood of acacia catechu and acacia chundra.

2.69.

bleaching (1)

the process of removing oxidized tannins and insoluble materials from the surface layers of leather, in order to prevent cracking of the grain and to lighten the colour. it is performed by dipping the leather in a weak acidic solution to render the tannin readily soluble, dipping again in water, neutralizing in weak acid solution and washing.

2.70.

bleaching (2)

the process of lightening the colour of chrome leather by suitable chemical treatment or precipitating white pigment in the surface of the leather.

2.71.**bleaching extract**

extract used for making the colour of dark tanned leather light and pale.

2.72.**bleaching sytan**

auxiliary sytan which when complexed to chrome in a chrome leather makes its blue colour lighter.

2.73.**bleeding**

the transfer of materials exuded from leather to other material that comes into contact with it. it is usually designated as staining,

2.74.**blended tannin extracts**

mixed extracts like myrobalan and gorse or mangroves, or myrobalan and cutch, etc, used to attain optimum yield and desired quality in leather (see tanning extract).

2.75.**bloom**

a light-coloured deposit of ellagic acid appearing on the grain surface of leather tanned with certain pyrogallol tannins, such as myrobalans, valonia, and divi-divi. the appearance may be objectionable for some purposes, but bloom does not significantly affect the other physical properties of the leather.

2.76.**blue**

usually in the phrase 'in the blue'. applied to hides or skins that have been chrome-tanned but not dyed nor fat liquored.

2.77.**boarded leather**

leather grained or creased up by working with a cork faced board. this working is called boarding or graining because it produces different patterns on the grain side of the leather. it also softens the leather considerably. boarding is also done by boarding machine consisting of cork or rubber covered rollers.

2.78.**boil test**

testing a piece of fully hydrated leather to check whether there is any shrinkage after placing in boiling water for 2-3 minutes only. when the leather retains the original area, chrome tanning is considered completed.

2.79.**box calf**

formerly, a full-chrome flexible black calf leather with a fine box grain produced by boarding the leather in two directions. an identical leather in brown is called willow calf but these distinctions are losing much of their significance as box calf is now made in a wide range of colours. principally used for footwear but also for hand bags, golf bags, etc.

2.80.**box finish**

the finish in which the leather is glazed and boarded two-way, once from neck to butt and then from belly to belly.

2.81.**box grain**

the two-way boarding of box finish which produces fair, square shaped creases on the grain surface of the leather.

2.82.

box sides

leather manufactured from cattle hides by the chrome process and finished with box grain. the hide is slit into two halves along the spine, each of which is called a side.

2.83. bound organic substance

the difference between 100 and the sum of the percentage of volatile matter, solvent extractable substances, hide substance, water soluble matter and water insoluble ash. it shall be expressed as a percentage by mass of leather.

2.84. brand marks

man-made marks on animal's hide or skin, generally for identification, and made by means of a hot iron.

2.85. breaking iron

blunt iron knife used for breaking hides on the beam.

2.86.

breaking on beam

dry hides and skins are often laid upon the beam after soaking and worked on the flesh side with a blunt unhairing knife which scrapes off bits of the adhering flesh and softens the hides and skins by its stretching action.

2.87.

break of leather

the tiny wrinkles formed on the grain surface of leather when it is bent, grain inward in a fine break. there are many fine wrinkles per linear unit in contrast to a coarse break.

2.88.

bridle leather

strong, flexible type of harness leather of reasonably uniform thickness with a plain finish and a close shaved flesh. made from ox or cow hide, vegetable tanned and curried.

2.89.

brined, dry

hides or skins treated with brine and dried or dry salted.

2.90.

brined, wet

hides and skins treated with brine and kept wet or wet salted.

2.91. brining

a process of curing hides or skins by soaking with sodium chloride solution.

2.92.

brisket

the part of the hide covering the breast.

2.93.

bronze leather

a variety of leather which is purposely finished with a bronze appearance. bronze leathers are made by staining with concentrated solution of basic aniline dyes or by coating the leather with bronze powder or leaf.

2.94.

bronzing (1)

excessive concentration of crystallized dyestuff on the surface of the leather tending to give a metallic sheen. bronzing is a dichroic effect produced by light reflected from the surface of the dyed leather. this happens when a spot has a different refractive index from the environment. bronzing effect is obtained when leather becomes brown on exposure to sun.

2.95.

buffed leather

leather from which the top surface of the flesh side has been removed by an abrasive or bladed cylinder or, less generally, by hand. in the case of upholstery leather the buffing process is invariably carried out by machine though it is sometimes incorrectly described as 'hand buffed'. see corrected grain, machine buff.

2.96.

buffing

ES 1180:2021

a very light cut of grain portion taken from the surface of cattle hide. an operation to produce a fine nap on leather by the action of an emery wheel (see also 'fluffing' and 'snuffing').

2.97.

buffing (1)

the thin grain layer of leather removed from cattle hide by the splitting machine. in spain the buffing may be from any hide or skin.

2.98.

buffing (2)

the process of more or less removing the flesh layer by abrasion. see also buffed leather.

2.99.

buffing (3)

removal of the flesh side of the leather by mechanical abrasion to produce a suede effect or to reduce the substance. synonymous with fluffing and now in more common use. in spain the buffing may be from any hide or skin. in north america the thin grain layer of leather removed from cattle hide by the splitting machine.

2.100.

buffing slicker

hand slicker used for removing the coarse fibres of the flesh side of leather in the manufacture of russet and waxed leather.

2.101.

buff leather

an oil leather, flexible and dry, manufactured after the grain side has been scoured off. the leather is made from buffalo hides as well as from heavy ox and cow hides, usually by tanning with fatty substances. it possesses a cream or white surface and is finished on the grain side with a velvet like nap. it is used for polishing of metals.

2.102.

buffs

abbreviated form for buffaloes.

2.103.

buff-sole

an abbreviation for sole leather made from buffalo hide.

2.104.

buffer index

the number in ml of 1n hydrochloric acid or 1n sodium hydroxide solution required to be added to 100 ml of tannin infusion or liquor at 20 °C in order to alter its pH by 1 unit. for accuracy, the buffer index should be determined on a portion of the titration curve corresponding to at least 2 pH units and lying between pH 2.5 and 5.0.

