BOSTON LEATHER GUILD

Leather Production Glossary

From Raw Hide to Finished Article

Technical definitions, plain-language explanations, and practical examples for learning and teaching.

458 Defined Entries | 12 Stages | 62 Processes

Process-Order Reading Edition With an Alphabetical Index

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STAGE 01

Receiving and Inspection

A hide’s layers, natural markings, preservation, and recorded weight guide decisions throughout production. Receiving and inspection establish its condition and the information used to plan its processing.

L1-B | Unload & Receive

001. Hide

Technical Definition. The skin of a large animal, especially mature cattle or buffalo, considered as a raw material or, with a qualifier, as processed leather. Trade usage distinguishes hides from the skins of smaller animals and young animals.

In Plain Language. This is the large biological sheet the tannery receives. It varies in thickness, fiber structure, outline, and condition across its area, so processing and cutting must accommodate that variation.

Example. A tannery receives a salted cattle hide and later sells two finished sides made from it.

See Also: Skin; Side; Raw Hide.

002. Skin

Technical Definition. In leather terminology, the covering of a smaller animal, such as a goat or sheep, or a young animal such as a calf. Species and age conventions vary between trades.

In Plain Language. A goatskin and a cattle hide can both become leather, but their size, natural markings, grease content, and fiber structure make them different starting materials.

Example. A small bag may use goatskin panels, while a large upholstery panel may require a whole cattle hide.

See Also: Hide; Calfskin.

003. Bovine

Technical Definition. Relating to cattle and closely related animals. In a leather specification, the word identifies a zoological material category; it does not identify the tanning system, thickness, surface finish, or commercial grade.

In Plain Language. Read bovine as a statement about the animal source. More information is needed to know whether the leather is suitable for a flexible wallet or a stiff belt.

Example. Bovine suede and bovine sole leather can share an animal category while following very different production routes.

See Also: Article; Tannage.

004. Calfskin

Technical Definition. Skin from a young bovine animal, valued for a relatively fine grain and fiber structure. Commercial boundaries between calf and larger young-cattle categories depend on the trade and specification.

In Plain Language. Calf describes the starting skin. Its finished softness, strength, color, and surface still depend on what the tannery does with it.

Example. A smooth calf dress shoe and an embossed calf handbag can begin with the same broad raw-material class.

See Also: Kip; Grain.

005. Kip

Technical Definition. A trade category for skins or light hides of cattle intermediate between small calfskins and mature heavy hides. Weight and age boundaries are regional and commercial rather than one universal biological cutoff.

In Plain Language. Kip is useful purchasing vocabulary, but it needs a supplier specification. The word alone gives less precision than an actual size, weight range, and finished thickness.

Example. A buyer requests kip leather and also specifies the area range and substance required for shoe uppers.

See Also: Calfskin; Substance.

006. Raw Hide

Technical Definition. A hide that has not been tanned, including material treated only for temporary preservation by chilling, salt, drying, or another cure.

In Plain Language. A preserved hide is still waiting to become leather. Salt can keep it usable during transport without giving it the durable wet and dry behavior of a tanned material.

Example. A wet-salted hide on the receiving pallet is raw hide even though it has already been chemically preserved.

See Also: Rawhide; Curing (Preservation); Tanning.

007. Rawhide

Technical Definition. An untanned hide or skin prepared and dried as a material, commonly after removing hair and flesh. The single-word product name is distinct from the broad receiving category raw hide.

In Plain Language. Rawhide can become hard and rigid when dry and can change markedly when wetted. Its usefulness comes from those properties, not from a completed tannage.

Example. A rawhide drumhead and a leather bag panel use animal skin in different material states.

See Also: Raw Hide; Parchment.

008. Leather

Technical Definition. Animal hide or skin whose original fibrous structure is substantially retained and whose collagen has been stabilized by tanning. Formal material descriptions further distinguish surface coatings and reconstituted fiber products. [01] [34]

In Plain Language. Leather is the hide structure transformed into a usable, more stable material. The word covers many different levels of firmness, thickness, color, texture, and resistance. Formal material definitions also set limits on coatings and require qualifications for splits; use those distinctions when specifying a product.

Example. A pale wet-blue side is already leather, although it still needs substantial processing before it can become a finished bag article.

See Also: Tanning; Wet Blue; Bonded Leather.

009. Collagen

Technical Definition. The principal structural protein of the dermis, organized into molecules, fibrils, fibers, and interwoven fiber bundles. Its organized network provides the main framework that tanning preserves and modifies.

In Plain Language. Think of a dense, irregular network of tiny ropes. Leather making cleans around that network, stabilizes it, lubricates it, and changes how freely its parts can move.

Example. Staking softens dried leather by changing movement within its collagen fiber network.

See Also: Dermis; Fiber Bundle; Tanning.

010. Fiber Bundle

Technical Definition. An assembly of collagen fibers within the dermis. Bundle size, orientation, interweaving, and separation affect strength, stretch, fullness, and the response to mechanical and chemical processing.

In Plain Language. The hide is structured at several scales. A bundle is a larger grouping of its small structural fibers, and the packing of those groupings varies across the animal.

Example. A looser belly structure can stretch more during cutting and assembly than the compact central back.

See Also: Collagen; Belly; Opening Up.

011. Epidermis

Technical Definition. The outer epithelial layer of skin, lying above the dermis. In ordinary hair-off leather manufacture, it is removed during beamhouse preparation together with associated unwanted surface material.

In Plain Language. The animal’s outermost skin layer is not the layer retained as the familiar leather grain. The leather surface comes from the prepared dermis beneath it.

Example. Unhairing and liming remove epidermal material to reveal the grain surface.

See Also: Dermis; Grain; Unhairing.

012. Dermis

Technical Definition. The collagen-rich connective-tissue layer beneath the epidermis, conventionally described as a finer papillary region above a coarser reticular region. It supplies the main leather-forming structure.

In Plain Language. This is the substantial layer the tannery is trying to preserve and improve. Removing flesh underneath and unwanted tissues above exposes it for controlled processing.

Example. Both a grain split and a flesh split can contain dermal tissue and become leather.

See Also: Papillary Layer; Reticular Layer; Flesh Split.

013. Papillary Layer

Technical Definition. The outer region of the dermis associated with fine collagen structure, hair follicles, and glands. Its relationship to the coarser structure beneath influences grain tightness and break.