2.105.

burnishable leathers

leathers, which develop a polish on being rubbed just as in the case of boot polishing. the special effect is achieved by the inclusion of a wax treatment in the effect coat formation.

2.106.

burnishing

polishing by machine to give the shoe upper a bright, glossy finish. on better grade shoes. the sole and heel edges are washed and burnished.

2.107.

bursting strength

strength of leather to resist bursting or cracking of the grain under strain.

2.108.

butcher cuts

cuts or gashes in hides and skins caused by butchers while flaying.

2.109. **GESA**

butt

a roughly rectangular part of a hide representing the part covering the back and upper regions of an animal and remaining after the shoulder and belly portions are cut off. the butt is the best portion of the hide being the thickest and most compact in structure. when cut along the centre, the butt divides into two halves each of which is called a bend.

2.110.

butt split

the flesh layer obtained by splitting the butt by a splitting machine.

2.111.

butt striking

a rapid succession of blows from a blunt edge upon the grain surface of the butt. the working tool is usually a steel blade or it may be a slate like stone. the object is to remove bloom and reds from the grain of the leather.

2.112.

batty

hide or leather with thick butt.

2.113.

calf leather

a leather made from the skin of a young or immature bovine animal (see also 'calf').

2.114.

calf skin

skin of immature meat cattle. cattle hides below a certain weight are classed as calfskins.

2.115.

calf split

split of a calfskin or the flesh layer of a calfskin.

2.116.

calf, waxed

vegetable tanned calf leather curried and finished on the flesh side with a wax composition.

2.117.

carriage leather

leather used in upholstering the seats and sides of carriages and for making their hoods.

2.118.

case-hardening (1)

defect due to high fixation of tannins on the surface at the initial stage itself preventing further diffusion of tannin into the skin/hide matrix.

2.119.

case-hardening (2)

defect due to rapid drying of green hides and skins during preservation or due to rapid drying of leathers after tanning preventing drying of inner layers of hide/skin or leather.

2.120. chamois

a soft, pliable absorbent leather which is made from the inner side of a sheep skin, from which the outer or grain side has been split prior to tanning.

2.121.

cheeking

reducing the thickness of heads of unhaired skin by splitting.

2.122.

chestnut extract

tannin extract made from the wood of either the european chestnut, *castanea sativa* mills. or the american chestnut, *castanea den.* the extract is marketed in both the solid and the liquid forms, products of different manufacturers varying in their tannin content. in the solid extract (in block or powder form), the tannin content is generally from 56 to 76 percent (non tan, 5.5 to 9.5 percent) and the liquid extract from 29 to 49 percent according to concentration (non tan, 5 to 10 percent). the american chestnut is generally darker in colour than the french. the tannin is of the pyrogallol class and is generally used in combination with other tanning materials, such as quebracho, mimosa, myrabolans and valonia in the preparation of sole leather. it is rapid in its action on hides and skins and gives a firm leather.

2.123. chrome crust

chrome tanned leather which, after tanning has been further processed to crust stage, dried out and if necessary staked and measured.

2.124.

chrome exhaust aids

bidentate completing agents (for example, dicarboxylic acids like adipic acid), which can link, up with two different completing units and help in high fixation of chrome.

2.125.

chromed hide powder

hide powder treated with predetermined quantity of chrome alum solution, washed, filtered and squeezed to contain about 75 percent moisture.

2.126.

chrome leather

a bluish green leather which has been chrome tanned. it does not wet back readily and withstands the action of boiling water. it is stronger than vegetable tanned leather and is usually dyed and finished.

2.127.

chrome liquor

solution of basic chromic salusually basic chromium sulphate, used in chrome tanning.

2.128. chrome oxide content

the quantity of chromium compounds found in leather calculated as chromic oxide (Cr_2O_3)

2.129.

chrome retan

leather which has been first chrome tanned throughout its thickness and subsequently further treated or tanned with vegetable and/or synthetic tanning agents and/or resin tilling materials, these retanning agents penetrating notably, but not necessarily completely, into the interior.

2.130.

chrome side leather

chrome tanned cow hide split into two halves along the spinal line, each of which is called a side.

2.131.

chrome side leather water-proof

chrome tanned cow hide which has been specially treated to make it water repellent.

2.132.

chrome sole leather

sole leather of greenish-blue colour produced by chrome tanning and stuffed with scat'in, paraffin wax, rosin and other materials to render it firm and waterproof.

2.133. chrome tannage

the process of tanning hides and skins with basic salts of chromium, mainly basic chromium sulphate.

2.134.

chroming

treating hides and skins with chrome liquor for tanning. the term is specially used for the process in which delimited pelt is treated with an acidified solution of potassium or sodium bichromate in the double-bath method of chrome tanning. in the case of the one-bath process, the term refers to the treatment of the pelt with the chrome liquor which does the actual tanning.

2.135.

circulators (circulator round)

a series of seven (usually) inter-connected tan pits. the leathers or partly tanned butts are suspended in six of these pits. the tan liquor is circulated through all the seven pits, liquor being made up in the spare pit.

2.136.

clarification of extracts

after the extraction of the vegetable tanning material for manufacturing tanning extracts, the liquor is usually clarified by settling in a tank; or after the addition of clarifying agents allowing the extract to settle or by filtering the same.

2.137.

chrome sole splits

flesh splits of chrome tanned clean grained — with grain free from dirt. sole leather. clearing coat — making the grain surface free from chrome splits — flesh splits of chrome tanned cow greasiness by brushing the surface with a weak solution of lactic or acetic acid or with ammonia (see also

2.138.

chrome stock

pelt which has been tanned by chrome liquor.

2.139.

chrome syntan

auxiliary syntan complexed with chrome; chrome syntans can fill without loading; first made by the Isetal in 1952; first commercial product was named as tannesco.

2.140.

chrome tannage

process of tanning hides and skins with basic salts of chromium, mainly basic chromium sulphate.

2.141.

chrome tanning

the process of tanning hides and skins with basic salts of chromium sulphate.

2.142.

chrome tanning extract

solid extract of chrome tanning salts mostly in powder form.

2.143.

chrome tanning salt

green crystals of a chrome salt, prepared by the reduction of sodium dichromate and sulphuric acid with a reducing agent, which is supplied for tanning pelts by the one-bath chrome tanning process.