In Plain Language. This is the fine upper region important to the visible face of grain leather. Its attachment and support matter when the leather is bent.

Example. Weak support between the upper and lower structure can contribute to a loose, coarse-looking fold.

See Also: Reticular Layer; Loose Grain; Break.

014. Reticular Layer

Technical Definition. The deeper dermal region containing a coarser, strongly interwoven collagen-bundle network. Much of the thickness and mechanical support of a heavy cattle hide lies in this region.

In Plain Language. This is the substantial supporting body beneath the fine surface region. Some of it can be separated as a usable split during thickness reduction.

Example. A thick hide can supply an upper grain layer and a lower split suitable for a suede article.

See Also: Dermis; Splitting; Suede.

015. Grain

Technical Definition. The outer surface and associated upper structure of prepared leather after hair and epidermal removal, carrying species-specific follicle features. The word is also used commercially for visible surface texture.

In Plain Language. Ask whether grain means the biological surface or the pattern you can see. A pattern may be natural, accentuated by milling, or impressed by a machine.

Example. Scotch grain describes an embossed texture; full grain describes preservation of the original grain surface.

See Also: Full Grain; Grain Pattern; Scotch Grain.

016. Flesh Side

Technical Definition. The inner face of a hide, skin, or leather, originally facing the animal’s body. After fleshing, splitting, or shaving, its exposed structure depends on how much material has been removed.

In Plain Language. This is usually the more fibrous underside of a grain leather. It can be shaved, lined, coated, or deliberately presented as the outside of a product.

Example. A roughout boot displays the flesh face of a grain-bearing leather.

See Also: Fleshing; Roughout; Flesh Split.

017. Hair Follicle

Technical Definition. The skin structure in which a hair grows. After suitable hair removal and preparation, follicle openings contribute to the characteristic surface pattern of many leathers.

In Plain Language. Some of the tiny features visible in natural grain are traces of where hairs grew. Their arrangement can help an expert interpret the surface, though finishing may obscure it.

Example. A transparent finish can leave follicle detail visible under magnification.

See Also: Grain; Grain Pattern; Aniline Leather.

018. Curing (Preservation)

Technical Definition. Temporary preservation of raw hides or skins to limit microbial deterioration before processing. Common methods include chilling, salting, brining, drying, and combinations of these.

In Plain Language. Curing buys transport and storage time. Its method determines what the tannery must remove or reverse during soaking.

Example. A dried hide requires restoration of lost water, while a salted hide also needs removal of its cure salt.

See Also: Wet-Salted; Brined; Air-Dried Hide.

019. Fresh Hide

Technical Definition. An untanned hide processed soon after removal from the animal, without a substantial long-term preservation treatment. Its useful handling interval depends on temperature, cleanliness, and elapsed time.

In Plain Language. Fresh stock can enter the tannery with much of its original water still present. It still needs cleaning and prompt handling because it deteriorates readily.

Example. A nearby slaughterhouse supplies hides for same-day processing under a controlled receiving schedule.

See Also: Chilled Hide; Putrefaction.

020. Chilled Hide

Technical Definition. Raw hide preserved temporarily by controlled refrigeration to slow microbial and enzymatic deterioration. The preservation depends on maintaining the required conditions through handling and transport.

In Plain Language. Cooling slows spoilage while leaving the hide untanned. A broken cold chain can change the condition of the material before it reaches the drum.

Example. Receiving staff check the preservation record of a refrigerated delivery before selecting its soak route.

See Also: Fresh Hide; Curing (Preservation); Traceability.

021. Wet-Salted

Technical Definition. A preservation condition produced by applying substantial sodium chloride to a moist raw hide, allowing salt uptake and drainage while the material remains damp.

In Plain Language. Salt helps suppress deterioration, but some remains on and inside the hide. Loose crystals can be shaken off; dissolved salt must leave during washing and soaking.

Example. The simulator sends wet-salted stock through Desalt before Soak & Wash.

See Also: Desalting; Brined; Sodium Chloride.

022. Brined

Technical Definition. Preserved by exposure to a concentrated aqueous salt solution. Brining distributes salt through the raw material without relying solely on dry salt applied to its surface.

In Plain Language. The hide arrives salt-preserved but may have little loose salt to shake off. It still needs washing and appropriate rehydration before further processing.

Example. A brined delivery can bypass mechanical desalting while retaining a distinct soaking program.

See Also: Wet-Salted; Soaking; Curing (Preservation).

023. Air-Dried Hide

Technical Definition. Raw hide preserved by removing water through air drying. Drying reduces conditions favorable to deterioration but may introduce damage if temperature, handling, or drying rate is unsuitable.

In Plain Language. This is dry raw material, not crust leather. It must regain water evenly before strong mechanical or chemical work can proceed.

Example. A stiff dried hide receives an extended soak so its thick regions become pliable.

See Also: Rawhide; Crust; Rehydration.

024. Salt-Dried Hide

Technical Definition. Raw hide preserved through a combination of salting and drying. The incoming material therefore carries both a dehydration history and a salt load.

In Plain Language. Two preparation problems have to be addressed: restore water and remove salt. Its treatment cannot be inferred from a simple fresh-versus-salted distinction.

Example. A salt-dried hide is assessed for hard areas and residual salt during soak completion.

See Also: Air-Dried Hide; Wet-Salted; Soak Completion.

025. Lot

Technical Definition. An identified quantity of material grouped for receipt, traceability, manufacture, grading, or sale. A lot's boundaries need not coincide with one machine load.

In Plain Language. A lot is a recordkeeping group. A batch is the group treated together in a particular operation, and material can be regrouped as production proceeds.

Example. One received lot is divided into several drum batches while retaining its supplier identity.

See Also: Batch; Traceability; Shade Lot.

026. Traceability

Technical Definition. The ability to connect a piece or group of material with recorded origins, transformations, transfers, and destinations through the supply chain. [01]

In Plain Language. It is the paper or digital trail that explains where the leather came from and what happened to it. Its resolution can be individual-piece, batch, or another declared level.

Example. After splitting, both descendants retain a link to their original hide and production lot.

See Also: Lot; Side; Flesh Split.

L1-C | Inspect & Sort

027. Article

Technical Definition. A defined type of finished leather made to a particular combination of appearance, handle, thickness, and performance requirements. In tannery usage, article commonly means a leather specification rather than the completed consumer object.