2.144.

chrome washers

washers made from chrome leather. the term is specially applied in the Indian leather trade for washers used for making ginning rollers. when made from chrome tanned buffalo hides, they are called 'full-chrome washers'. when made from chrome splits, they are called 'composite washers'.

2.145.

chromic oxide content of leather

the quantity of chromium compounds found in leather, calculated as chromic oxide.

2.146. closed defects

defects seen either on the grain side or on the flesh side of the skin or leather, such as small or superficial scratches, lice, lesion, baldness, dimple, coarse grain, stain, etc., on the grain surface or light flay cuts, very thin vein marks etc, on the flesh side which can be corrected during leather processing.

2.147.

clothing leather

leather used for making garments and gloves.

2.148.

collagen

protein contained in connective tissue, cartilage and bones, the chief protein of raw hides and skins

2.149.

combination oil tannage

a process of tannage in which the skin is first tanned with formaldehyde and subsequently treated by oil (see also 'oil tannage').

2.150.

phenolic syntans of medium molecular weight and medium oh: so₃h ratio used as pre-tanning agents and agents for dispersing vegetable tannin sludges.

skins.

2.151.

corduroying

a rough condition of the flesh side of leather caused by the failure of removing the twitching muscles.

2.152.

corrected grain

portion of the grain surface lightly abraded with emery wheel or sandpaper so as to lessen the effect of grain damage.

2.153.

curing

temporary preservation of raw hides and skins. the treatment of raw hides and skins to prevent putrefaction and bacterial decomposition.

2.154.

crackle finish

when one resin coat is superimposed over another of a very different glass transition temperature, the differential shrinkage of the top layer during drying leads to cracks known as 'crackle'. if the two coats are differently coloured, then the bottom colour shows up through the cracks. the pattern can be fixed by a third clear coat.

2.155.

defects of hides and skins

apart from those defects which are already listed elsewhere, the following defects are commonly met with in the indian hides and skins trade. the indigenous terms commonly used in trade are also indicated against each:

2.156.

decreasing

removing grease in the case of pickled sheepskins by drumming the stock with kerosene, water and salt; in the case of leather, by extracting the dried leather with any suitable solvent.

2.157.

degree of tannage

number of parts of fixed tan. per 100 parts of hide substance.

2.158.

deliming

to get rid of lime by means of chemical or bacterial action.

2.159.

deliming agent

chemicals of acidic nature used to neutralize lime.

2.160.

denaturing of salts

process by which salt is rendered unfit for human consumption. this is done by adding some inedible chemical substances.

2.161.

retanning

the process of removing tan from scrap leather for glue making.

2.162.

detanned solution

solution obtained after detanning scrap leather.

2.163.

detergent

a surface active agent which loosens or removes dirt, oil or grease.

2.164.

difference figure

the difference between the pH of a solution and that of its ten-fold dilution.

2.165. double hole stitch tear strength

the load required to tear the leather between two holes to a given distance apart.

2.166.

drums

cylindrical vessels made of wood, mounted on suitable axles so that they are capable of revolving freely. they are usually equipped inside with pegs or shelves for lifting the stock. goods may be entered through a door which can be closed watertight. these are used for keeping the hides and skins in good movement during various stages of tanning.

2.167. drying

the exposure of fresh hides and skins to atmospheric air by properly suspending them in appropriate premises, in order to prevent the development of bacterial putrefaction.

2.168.

dry milling

tumbling pressed leather in a revolving drum to open it up and remove the creases,

2.169.

dry pickling

a method of curing skins from wool sheep with sodium sulphate and sodium chloride. sometimes hypo also is used with a little acid. sulphuric acid is used in modern processes.

2.170.

dry-salted hides and skins

hides and skins cured by the process of dry-salting. the salt used for curing is khari salt which is a natural product consisting mainly of sodium sulphate mixed with earthy matters. a few coats of a soupy solution of this salt are applied on the flesh side of hides and skins, and then dried in the sun. this method is followed mainly in the north east part of india where the climate is damp.

2.171.

dry tunnel

a tunnel in which damp leather is placed for drying in a current of air, often under conditions of controlled temperature and relative humidity.

2.172.

dye

a dye (or dyestuff) is most commonly an organic compound which may be used to impart colour to a substance. it may be used for the colouring of animal, vegetable or synthetic fibres and similar products [such as wool, silk, leather or fur, cotton, linen, paper, rayon, nylon, or other materials (such as oils, waxes, rubber or plastics, etc)]. dyes may be soluble in water or may be made so by a simple chemical reaction. insoluble colouring matters are called 'pigments'.

dyes may be classified in accordance with their chemical constitution (nitro-, azo-, triphenylmethanes, application. the class of dyestuffs leather industry are:

- a) direct dyestuffs — dyestuffs which dye cotton fibre directly, without the aid of mordants. method of application to leather is similar to that of acid colours, but no addition of acid is required in the dye-bath. direct dyestuffs, or substantive colours have got good affinity for chrome tanned leather and are used for dyeing chrome leather, specially blacks.
- b) basic dyestuffs — these are aniline dyes which are compounds of an organic base with an inorganic acid usually hydrochloric. they have great affinity for tannins and, therefore, dye vegetable tanned leather directly. they have little affinity for chrome leather which has to be mordanted with tannin if basic dyes are to be employed.
- c) developed dyestuff — dyestuffs whose colours are developed by chemical treatment after application to the leather. this is necessary in special cases, for example, sodium nitrate treatment for suede leathers to prevent cracking (see also 'acid colours').

2.173.

direct dyestuffs

dyestuffs which dye cotton fibre directly, without the aid of mordants. method of application to leather is similar to that of acid colours, but no addition of acid is required in the dye-bath. direct dyestuffs, or substantive colours have got good affinity for chrome tanned leather and are used for dyeing chrome leather, specially blacks.

2.174.

basic dyestuffs

these are aniline dyes which are compounds of an organic base with an inorganic acid usually hydrochloric. they have great affinity for tannins and, therefore, dye vegetable tanned leather directly. they have little affinity for chrome leather which has to be mordanted with tannin if basic dyes are to be employed.

2.175.

developed dyestuff

dyestuffs whose colours are developed by chemical treatment after application to the leather.