In Plain Language. The tannery is designing a material for a purpose. Two articles can start as similar wet blue and become very different products through retanning and finishing.

Example. A soft upholstery article and a firm handbag article require different property balances.

See Also: Retanning; Handle; Specification.

028. Flay Cut

Technical Definition. A cut introduced during removal of the skin from the carcass. It may penetrate fully or partly through the leather-forming structure and reduce usable area or strength.

In Plain Language. This is knife damage from the earliest handling stage. Later finishing may hide its appearance without restoring the removed structural fibers.

Example. A cutter positions a long strap away from a deep flay cut on the flesh face.

See Also: Score; Cutting Yield.

029. Score

Technical Definition. A partial-depth incision or groove in a hide or leather, often associated with flaying or mechanical processing. Its seriousness depends on depth, position, and the intended product.

In Plain Language. A score may look less dramatic than a hole but can weaken a narrow component. Its effect is judged against the actual cut pattern.

Example. A shallow score acceptable in a hidden panel may be unacceptable across a load-bearing strap.

See Also: Flay Cut; Conformance.

030. Brand

Technical Definition. A permanent identification mark formed in the animal's skin, usually through a branding process, which remains as altered tissue in the hide and may remain visible in leather.

In Plain Language. The mark is part of the material's history. It can reduce the area available for an unmarked panel or be deliberately incorporated into a design.

Example. A bag maker places a visible cattle brand in a decorative front panel after agreeing that appearance with the customer.

See Also: Scar; Commercial Grade.

031. Scar

Technical Definition. Healed injury in the animal's skin, with local changes to tissue structure and surface appearance. Its consequences depend on depth, healing, location, and end-use requirements.

In Plain Language. Scars are not all equivalent. Some mainly affect appearance; others affect strength or flexibility and need more careful placement.

Example. An inspector distinguishes a smooth healed scratch from a deep scar crossing a proposed belt strip.

See Also: Brand; Cutting Yield.

032. Hair Slip

Technical Definition. Premature loosening or loss of hair from raw hide, often associated with microbial or enzymatic deterioration of follicular and surrounding tissues before controlled unhairing.

In Plain Language. Hair coming away too easily at receiving can signal preservation damage. Removing all the hair later does not erase the structural damage that may already have occurred.

Example. A patch with hair slip is investigated before the hide is accepted for a clear-grain article.

See Also: Putrefaction; Unhairing.

033. Red Heat

Technical Definition. A trade term for reddish discoloration associated with salt-tolerant microorganisms on salted hides. The color is a preservation defect and does not refer to thermal heating of the material.

In Plain Language. Salted hides can still support certain organisms. A reddish patch therefore needs investigation even when the shipment appears adequately salted.

Example. Receiving staff hold a salted pack showing red discoloration for closer condition assessment.

See Also: Curing (Preservation); Putrefaction.

034. Putrefaction

Technical Definition. Microbial decomposition of raw skin constituents, potentially including damage to the collagen structure. It can cause odor, discoloration, hair slip, weakened grain, and irreversible loss of usable material.

In Plain Language. This is spoilage. Tanning can stabilize sound hide but cannot rebuild fibers that have already been destroyed.

Example. A severely deteriorated patch is removed or the hide rejected instead of being treated as a routine soak extension.

See Also: Hair Slip; Curing (Preservation).

035. Salt Stain

Technical Definition. Discoloration or surface marking associated with salted preservation, including effects of salt quality, contamination, storage, and interactions with hide constituents. The name alone does not establish one chemical cause.

In Plain Language. It is a defect category that calls for diagnosis. Similar-looking marks may have different causes and different consequences for transparent finishing.

Example. An inspector sets aside a stained hide from an otherwise clear lot intended for pale aniline leather.

See Also: Wet-Salted; Aniline Leather.

L1-D | Trim & Weigh

036. Trimming

Technical Definition. Removal of unwanted peripheral portions, damaged regions, or irregular projections from hides or leather. It occurs at several stages and changes the usable outline and recorded material quantity.

In Plain Language. The tannery cuts away material that should not continue in the same product stream. Early trimming and final trimming serve different material states.

Example. Raw edge pieces are removed before weighing; unsuitable finished fringes are removed before final area measurement.

See Also: Final Trim; By-Product.

037. Recipe Weight

Technical Definition. The specified mass basis against which water and chemical additions are calculated, such as salted weight, limed-pelt weight, or shaved weight. The stage and moisture state are part of the definition.

In Plain Language. A percentage has meaning only when its denominator is stated. The same hide weighs differently after salt removal, splitting, shaving, and drying.

Example. A 5 percent offer on 200 kilograms of shaved leather means 10 kilograms of the specified product.

See Also: Chemical Offer; Shaved Weight; Float.

038. Chemical Offer

Technical Definition. The amount of a process product introduced, usually expressed as a percentage of a stated material weight. Commercial-product offer and active-ingredient offer are different quantities.

In Plain Language. Offer tells you what was put in, not how much became fixed in the leather. A diluted product also cannot be compared directly with a concentrated one by weight alone. Here offer is established process terminology for dosage, even when no purchase or sales quotation is involved.

Example. Two products each offered at 4 percent may supply different amounts of active material.

See Also: Recipe Weight; Exhaustion; Fixation.

039. By-Product

Technical Definition. A secondary output of an operation that may have a useful destination, subject to its composition, quality, handling, and applicable controls. Whether a stream has value depends on the actual receiving market and use.

In Plain Language. Hair, fleshings, and splits do not have the same composition or the same possible uses. Calling something a by-product does not establish that it can be reused safely or economically.

Example. An intact flesh split may become suede, while chemically contaminated fine shavings need a different management route.

See Also: Fleshings; Shavings; Split Leather.

STAGE 02

Preservation Removal and Soaking

Soaking cleans and rehydrates preserved hides for the wet processes that follow. This stage introduces process baths, equipment, and the chemistry used to control treatment.

L2-B | Desalt

040. Desalting

Technical Definition. Mechanical separation of loose preservation salt from raw hides before soaking, commonly by shaking or tumbling through perforated equipment. Salt dissolved within the hide remains to be removed in the wet process.

In Plain Language. The machine removes the crystals it can physically dislodge. It reduces the load entering the soak without completing desalination.

Example. A wet-salted pack is tumbled in a perforated drum and loose salt is collected below.

See Also: Wet-Salted; Soaking.

041. Sodium Chloride

Technical Definition. The salt NaCl, used in raw-hide preservation and in conventional pickling systems for control of acid swelling. Its function depends on concentration and process context.

In Plain Language. The same chemical can do different jobs at different stages. Salt that arrives as a preservative is removed; salt may later be deliberately added for a specific pickle.

Example. Desalting and adding pickle salt are compatible operations because they serve different stages.

See Also: Curing (Preservation); Pickling; Acid Swelling.

L2-C | Soak & Wash

042. Soaking

Technical Definition. Controlled washing and rehydration of raw hides or skins to remove preservation residues and soluble contaminants and prepare the structure for subsequent beamhouse work.

In Plain Language. The aim is an evenly wetted, sufficiently clean hide. A surface that feels wet can conceal a hard interior, particularly in previously dried material.

Example. The operator extends a soak when the thick neck region remains insufficiently pliable.

See Also: Rehydration; Soak Completion.

043. Dirt Soak

Technical Definition. An initial washing or soaking phase directed primarily at removing surface dirt, blood, loose salt, and other readily removable contamination before the main rehydration stage.

In Plain Language. This first wash prevents heavily soiled water from becoming the principal working bath. Its details depend on the incoming condition and water-management system.

Example. The tannery drains a heavily contaminated first wash before beginning the main soak.

See Also: Main Soak; Float.

044. Main Soak

Technical Definition. The principal soaking stage in which water uptake and internal equalization prepare the hide for the next operation. It may follow a separate dirt soak and include suitable auxiliaries.

In Plain Language. This is where the tannery concentrates on getting the whole thickness ready. Time alone is an incomplete measure of success.

Example. Salted hides receive a main soak followed by checks for even flexibility and residual hard areas.

See Also: Dirt Soak; Rehydration.

045. Rehydration

Technical Definition. Restoration of water to a material that has lost moisture, including renewed water distribution within the hide’s fibrous structure. Its rate depends on thickness, prior drying, chemistry, and mechanical action.

In Plain Language. Water has to reach the interior, not merely wet the outside. Uneven restoration can make later chemical treatment uneven too.

Example. A dried edge softens before a dense central region, so the batch is checked across several locations.

See Also: Soaking; Diffusion; Wet Back.

046. Float

Technical Definition. The liquid bath in a wet process, or its quantity relative to a specified material weight. A float percentage normally expresses added water mass as a percentage of that weight basis.

In Plain Language. Float describes the bath around the hides. Always ask which weight basis is being used, since the bath changes concentration and mechanical action. This is established tannery terminology for the bath or its proportion; it does not describe whether the hides float on the surface.

Example. A 100 percent float on 200 kilograms of material means 200 kilograms of water before other additions.

See Also: Short Float; Recipe Weight; Liquor.

047. Short Float

Technical Definition. A wet-process bath using a relatively low water-to-material ratio for the operation concerned. There is no single percentage that defines short float across every stage.

In Plain Language. Less surrounding water can increase chemical concentration and change how the drum works the hides. It needs a recipe and load arrangement designed for that condition.

Example. A short-float tanning recipe is not reproduced simply by removing water from a different established process.

See Also: Float; Mechanical Action.

048. Liquor

Technical Definition. The process liquid containing dissolved or dispersed chemicals and materials released from the hides. Terms such as soak liquor, lime liquor, and tanning liquor identify its process role.

In Plain Language. Liquor is tannery language for the working bath. Its composition evolves as products are added and the hide releases or absorbs substances.

Example. Spent tanning liquor contains whatever tanning material and other constituents remain after treatment.

See Also: Float; Spent Float.

049. Drum

Technical Definition. A rotating vessel that holds hides or leather with process liquor, using mechanical action to promote movement, exchange, and treatment. Drums differ in geometry, loading, materials, controls, and purpose.

In Plain Language. Several named chemical steps can happen in the same drum. The process name changes when the treatment changes even if the hides never move to another machine.

Example. Neutralization, retanning, dyeing, and fatliquoring can form a sequence within one assigned wet-end drum.

See Also: Batch; Mechanical Action; Dry Milling.

050. Paddle

Technical Definition. A vessel in which a rotating paddle wheel moves the process liquor and material. Its mode of agitation differs from lifting and dropping a load within a rotating drum.

In Plain Language. A paddle gives another way to move skins through a bath. Vessel choice responds to species, delicacy, load size, and the treatment required.

Example. A tannery uses a paddle for a group of skins requiring a particular handling action.

See Also: Drum; Mechanical Action.

051. Mechanical Action

Technical Definition. The movement, flexing, rubbing, lifting, and compression imparted by equipment during treatment. It influences mass transfer, chemical distribution, fiber opening, and the risk of damage.

In Plain Language. The machine's motion is part of the recipe. Matching water and chemicals while changing load size or rotation can change the result.

Example. A heavily loaded drum and a lightly loaded drum can work otherwise similar hides differently.

See Also: Drum; Float; False Back.

052. Batch

Technical Definition. A quantity of compatible material processed together under one defined operation or treatment program. A batch commonly shares a vessel and a sequence of chemical and mechanical conditions.

In Plain Language. These are the pieces being treated together now. They need compatible requirements because they share the same bath and running conditions.

Example. A tannery separates articles needing different shades into different dye batches.

See Also: Lot; Drum; Shade Lot.

053. pH

Technical Definition. A logarithmic measure of hydrogen-ion activity used to describe acidity and alkalinity. Leather processing must distinguish bath pH, internal pH, and the method used to measure either.

In Plain Language. Small numerical changes can represent large chemical changes. A reading from the drum liquor does not prove that the center of a thick hide has reached the same condition.

Example. A suitable bath pH is accompanied by a cross-section check before the next chemical stage.

See Also: Buffer; Cross-Section Check; Neutralization.

054. Alkali

Technical Definition. A substance that produces or maintains alkaline conditions in water. In leather processing, different alkalis vary in solubility, reaction rate, buffering behavior, and other chemical effects.

In Plain Language. Alkali is a functional family, not an interchangeable ingredient. Lime and bicarbonate raise pH under very different working conditions.

Example. Lime supports strongly alkaline beamhouse work, while bicarbonate may be used for gentler pH adjustment later.

See Also: Lime; Sodium Bicarbonate; pH.

055. Surfactant

Technical Definition. A surface-active substance that alters interfacial behavior between water, oils, solids, or air. Depending on its chemistry, it can promote wetting, detergency, emulsification, or dispersion.