2.176.

embossing

producing a raised pattern by pressure upon the grain side of the leather. the pattern may be on a plate or roller according to the type of embossing machine.

2.177.

embossed leather

leather with printed pattern or artificial grain.

2.178.

embossing plate

engraved plate which is mounted on a steam heated chest in an embossing machine.

2.179.

embossing roller

engraved roller usually of bronze, used in old type embossing machine.

2.180.

empty leather

leather lacking in fullness hence substance.

2.181.

elongation at break

the extension between bench marks produced by a tension force applied to a test piece at the time of its rupture. it is calculated by taking the difference between the original length and the length at the time of rupture under the tension force, expressed as a percentage of the original length.

2.182.

embossing

a raised pattern by pressure upon the grain side of the leather. the pattern may be on a plate or roller according to the type of embossing machine.

2.183.

empty flesh

hide or skin defect observed as thinning of skin or hide due to lack of flesh substance.

2.184.

enzymes

biocatalyst of biological origin and are characterized by their extraordinary specificity and reactivity in living systems.

2.185.

epidermis

the outermost layer of the skin made up of epithelial cells; it covers dermis and is removed during unhairing.

2.186.

fat liquoring

the lubrication of the fibers of leather with fat liquor (an emulsion of oils or greases in water, usually with an emulsifying agent).

2.187.

finished box

leather manufactured from a box side to which finish is applied.

2.188.

finishing

ES 1180:2021

covering a leather surface with a film with or without colour and designs to impart desirable physical and chemical properties.

2.189.

flay cut

a defect made on a hide or skin caused by a flaying knife or flaying machine.

2.190.

fleshing knife

a flat curved piece of steel with knife edges 9 to 11.5 cm apart, used for hand fleshing of hides. the continental fleshing knife is longer being about 50 mm only.

2.191.

fleshing machine

a machine comprising of a roller with sharp spiral blades used for fleshing hides and skins.

2.192.

flesh side

reverse side of the hide as opposed to the liary or grain side.

2.193.

flank

side of an animal between the ribs and the hip.

2.194.

foam finishing

applying finishes on to leather in the form of a foam. high viscosity foam made of a polyurethane dispersion, pigment, filler and a foam stabilizer, when made in a mixer, is stable upto a few hours and can be remixed after longer periods. to suit the high viscosity requirements of reversible roller coaters, foam finishes were actually developed. but, the added advantage that resulted is that more finish can be applied more economically. though suited for full grain leathers also, it is more beneficial to damaged and hence deeply buffed leathers and splits.

2.195.

full grain

leather bearing the original grain surface as exposed by removal of the epidermis and with none of the surface removed by buffing, snuffing or splitting.

2.196.

fur

skins of some wild animals, covered with short fine hair, which is tanned or dressed for garments.

2.197.

gash

a cut made into the dermis of hide or skin by a knife or flaying appliance without there being an actual perforation

2.198.

glazed finish

the operation of producing a bright, glossy or glasslike finish on the grain surface of leather by subjecting it to the action of a machine which rapidly draws, under pressure, a tool of glass, agate or other suitable material across the suitably prepared surface of the leather.

2.199.

glazed kid

chrome tanned goat skin and kid skin leather, which has a high gloss.

2.200.

glazing

operation of producing a bright, glossy or glass-like finish on the grain surface of leather by subjecting it to the action of a machine which rapidly draws, under pressure, a tool of glass or other suitable material across the suitably prepared surface of the leather.

2.201.

glove leather, napa leather

grain sheep or lambskin glove leather, from domestic, new zealand or south american sheepskins. it is given a chrome, alum or combination tannage and drum coloured.

gouge

thinning of the hide or skin caused by a knife or flaying appliance without there being an actual perforation.

2.203.

grain

a leather bearing the original grain surface as exposed by removal of the epidermis, and with none of the surface removed by buffing snuffing or splitting.

2.204.

grain damage

any damage to the grain side of the skin, whatever its origin or nature, causing depreciation of the skin.

2.205.

green salting

a process of curing fresh hides or skins in which they are treated with salt on the flesh side and stacked in piles to cure for a period of ten or more days.

2.206.

gross sample

a sample that is collected from a lot according to a specified formula for determining the size of the sample.

2.207.

grey scales

scales for assessing the change in color or staining of the pieces of leather when rubbed with a piece of reference wool felt under given pressure of a given number of forward and backward motions.

2.208.

hand hole

a cut made at the edge of the hide of skin in order to facilitate flying.

2.209.

hair-saving methods of unhairing

methods of loosening hairs so that they can be easily removed without however tampering with the forces stabilizing their structure.

2.210.

heavy leather

thick leather for sole, machine belts, harness and saddlery, having comparatively greater weight than dressing and light leather, is grouped under this head. it is sold by weight, while dressing and light leathers are sold by the piece or by area.

2.211.

heating

the beginning or putrefaction of hide or skin revealed by premature loosening of the hair.

2.212.

hide

the outer covering of a large animal such as a cow, horse, bullock, etc, in raw and or untanned condition.

2.213.

hide substance

collagen containing 17.8 percent nitrogen. to convert the percentage of nitrogen in the leather into percentage of hide substance, the percentage of nitrogen shall be multiplied by 5.62.

2.214.

hole

a complete perforation of a hide or skin accidentally made by knife or flaying appliance.

2.215.

laboratory sample

a sample of leather taken from a specific area of the leather (the sample shall be of sufficient size to allow duplicate tests).

2.216.

insole leather

hide leather, including flexible splits, vegetable or combination tanned, in sides, bends, shoulders and bellies, suitable for the inner soles of footwear.

2.217.

intermediate coat

see 'effect coat'; known as middle coat also.

2.218.

ironing

process of hot pressing the finished and calendared leather with a laundry iron to give the leather a smooth appearance. ironing may be done by hand iron or by an electrically heated ironing machine.

2.219.

kiss spot

light stain on vegetable tanned hides and skins due to pelts touching each other in the early stages of tanning.