In Plain Language. Surfactants help water interact with materials it otherwise wets poorly. Different products are selected for different jobs and chemical conditions.

Example. A soaking auxiliary helps water wet greasy regions of the raw hide more evenly.

See Also: Wetting Agent; Emulsion; Degreasing.

056. Wetting Agent

Technical Definition. An auxiliary selected to improve liquid spreading and penetration into a surface or porous material, commonly by reducing interfacial resistance through surfactant action.

In Plain Language. It helps the process liquid make contact with the material. It assists a controlled soak but does not substitute for sufficient water uptake and checking.

Example. A wetting agent helps a stored intermediate wet back evenly before drum dyeing.

See Also: Surfactant; Wet Back; Penetration.

057. Biocide

Technical Definition. An agent intended to control unwanted organisms in a material or process. Products differ in their target organisms, effective conditions, permitted uses, and compatibility with the recipe.

In Plain Language. A biocide manages biological growth during vulnerable stages. It cannot restore tissue already damaged by spoilage.

Example. A formulated soaking program includes microbial control for a warm, nutrient-rich bath.

See Also: Fungicide; Putrefaction.

058. Enzyme

Technical Definition. A biological catalyst, usually a protein, that accelerates particular chemical reactions. In leather making, selected enzymes act on specified skin constituents under controlled pH and temperature conditions.

In Plain Language. An enzyme is a selective processing tool whose effect depends on the whole operating environment. Different enzyme preparations do different work.

Example. An enzyme suitable for bating is chosen for that process, rather than assumed suitable for every soak.

See Also: Protease; Bating.

059. Non-Collagenous Proteins

Technical Definition. Skin proteins other than the collagen forming the principal leather framework, including soluble and globular constituents removed to varying degrees during beamhouse processing.

In Plain Language. Some material around the structural network needs to be removed so later chemicals can move through it and the leather can develop the intended flexibility.

Example. Soaking removes some soluble proteins, while later bating addresses additional residual material.

See Also: Collagen; Interfibrillary Material; Bating.

060. Interfibrillary Material

Technical Definition. Substances occupying spaces between collagen fibrils and fibers, including components of the skin's non-collagenous matrix. Controlled removal changes accessibility and movement within the structure.

In Plain Language. This is some of the material between the tiny structural elements. Removing an appropriate amount helps open the network without sacrificing its useful framework.

Example. Liming and bating contribute differently to the eventual openness and feel of the leather.

See Also: Opening Up; Non-Collagenous Proteins.

061. Water Hardness

Technical Definition. The concentration of hardness-producing dissolved ions, principally calcium and magnesium, in process water. These ions can interact with process chemicals and affect deposits and uniformity. [04]

In Plain Language. Water is an ingredient with its own chemistry. A recipe transferred to a tannery with different water may need adjustment.

Example. Calcium in hard water contributes to insoluble deposits when suitable fatty acids are present.

See Also: Calcium Soap; Sequestering Agent.

062. Diffusion

Technical Definition. Molecular transport driven by differences in chemical potential, often described practically as movement from higher toward lower concentration. In hides, structure, swelling, and binding influence effective transport.

In Plain Language. Chemicals need time to move into the thickness. If they bind very strongly at the outside, their progress inward may become uneven.

Example. A tanner promotes penetration before driving strong fixation of the tanning agent.

See Also: Penetration; Fixation; Case Hardening.

L2-D | Soak Completion

063. Soak Completion

Technical Definition. The process endpoint at which the hide has reached the cleanliness, salt removal, water uptake, and uniformity required by the following operation. Acceptance is raw-material and article specific.

In Plain Language. The clock is one input to the decision. The actual hide must be ready, including its thick and previously dry regions. The name identifies a simulator checkpoint; individual tanneries define the checks and acceptance criteria for their own stock.

Example. A batch that has run for its scheduled time receives an extension because some centers remain hard.

See Also: Rehydration; Cross-Section Check.

064. Quality Gate

Technical Definition. A defined decision point comparing material or process evidence with acceptance criteria before release, holding, rework, diversion, or rejection. The simulator represents several such operator decisions as nodes.

In Plain Language. It marks a question the operator must answer. It is not necessarily a separate machine or a single universal laboratory test.

Example. Soak Completion decides whether the batch is ready for liming; Finish Conformance assesses the developed article much later.

See Also: Conformance; Rework.

STAGE 03

Liming, Unhairing, and Fleshing

The beamhouse removes hair and attached tissue and opens the hide's fiber structure. Siding and splitting determine the shapes and layers that continue through production.

L3-B | Unhair & Lime

065. Beamhouse

Technical Definition. The group of preparatory operations that clean and prepare hides for tanning, commonly including soaking, unhairing, liming, fleshing, and related pelt preparation. Department boundaries vary between descriptions.

In Plain Language. The name comes from work historically done over a beam. In a modern tannery, much of it occurs in drums and powered machines.

Example. A defect introduced during beamhouse preparation may remain visible after excellent tanning and finishing.

See Also: Unhairing; Liming; Fleshing.

066. Unhairing

Technical Definition. Controlled removal of hair and associated surface structures from a hide or skin, using chemistry and mechanical separation or dissolution appropriate to the chosen route.

In Plain Language. The tannery decides whether to preserve the hair long enough to collect it or break it down into the bath. Hair-on articles follow a different preparation route.

Example. Hair-save unhairing releases hair so that a filter can collect it intact.

See Also: Hair-Save; Hair-Dissolve; Hair-On Leather.

067. Liming

Technical Definition. Strongly alkaline treatment, traditionally based on calcium hydroxide, that swells and opens the hide structure and removes selected non-collagenous constituents. It is commonly combined with sulfide unhairing.

In Plain Language. Liming changes the hide internally as well as helping prepare its surface. Its intensity influences the structure that later becomes the finished leather.

Example. A swollen limed pelt moves to fleshing and may be split before deliming.

See Also: Lime; Opening Up; Pelt.

068. Lime

Technical Definition. In conventional liming liquor, calcium hydroxide, Ca(OH)2, also called slaked or hydrated lime. It supplies alkalinity and affects swelling and structural preparation.

In Plain Language. The relevant material is a chemical ingredient with controlled purity and behavior. The word is not a general instruction to use any product sold as lime.

Example. Lime remaining in the pelt must be addressed during deliming before the selected tannage.