2.220.

layers

series of vegetable tan liquors used in the final stages of the repair band tannage of sole leather or in tanning with oak bark,

2.221.

leather

a general term for hide or skin with its original fibrous structure more or less intact, tanned to be imputrescible. the hair or wool may or may not have been removed. leather is also made from a hide or skin which has been split into layers or segmented either before or after tanning, but if the tanned hide or skin is disintegrated mechanically and/or chemically into fibrous particles, small pieces or powders and then, with or without the combination of a binding agent, is made into sheets or other forms, such sheets or forms are not leather.

2.222.

leather board

scraps of leather ground in the form of pulp and mixed with bonding materials like rubber latex and made into a sheet.

2.223.

lime blast

discolored spots on limed skins caused by calcium carbonate deposits, leading to grain roughening.

2.224.

lime burnt

heat damage of pelts due to contact with unslaked particles of lime.

2.225.

lime fleshing

fleshing hides and skins after the liming operation.

2.226.

lime liquor

saturated solution of lime having excess of undissolved lime which forms a milky liquor on stirring, used in unhairing hides and skins prior to tanning.

2.227.

lime paint

depilatory solution mixed with slaked lime or china clay to form a thin paint which is applied to the flesh side of sheep, goat or calfskin.

2.228.

lime paste

mixture of slaked lime and water of thick consistency.

2.229.**ES 1180:2021**

rectangular brick or concrete pits in which hides and skins are treated with lime liquor; varies in capacity from 1 350 to 5500 litres.

2.230.**lime process**

the process in which hides and skins are treated with lime liquors.

2.231.**lime soap**

soap formed by the action of lime of oils and fats of hides and skins.

2.232.**lime splitting**

splitting of stout limed pelts, done on the band knife splitting machine.

2.233.**liming**

soaking hides and skins in milk of lime for a few days in order to loosen hair and to plump and swell the hide.

2.234.**lining leather**

a leather used for making linings.

2.235.**lot**

a definite quantity of leather manufactured or produced under conditions which are presumed uniform.

2.236.**marks, strain**

the loose substance of most sheepskins is liable to damage as a result of undue straining in the process of take-off or curing. the effect is that the grain is damaged and the tensile strength reduced.

2.237.**mineral tannage**

tannage effected by salts of chromium, aluminium, iron and zirconium.

2.238.**mixed tannage**

tannage effected by a mixture of tan materials. instead of using an individual tanstuff in bark tanning more than one material is sometimes used in admixture, a practice which has been found to yield very satisfactory results.

2.239.**mold**

any one of the saprophytic fungi which form slimy or cottony growths on foodstuffs, leather, etc.

2.240.**nappa leather**

soft, full grain gloving or clothing leather made from unsplit sheep, lamb, and goat or kid skins. it is usually tanned with alum and chromium salts and dyed throughout its substance. in france and germany also made from side leather for footwear and leather goods purposes.

2.241.**nitrocellulose finish**

solutions of specially manufactured nitrated cotton and a resin and plasticizer in a solvent ester usually butyl acetate. the product can be diluted with methylated spirit, toluol or petroleum solvents, and the resulting solution may be sprayed on to the grain surface of the dyed leather and dried to give a waterproof finish.

2.242.**novolaks**

thermoplastics, soluble phenolformaldehyde resins obtained by use of acid catalysts of excess phenol; can be cured to thermosetting, insoluble form with hexamethylenetetramine. used principally in finishing leather.

2.243.

nubuck

a chrome tanned leather usually calf or suede (which is buffed on the grain side to give a nap surface). white nubuck is very popular.

2.244.

ochre

also called yellow ochre, oxide yellow, chinese yellow. a natural pigment consisting of hydrated oxides of iron and manganese mixed with clay and sand. the term is frequently restricted to a pale yellowish-brown variety.

2.245.

open defects

serious or severe defects seen either on the grain side or on the flesh side of the skin or leather, such as sulphuric, formic, hydrochloric, etc. on the flesh side which can be corrected during leather processing.

2.246.

organic pigments

organic dyes insoluble or insolubilized to act as pigments, brighter, purer and richer in colour than their inorganic counterparts but more susceptible to sunlight, chemical attack and bleeding and also more expensive

2.247.

ph

negative logarithm of h^+ ion concentration of a solution, actually ph increases with oh^- ion concentration. at $ph = 0$, the h^+ concentration is unity and when this concentration is minimum the ph is actually negative. this scale was devised by sorenson in 1909 and introduced in leather technology in 1911 by wood and colleagues. ph changes indicate the charge profile of hide/skin/leather and hence very important in the penetration and fixation of charged species by the amphoteric collagen/leather. neutral ph is 7.0. below 7.0 is taken as acidic and above 7.0 is taken as alkaline.

2.248.

packing leather

see 'hydraulic leather'.

2.249.

paddle

a rotating system of radial wooden planks fitted to wooden circular plates at the two ends. the paddle is partly immersed in a pit containing the liquor and stock being processed and provides the much needed agitation when it rotates.

2.250.

painted hides

hides, the flesh sides of which have been treated with a lime-sulphide mixture.

2.251.

painting

the application to the flesh side of raw hides and skins of lime paint which is a mixture of slaked lime, water and sodium sulphide or sodium hydrosulphide.

2.252.

patent finish

glossy finish made with cooked (by boiling) linseed oil applied in three coats — the daub (0.0025" thick), the brush coat (0.0025" thick) and the varnish coat (0.005" thick). naphthalene was used to thin the varnish. pigments/metallic powders were also incorporated in the daub coat. film formation is by the oxidation of the liquid varnish into a solid film the finish is alternatively known as 'japanning' or 'enameling'. the advent of pu finishes for making patent leathers has relegated this classical finish to background. the thickness of pu patent finish films is in the range of 100 to 120 m.

2.253.**patent leather**

a leather, one surface of which is covered with a flexible water proof film, with a lustrous mirror like surface, produced by application of several coats of daubs, varnishes and lacquers, some of which may be pigmented.

2.254.**pelt**

limed hide or skin.

2.255.**pickling**

the treatment of scudded and bated skins or drenched skins with a solution of salt and acid, such as sulphuric, hydrochloric, formic, etc, to preserve them or as a preparation for the tanning operation so as to prevent drawn grain. pickling brings the pelt into a non-swollen acid condition which is very necessary as a preliminary to the one-bath chrome tanning. commonly used before chrome tanning but not, generally, in vegetable tanning. pickling also preserves limed and delimed pelt in a sound condition and enables them to be exported in wooden casks.