See Also: Deliming; Calcium Soap.

069. Sodium Sulfide

Technical Definition. A sulfide salt used as a reducing agent in conventional unhairing, attacking disulfide linkages in keratinous structures under alkaline conditions. Acidification of residual sulfide can generate hydrogen sulfide.

In Plain Language. It helps remove hair through chemistry different from lime's structural effects. Later pH changes require process controls because the chemical residues remain relevant.

Example. The tannery controls sulfide carryover before moving toward acidic preparation.

See Also: Keratin; Hydrogen Sulfide; Sodium Hydrosulfide.

070. Sodium Hydrosulfide

Technical Definition. The compound NaHS, also called sodium hydrogen sulfide, used in some unhairing systems. It supplies sulfide chemistry while affecting alkalinity and formulation differently from sodium sulfide.

In Plain Language. Related sulfur chemicals are not automatically interchangeable. The unhairing recipe is designed around the actual products and their active strengths.

Example. A technical recipe names both the unhairing chemical and its commercial concentration.

See Also: Sodium Sulfide; Chemical Offer.

071. Keratin

Technical Definition. A family of structural proteins prominent in hair and the epidermis, with disulfide bonding important to resistance and stability. Unhairing chemistry targets keratinous structures while preserving useful collagen.

In Plain Language. Hair and leather's main framework are made from different protein systems. That difference allows controlled hair removal while retaining the hide structure.

Example. A hair-dissolving bath degrades hair protein into the liquor.

See Also: Collagen; Disulfide Bond; Hair-Dissolve.

072. Disulfide Bond

Technical Definition. A sulfur-sulfur linkage between suitable protein groups, significant in the structural stability of keratin. Reducing chemistry can disrupt these linkages during unhairing.

In Plain Language. These are some of the chemical connections that help hair resist breakdown. The unhairing system changes them so hair can be removed.

Example. Sulfide chemistry attacks keratin’s sulfur linkages during a conventional hair-removal process.

See Also: Keratin; Sodium Sulfide.

073. Opening Up

Technical Definition. Controlled modification of the hide matrix and separation or increased accessibility of collagen structural elements during preparation. It involves swelling and removal of selected surrounding constituents.

In Plain Language. The aim is to make the structure accessible and able to develop the desired feel. More opening is not automatically better for every article. The phrase is technical tannery vocabulary for structural preparation, even though it sounds like an ordinary instruction to unfold something.

Example. A firm sole article and a soft garment article are prepared for different structural outcomes.

See Also: Liming; Bating; Fullness.

074. Swelling

Technical Definition. An increase in volume associated with water uptake and changes in the charged collagen network. Acids and alkalis can produce different swelling conditions, moderated by salts and process chemistry.

In Plain Language. A swollen pelt is not simply a wet hide. Its thickness, handling, and sensitivity to mechanical damage may have changed substantially.

Example. A lime-split thickness has to be interpreted in the swollen state rather than assumed to equal finished thickness.

See Also: Acid Swelling; Lime Splitting; Substance.

075. Hair-Save

Technical Definition. An unhairing route designed to release and recover hair substantially intact before prolonged chemical exposure dissolves it. Separation may be mechanical or integrated with a filtered drum circuit.

In Plain Language. The route makes a separable hair stream. Its usefulness depends on prompt recovery and the quality and destination of the collected material.

Example. A recirculating filter removes released hair while the drum continues the preparation program.

See Also: Hair Removal; Hair-Dissolve; By-Product.

076. Hair-Dissolve

Technical Definition. An unhairing route in which chemical treatment substantially degrades hair into the process liquor. It reduces the recoverable intact-hair stream and changes wastewater composition.

In Plain Language. The hair has not vanished. Much of its material has moved into the bath in degraded form and becomes part of the treatment burden.

Example. The simulator bypasses separate saved-hair recovery when the hair-dissolve route is selected.

See Also: Hair-Save; Spent Float.

077. Reliming

Technical Definition. Further liming after an initial unhairing or preparation stage to develop the structural opening, swelling, or other pelt properties required by the article.

In Plain Language. Removing hair and preparing the internal structure are related but separable jobs. A second controlled liming stage can address the latter.

Example. A hair-save system may recover hair early and then continue preparation through reliming.

See Also: Liming; Opening Up.

078. Pelt

Technical Definition. In the hair-off tannery sequence, a hide or skin prepared for tanning through removal of hair, epidermis, and flesh, with its precise chemical state specified separately. Fur trades also use pelt for hair-bearing skins.

In Plain Language. Pelt tells you that the material is prepared skin, but a qualifier is needed: limed, bated, and pickled pelts behave differently.

Example. The swollen limed pelt is still untanned when it reaches the splitting machine.

See Also: Pickled Pelt; Leather.

079. Hydrogen Sulfide

Technical Definition. The highly toxic gas H2S, which can be released when sulfide-containing process material encounters sufficiently acidic conditions. Its generation and containment are significant tannery process-control concerns. [06]

In Plain Language. The hazard links earlier unhairing chemistry with later pH reduction and wastewater handling. Smell is not a dependable safety indicator; engineered controls and established procedures are essential.

Example. A plant keeps incompatible acidic and sulfide-bearing streams under a controlled segregation and treatment system.

See Also: Sodium Sulfide; Deliming.

080. False Back

Technical Definition. A grain-damage defect associated with mechanical abrasion of swollen hides during liming, often presenting as an abnormal worn or roughened area. The term is also written false-back. [05]

In Plain Language. A mark visible near the end of manufacture may have begun as rubbing damage in the beamhouse. Drum loading and action therefore affect eventual surface quality.

Example. An investigation traces repeated grain scuffing to the handling of swollen material in the liming drum.

See Also: Mechanical Action; Swelling.

081. Glycosaminoglycans

Technical Definition. Long carbohydrate chains forming part of the skin's extracellular matrix, often associated with proteins. Their controlled removal contributes to structural preparation during beamhouse processing.

In Plain Language. These are among the matrix materials surrounding collagen. Their long name explains part of what opening up means chemically.

Example. A technical description of liming names glycosaminoglycan removal alongside other changes to the hide matrix.

See Also: Interfibrillary Material; Opening Up.

082. Saponification

Technical Definition. Alkaline hydrolysis of fats or oils that can generate fatty-acid salts and other products. It contributes to fat-related chemistry during suitable beamhouse conditions.