2.256.**pigment (colouring matter)**

a finely ground opaque coloured material insoluble in water often added to leather finishes to provide colour and to mask defects in the grain surface of the leather.

2.257.**pigment finishes**

finishes and coating colours made from either mineral pigments or from lakes, used for the production of level shades of colour on leather and are extensively used in the finishing of leather.

2.258.**pigment leather**

leather to whose surface a finish containing fine pigment particles in suspension has been applied sometimes called 'doped'.

2.259.**pigskin**

skin of a young swine, generally used for the manufacture of saddle leather, fancy leather goods and other purposes (see also 'glove leather').

2.260.**plating**

a process of producing a smooth grain surface on leather by pressing it on a bed with a smooth heated metal plate under very high pressure.

2.261.**plumping agent**

chemicals causing plumpness.

2.262.**plumping power**

capacity for causing plumpness.

2.263.**poor pattern**

see 'pattern, poor'

2.264.**plasticizer**

a material added to a solution or mixture for the purpose of softening (or rendering plastic) the film obtained on drying the mixture. cellulose lacquer solutions invariably dry to form harsh or brittle films on leather but if mixed with a plasticizer, the film becomes pliable and non-cracky. plasticizers have generally high boiling points and hence they remain in the film, ensuring plasticity. these are generally high boiling liquids like tricresyl phosphate, diamyl tartrate, ethyl citrate and others. sulphated oils can be used as plasticizers in aqueous leather finishes.

2.265.**plating**

a process of producing a smooth grain surface on leather by pressing it on a bed with a smooth heated metal plate under very high pressure.

2.266.**pre-tanning**

preliminary tanning carried out prior to main tanning with the intention of avoiding casehardening and for acceleration of tanning.

2.267.**purple spot**

a spot that develops in depth and resists the tanning process longer.

2.268.**rapid tanning**

tanning made quicker than by the usual methods; in respect of vegetable tanning, vacuum process, pressure tanning, bag tanning, pre-tanning prior to regular vegetable tanning, drum tanning and colloidal tanning are the available methods for the purpose. in respect of chrome tanning, pickleless/ masked tannage, dry/powder tanning and injection tannage procedures are resorted to.

2.269.**raw hide**

see 'raw hide for mechanical use'.

2.270.**raw hide for mechanical use**

cattle hide that has been dehaired and limed, often stuffed with oil and grease, and has sometimes undergone other preparatory processes but has not been tanned. raw hide is used principally for mechanical purposes for belt lacings and pins, loom pickers, gaskets, pinions and gears. some raw hide is dressed with hair left on.

2.271.**raw hide belting leather**

semi-tanned cattle hide leather suitable for manufacture of high speed machine belting.

2.272.**reactive dyes**

dyes, which can react with the groups of the substrate (for example, triazinyl dyes).

2.273.**real meherpore cure hides**

hides cured by the application of a very light coating of khat-i salt without any intention of increasing weight.

2.274.**red heat**

coloration usually red, which appears on the flesh side of salted raw hides and skins. the stains do not generally damage the hide or skin. the organisms responsible for red heat are not found on the raw hides or skins but are introduced through the use of certain marine salts. two, types of bacteria have been isolated; a redsarcina and a yellow one, belonging to the sub-genus of the genus sarcina fare. micrococceae. red sarcina is non-proteolytic but the yellow one is proteolytic and can liquefy gelatin.

2.275.**resin dispersion**

aqueous dispersions of methacrylate and other acrylate resins have a milky appearance and acid reaction and can be diluted with water or mixed with aqueous dispersions of casein, pigment finishes, binders, etc. commercial dispersions contain from 30 to 40 percent of a highly polymerized acrylate resin. as the resin is thermoplastic, the finishes when dry on the leather cannot be glazed by the glazing machine or ironed by hot iron and they are usually hot plated by a leather press. these resin dispersions were first used as an undercoat for nitrocellulose

finishes in the manufacture of upholstery leather to prevent the migration of the plasticizer from the nitrocellulose film into the leather and thus making the nitrocellulose film brittle. It has also been used along with aqueous pigment dispersions for application to well-suffed or corrected leather grains and also in mixtures with water pigment dispersions, which are then applied to leather, dried, and rendered fast to wet rubbing by the application of a colorless, nitrocellulose lacquer top coat.

2.276.

resin finished

leather with a pigment finish, incorporating a synthetic resin binder.

2.277.

resin tannage

filling the hide/skin with synthetic resins like urea-formaldehyde, melamine formaldehyde etc.

2.278.

restricted countries

countries from which imports of hides and skins are permitted only under their sanitary regulations.

2.279.

retanned leather

same as 'combination tanned'.

2.280.

rejects

badly cut, branded, worm damaged, and marked hides, having more faults than leathers. The term usually refers to those that have been discarded.

2.281.

reliming

putting the stock after unhairing into fresh lime liquors in order to:

- a) plump them for easy fleshing,
- b) open up the substrate for quick penetration of reagents in subsequent processes, and

2.282.

reverse setting

setting in opposite directions.

2.283.

rolling machine

machine used for compressing leather by means of a heavy roller.

2.284.

rolling-off

the operation of the final rolling of sole leather under heavy pressure, when the latter has been completely dried out

2.285.

rough tanned leather

see 'crusts' ('crust leather').

2.286.

rounding

the operation of cutting off the offal, that is, the bellies and the shoulder, from the substantial portion of a hide, namely, the butt. It is usually done after the hides have been unhaird by liming. Only the hides meant for the manufacture of heavy leathers like sole, belting or picking bands are rounded. The butts are given a superior tannage and the offals go through a cheaper tanning process.

2.287.

round spots

rings of a thickness of 2 to 3 mm and an outside diameter of 1 cm, appearing after removal of the hair.

2.288.

rub fastness

the fastness of finish to rubbing, both dry and wet, the leather is rubbed with a felt pad either dry or wet attached to a fastness tester. the rubbed surface of the leather is compared with spots of five different degrees of greyness constituting a grey scale, marked 1 to 5, in the increasing order of rub fastness. agreement with spot 1, for example, indicates poor rub-fastness. similarly agreement with 5 means excellent rub fastness.