In Plain Language. Some natural fats are chemically changed, not merely washed away. The products can interact with calcium and create deposits.

Example. A discussion of liming links fat breakdown with possible calcium-soap formation.

See Also: Calcium Soap; Liming; Degreasing.

L3-C | Hair Removal

083. Hair Removal

Technical Definition. The physical separation stage for hair loosened during preparation, using scraping, pulling, machinery, screening, or filtration according to the route.

In Plain Language. In the simulator, this node specifically makes saved-hair recovery visible. The function may occur inside a circulation system rather than at a separate staffed machine.

Example. Released hair is screened from the liquor and collected as a distinct solid stream.

See Also: Hair-Save; Unhairing.

L3-D | Flesh

084. Fleshing

Technical Definition. Mechanical removal of adhering fat, muscle, connective tissue, and other unwanted material from the flesh side. It can occur at different preparation stages, which change the composition of the removed stream.

In Plain Language. The machine cleans the underside while preserving the leather-forming layer. It is a different task from dividing the useful hide into layers.

Example. A spiral-bladed cylinder removes attached tissue from a limed pelt before splitting.

See Also: Fleshings; Green Fleshing; Splitting.

085. Fleshings

Technical Definition. The mixed tissue and fat removed during fleshing. Its water content and chemical contamination depend on whether fleshing occurs before or after treatments such as liming.

In Plain Language. Fleshings are not split leather. They are the attached material removed while cleaning the underside, and their possible uses depend on their actual condition.

Example. Lime fleshings carry preparation chemicals that distinguish them from green fleshings.

See Also: Fleshing; Flesh Split; By-Product.

086. Green Fleshing

Technical Definition. Fleshing carried out on raw or soaked stock before liming. It removes attached tissue before that material acquires the chemical burden of a lime-sulfide bath.

In Plain Language. Green describes an early process position. The simulator uses lime fleshing as its reference, while real tanneries can place the operation differently.

Example. A tannery removes fat-bearing tissue before unhairing to support a particular recovery system.

See Also: Fleshing; Fleshings.

L3-E | Side or Keep Whole

087. Siding

Technical Definition. Longitudinal division of a whole hide approximately along the backbone into a left and a right side. It changes outline and handling size without separating thickness layers.

In Plain Language. Siding cuts the hide into two large pieces next to each other. Splitting separates layers through its thickness.

Example. One whole hide becomes two sides, each retaining grain and flesh faces.

See Also: Side; Splitting; Whole Hide.

088. Side

Technical Definition. Approximately one longitudinal half of a hide, produced by cutting along the backbone. A side may subsequently be split, shaved, trimmed, and finished.

In Plain Language. A side describes a cut shape. It does not tell you whether the surface is full grain, corrected, suede, or coated.

Example. A merchant sells a side of full-grain vegetable-tanned leather for belts and small goods.

See Also: Siding; Whole Hide; Full Grain.

089. Whole Hide

Technical Definition. A hide retained as one principal sheet rather than divided into left and right sides, subject to trimming of unwanted portions.

In Plain Language. Keeping the hide whole preserves broad continuous areas. That is useful when a product needs panels larger than a side can supply.

Example. A large chair panel may be cut from a whole upholstery hide.

See Also: Siding; Cutting Yield.

090. Butt

Technical Definition. A commercial cut centered on the rear and central back of a hide after removal of specified peripheral portions. Exact outlines and distinctions between butt, bend, and back vary by trade.

In Plain Language. It usually identifies a valuable, relatively compact part of the hide. A supplier’s cutting diagram is needed to know the actual boundaries.

Example. A maker orders a bridle butt and checks whether the quoted cut includes one or both sides of the backbone.

See Also: Bend; Back; Belly.

091. Bend

Technical Definition. A compact back-region cut used especially in heavy-leather trades, often a half-butt or comparable prime area. Its exact commercial boundaries require a supplier definition.

In Plain Language. The name points toward dense stock suitable for demanding components, but is not a universal geometric standard.

Example. A sole-leather buyer specifies a bend along with the required thickness and cutting outline.

See Also: Butt; Sole Leather.

092. Back

Technical Definition. A commercial hide cut generally retaining the dorsal region after belly removal. Whether shoulders remain and whether the piece is a single or double back depends on the supplier’s cutting convention.

In Plain Language. A back can offer long, useful cutting runs. Verify its diagram before calculating how many straps it will yield.

Example. A strap maker compares the usable length of a back with that of a shorter butt cut.

See Also: Butt; Shoulder; Cutting Yield.

093. Shoulder

Technical Definition. The front dorsal portion of a hide around the animal’s shoulder region, sold as a single or double shoulder under specified cutting conventions.

In Plain Language. Shoulders often show natural neck-related folds and differ from the rear back in shape and behavior. They can be useful stock when those characteristics suit the product.

Example. A leatherworker chooses a double shoulder for small goods and plans around its pronounced growth lines.

See Also: Back; Belly; Commercial Grade.

094. Belly

Technical Definition. The lower side or abdominal region of the hide, generally characterized by looser structure and greater directional stretch than the central dorsal region.

In Plain Language. Belly leather can be useful, but its stretch and unevenness affect placement. A large measured area does not guarantee the same structural behavior across the sheet.

Example. A maker reserves the firmer back for long straps and uses suitable belly portions for smaller, less demanding parts.

See Also: Fiber Bundle; Cutting Yield.

L3-F | Lime Split

095. Splitting

Technical Definition. Division of a hide or leather parallel to its surfaces into two or more layers, usually using a continuous band knife. It can occur in limed, wet-tanned, crust, or finished states.

In Plain Language. Splitting can make the upper leather thinner while preserving a second useful sheet underneath. The separated layers have different surface structures.

Example. A thick pelt produces a grain split and a flesh split that continue toward different articles.

See Also: Grain Split; Flesh Split; Shaving.

096. Lime Splitting

Technical Definition. Splitting performed on the swollen limed pelt before tanning. It reduces the thickness and mass entering later wet stages while producing layers for separate treatment.

In Plain Language. This is an early opportunity to separate useful layers. Since the material is swollen, final thickness still needs later control.

Example. The grain layer continues toward upper leather while a substantial lower layer is retained for a split article.

See Also: Deferred Splitting; Swelling.

097. Band Knife

Technical Definition. A continuous loop of sharpened steel running over wheels, used in splitting machines to cut parallel to the leather surface at a controlled position.