2.289.

rub-off finish

two-tone appearance made by partial removal of the top colour so that the bottom colour shows up. to achieve this first the leather is finished in one colour and fixed with a lacquer coat. then a second colour coat is applied, dried and wiped out partially when dry. the second coat is subsequently fixed with a topcoat.

2.290.

run

the stretch of a leather; for gloving leathers, this is very important.

2.291.

samming

drying leather partially to a stage that it exudes moisture at a crease when folded or squeezed.

2.292.

samming machine

a machine for drying leather to the sannned condition. also called 'wringing machine'.

2.293.

salt stains

stains not apparent immediately after the process of salting process longer.

2.294.

scudding

removal of remnants of epithelial tissue, hair, dirt, etc. from un haired hides by scraping with a blade, either by hand or machine.

2.295.

scar

a mark, br and mark, channels, deep f lay cuts enlarged vein marks, cavities, pronounced scars, putrefaction, grain peeling, etc, on the skin or leather which cannot be corrected during leather processing.

2.296.

self-basifying chrome

chrome extract containing difficultly soluble basic substances like mgo/caco~ and hence its gasification increases while penetration proceeds.

2.297.

semi-alum leather

leather that has been tanned first with vegetable tannins and then with aluminium salts.

2.298.

semi-aniline finish

a finish similar to aniline finish in which some amount of pigments, both organic and inorganic, may be usc?d.

2.299.

semi-aniline finished

leather, which has been aniline, dyed or stained, incorporating a small quantity of pigment, not so much as to conceal the natural grain of the hide.

2.300.

semi-chrome

leather tanned first with vegetable tannin and then with chrome salts.

2.301.

setting out

a process used in leather manufacture for stretching out the leather. it removes growth and fold marks as well as any coarseness of the grain thereby making the leather surface perfectly flat or smooth. setting is usually done on properly samrned leather either by hand or by machine, the set leather being then hung up for drying.

ES 1180:2021**2.302.****shoe upper**

a leather used for making the upper part of a shoe.

2.303.**shoulder**

the part of the hide between the fore shanks and the head.

2.304.**shoulder hide**

the portion of a cattle hide covering the shoulders and neck of the animal together with the two checks of the animal and leather made there from

2.305.**shrinkage temperature**

a temperature at which measurable shrinkage occurs when a strip of leather is gradually heated in water.

2.306.**side**

one half of the hide cut along the backbone.

2.307.**side leather**

leather made from cattle hide sides.

2.308.**siding**

corduroying.

2.309.**skin**

the outer covering of the smaller animal such as sheep goats, pigs, reptiles, birds and fishes, etc.

2.310.**snuffing**

the process of lightly buffing the grain of leather usually done by the buffing machine (see also 'buffing').

2.311.**soaking**

a pre-tanning process in which hides and skins, with the hair still on, are immersed in a pit called soak pit containing soak liquor with the object of removing surface dirt, curing materials and other impurities, etc. in the case of dried hides, the object of soaking is also to soften the stock to its original pliability.

2.312.**soaking agents**

chemicals used for making the dry hides absorb moisture from soak liquor and hasten their softening. they are also known as wetting agents.

2.313.**soak liquor**

liquor used for soaking hides and skins usually with some softening agent, with or without a preservative.

2.314.**soak pit**

pits in which hides and skins are soaked.

2.315.**soak lining**

the piece of leather lining which is put on the insole inside the shoe.

2.316.**sodium hydrosulphide**

a sharpening agent used in liming; it is just as effective, but less caustic in its action than sodium sulphide solution.

2.317.

sodium sulphhydrate

same as sodium hydrosulphide.

2.318.

solvent fatliquoring

fatliquoring with an emulsion of water in oil dissolved in a solvent like kerosene.

2.319.

solvent resistance

resistance to organic solvent extraction; very much desirable in respect of garment leathers as they are subjected frequently to dry cleaning.

2.320.

solvent extractable substance

fats and other soluble matter which can be extracted from leather with dichloromethane or other suitable solvents.

2.321.

sole leather

vegetable or leather combination tanned cattle hide used for soles of boots and shoes.

2.322.

split

the under layer of a hide or skin or part of a hide or skin separated by splitting, other than the grain or hair side.

2.323.

splitting

dividing or cutting leather, hides and skins into thin pieces along a horizontal plane, cutting a hide vertically with a knife into sides, bends, bellies, etc, is also called splitting.

2.324.

sponging

washing the grain surface of the sole leather with an emulsion of kerosene oil and waxes preparatory to rolling.

2.325.

spray drying

drying substances in solution by spraying in a current of hot air which evaporates the water and leaves the solid in the form of a fine powder. special spray drying apparatus is nowadays manufactured and considerably used in the manufacture of spray dried tanning extracts in powder form.

2.326.

spray dyeing

the process of dyeing leather by spraying the dye solution through a spraying apparatus with the help of compressed air.

2.327.

staking

flexing leather to separate fibres sticking together and thus to make it softer.

2.328.

stretch of leather

the percentage increase in length of a strip of leather upon the application of a given pull per unit area of cross section of the strip.

2.329.

stuffing

impregnation of grease, wax and fat and other conditioners into leather to make it pliable and somewhat water resisting.

2.330.

staking

flexing leather to separate fibers sticking together and thus to make it softer.

2.331.

suede leather

leathers in which the fibres on the flesh side are cut very short by means of buffing or fluffing wheels so as to present a velvety appearance.

2.332.

sulphate total ash

the residue left from burning leather in an open crucible at 800 +25 0c after sulphating.

2.333.

sulphated oils

self-emulsifying oils. the sulphato (SO_3H) groups linked to the carbon of the oil through a mediating 'O' are the emulsifier part. the emulsifying group can split off in the presence of acids and hence is not acid-stable.

2.334.

sulphited oil

self-emulsifying oils, carrying the sulphonic acid groups — SO_3H as the emulsifying part. since in this group the sulphur atom is directly attached to carbon of the oil, the anionic fatliquors made thereof are resistant to both acid and salt and hence can be introduced along with pickle itself to prevent sticking together of the separated fibres; can hold more neutral oil; their increased molecular size enables them to lubricate better and produce smoother and softer chrome leathers; when used in very large amounts make leather heavy and looser.

2.335.

sulphated neatsfoot oil

neatsfoot oil which has been treated with sulphuric acid and subsequently washed.

2.336.

swelling

when hides and skins are immersed in an alkaline or acid solution, for example, in lime liquor or sour tan liquor, they swell causing an increase in their thickness and weight. the swelling due to the absorption of water is induced by alkalis and acids.

2.337.

syntan

a synthetic tanning agents (synthetic organic or polymers or their derivatives) capable of converting pelts into leather, or used in combination with tanning materials as auxiliary.

2.338.

tacking

stretching out leather by nailing it on wooden board or frame, under strain round its edges, to dry and increase the area of the leather and to make the surface smooth.

2.339.

tanning

a process of treating putrescible hides and skins with tanning agents so as to convert the former into imputrescible leather.

2.340.

tannage, hemlock

tannage with hemlock bark (see also 'hemlock, leather').

2.341.

tannage, iron

tannage with iron salts.

2.342.

tannage, kanpur

full tanned hides manufactured at kanpur by the use of babul bark and myrobalans.

2.343.

tannage, light

refers to those leathers which have assumed a pale colour after vegetable tanning.

2.344.

tannage, aldehyde

principally the same as 'formaldehyde tannage'. other aldehydes can also be used but are not commercially used.

2.345.

tannery effluents

the tannery spent liquors which include amongst others lime, bate and tan liquors.

2.346.

tannins

water soluble polyphenolic organic compounds of vegetable origin feebly acidic in reaction and astringent in taste which combine with the proteins (collagen) of the otherwise putrescible hides and skins and so produce the putrescible leather.

2.347.

tear strength

the load in kilograms required to tear a leather having a thickness of one centimetre.

2.348.

toggling

stretching out a piece of damp leather and holding it in place for drying in a smooth and stretched condition by means of toggles set in slots in a metal frame

2.349.

tawing

the dressing skins and hides with alum, salt and other materials instead of tannins.

2.350.

tensile strength

the force per unit of the original cross-sectional area of the unstretched test piece which is applied at the time of rupture of the test piece. it is calculated by dividing the breaking force in kg by the cross-sectional area of the test piece in cm^2 .

2.351.

tick marks

defects on the grain of a hide or skin caused by the parasitic insect tick (in some cases the mark becomes so deep that it shows on the test piece in cm^2).

2.352.

trim

production of a good pattern by cutting the edges of hides neatly, evenly and symmetrically and by separating the parts which are not useful to tanners, such as heads, shanks, tails, etc.

2.353.

trimming

the removal of parts of a raw hide or skin not suitable for making leather, such as portions from the outer edges of heads, shanks and bellies.

2.354.

upholstery leather

leather made for covering cushions of furniture, carriages and automobiles and extended to include the materials going into the sides and tops of vehicles. made of large coarse grained goatskins and more generally of spready cattle and horse hides split at least once and in many cases twice or thrice. the top or grain cuts go into the higher grades and the splits into the cheaper.

2.355.

upper leather

leather for making upper part of boots and shoes usually manufactured from calfskins, goatskins, cattle hides or horse hides.

2.356.

upper leather, chrome

a side of a chrome tanned leather used for shoe uppers.

2.357.

vacuum drying

drying with heat and pressure reduced by about 28" to 29" of mercury, enough to make water boil at 12 to 18°C and a temperature of 140 to 200°F on the hot plate. greater area yield, better streamlining production flow and better suitability to grain leathers than paste drying, similarly shorter duration of drying and tight break are some distinct advantages. disadvantages are loss in thickness, requiring more uniform neutralization throughout the thickness and migration of dyes and neutral oils. more of neutral oil has to be used to compensate for the loss due to migration and to prevent the consequent dry feel. sulphated oils are better than sulfonated oils for use in leathers to be dried by the vacuum drying method. of the two variations, straight through and vacuum crusting, the latter is better. vacuum drying is the third major method of drying, introduced around 1962. originally designed for fill drying, it is now used for partial drying to set the grain to be followed by a slower air-drying.

2.358.

vegetable tanning

the conversion of a raw hides into leather by treating with water solutions of tannin extracted from materials of vegetable origin.

2.359.

volatile matter

the mass lost by the leather when dried at $102 \pm 2^\circ\text{C}$ to constant mass.

2.360.

wash leather

chamois leather made of goat or sheepskin used for dusting, polishing and cleaning.

2.361.

water absorption

the gain in weight of the test piece as a percentage of its conditioned weight prior to test for each hour of test or for such periods as may be specified.

2.362.

water absorption

the gain in mass of the test piece as a percentage of its conditioned mass prior to test either for each 2 or 24 hour of test periods.

2.363.

water in soluble ash

the quantity of all those substances which under certain conditions are leached out of leather by water (these are principally organic tannins, non-tannins and mineral salts).

2.364.

wet blue

hides or skins that have been chrome tanned but not fat liquored and not dried.

2.365.

wet salting

green salting.

2.366.

wrinkle (1)

defect appearing on the grain side of sheepskin after removal of the wool and tanning, in the form of fine ridges perpendicular to the backbone. on the flesh-side of woolled skins, it could also appear in the form of ridges perpendicular to the backbone, but very much deeper. this defect is caused by folds in the skin of the living animal and is mostly encountered in rams.

2.367.

wrinkle (2)

a permanent crease or furrow on the grain surface of a hide or leather, incapable of removal by rolling or plating.

2.368.

zinc chloride

much used in curing raw hides, being applied as a 3 to 5 per cent solution on the flesh side of wet-salted hide specially during their transit in summer. its use prevents hair slip to a remarkable degree.

2.369.

zinc white

zinc oxide used as a white pigment in the manufacture of white pigment finish for leather.

2.370.

zirconium

a rare earth metal some salts of which have tanning properties specially the basic sulphate.

2.371.

zirconium tannage

the process (which has been recently developed) of tanning with basic zirconium sulphate for producing white leather.

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.

ESA has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of ESA.

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).

More Information?

Contact us at the following address.

The Head Office of ESA is at Addis Ababa.

☎ 011- 646 06 85, 011- 646 05 65

☎ 011-646 08 80

✉ 2310 Addis Ababa, Ethiopia

E-mail: info@ethiostandards.org,

Website: www.ethiostandards.org



Standard Mark