In Plain Language. The long moving blade makes a continuous layer cut. It works differently from the spiral cylinder that removes small shavings.

Example. Feed controls present a wet side evenly to the band knife so the retained grain layer has the intended substance.

See Also: Splitting; Shaving.

098. Grain Split

Technical Definition. The upper layer obtained by splitting a hide or skin, retaining the original grain surface. Its retained thickness and later surface treatment are separate specifications.

In Plain Language. The word split does not automatically mean the lower layer. Grain split explicitly means the upper sheet that still has the grain.

Example. A grain split may later be sold as full-grain leather if its grain surface is retained without corrective removal.

See Also: Flesh Split; Full Grain; Top Grain.

099. Flesh Split

Technical Definition. The inner layer separated below the grain-bearing layer during splitting. It lacks the original outer grain surface but can be tanned and developed into a useful leather article.

In Plain Language. It is real hide structure from underneath the grain layer. A smooth pattern on it must be created by subsequent finishing rather than inherited as original grain.

Example. A flesh split is buffed to make suede or coated to create a smooth commercial surface.

See Also: Split Leather; Suede; Coated Split.

100. Middle Split

Technical Definition. An intermediate layer obtained when a sufficiently thick hide is divided into more than two layers. It lacks the original grain surface.

In Plain Language. A heavy hide can sometimes yield another usable sheet between its upper and lower layers. Each layer needs its own thickness and quality assessment.

Example. A processor separates a middle layer suitable for a particular split-leather use.

See Also: Flesh Split; Splitting.

101. Split Leather

Technical Definition. Leather made from a flesh split or middle split, retaining the fibrous animal-skin structure but lacking the original outer grain. Its final surface may be napped, coated, or otherwise finished.

In Plain Language. Split leather is a material class with many possible uses. Its name alone does not tell you how it will look or perform.

Example. A suede work glove and a coated split panel can have very different surfaces while both use split leather.

See Also: Suede; Coated Split; Bonded Leather.

STAGE 04

Deliming and Pelt Preparation

Deliming and pelt preparation establish the conditions needed for the selected tannage. This stage covers alkalinity reduction, enzymatic bating, rinsing, scud removal, and degreasing where the stock requires it.

L4-B | Delime

102. Deliming

Technical Definition. Controlled reduction of the alkalinity and calcium associated with limed pelt, with a corresponding reduction in swelling. Its required depth depends on the subsequent process and intended article.

In Plain Language. Deliming prepares the pelt for a different chemical environment. A thick center can remain alkaline after the outside has changed, so evenness matters.

Example. A cut through the pelt is checked before the selected bating program begins.

See Also: Liming; Bating; Cross-Section Check.

103. Ammonium Salt

Technical Definition. A salt containing the ammonium ion, used in some deliming systems to neutralize alkalinity and help remove calcium. Its behavior and emissions depend on the operating pH and formulation.

In Plain Language. This is one established deliming chemical family. Ammonium compounds can contribute ammonia and nitrogen to the process environment and effluent.

Example. A tannery evaluates a lower-ammonium deliming system against both pelt quality and treatment requirements.

See Also: Ammonia; Carbon Dioxide Deliming.

104. Ammonia

Technical Definition. The compound NH3, a volatile alkaline substance that can be released from ammonium-containing systems under suitable conditions. It is distinct from the dissolved ammonium ion.

In Plain Language. The amount behaving as ammonia changes with chemistry and temperature. Its presence matters to worker exposure, odor, and wastewater management.

Example. An ammonium-based deliming operation is designed with appropriate ventilation and discharge controls.

See Also: Ammonium Salt; pH.

105. Carbon Dioxide Deliming

Technical Definition. Deliming using dissolved carbon dioxide to generate carbonic acid and progressively neutralize the pelt’s alkaline condition, with auxiliary chemistry where required.

In Plain Language. It offers another way to change the limed pelt’s chemistry. The thickness of the stock and the ability to reach the interior remain important.

Example. A plant considers a carbon-dioxide system for split pelts while separately validating its performance on thick unsplit stock.

See Also: Deliming; Buffer.

106. Buffer

Technical Definition. A chemical system that moderates pH change when acid or alkali is introduced. Buffering capacity and the useful pH range depend on the substances and their concentrations.

In Plain Language. A buffer helps keep the chemical transition controlled. It does not guarantee that the entire hide is already at the desired condition.

Example. A buffered deliming formulation reduces abrupt local changes while the treatment penetrates.

See Also: pH; Diffusion.

107. Calcium Soap

Technical Definition. A relatively insoluble salt formed between calcium and fatty acids. Such deposits can arise from hide fats, residual calcium, and process water and interfere with uniform treatment. [04]

In Plain Language. The greasy deposit is different from a useful cleaning soap. It can obstruct wetting or create marks that become apparent during dyeing and finishing.

Example. Uneven dyeing prompts an investigation of residual calcium and natural fat removal.

See Also: Water Hardness; Degreasing; Scud.

108. Sequestering Agent

Technical Definition. An auxiliary that binds selected dissolved metal ions into complexes, helping control their availability for unwanted reactions or deposits. Selection depends on the metal, pH, and process.

In Plain Language. It manages troublesome ions in the working bath. Its suitability must be judged within the recipe because some later processes deliberately use metal chemistry.

Example. A preparation auxiliary helps limit calcium-related deposits under specified conditions.

See Also: Water Hardness; Calcium Soap; Masking Agent.

L4-C | Bate

109. Bating

Technical Definition. Controlled enzymatic treatment of prepared pelt to remove selected residual proteins and debris and refine grain cleanliness, structural openness, elasticity, and handle.

In Plain Language. Bating is a controlled biological processing step. Too much action can damage structure; the desired intensity differs between soft and firm articles.

Example. A soft garment route uses a different bating target from a dense sole-leather route.

See Also: Protease; Scud; Overbating.

110. Protease

Technical Definition. An enzyme that catalyzes cleavage of peptide bonds in proteins. Bating formulations use selected proteolytic activity under controlled conditions to target unwanted constituents while limiting structural damage.

In Plain Language. Protease names the enzyme's type of work. The product's selectivity, activity, pH range, temperature, and exposure time all matter.

Example. A tannery evaluates a bate on actual pelts as well as considering the stated laboratory activity.

See Also: Enzyme; Bating.

111. Enzyme Activity

Technical Definition. A measured rate of catalytic action under a specified assay. Numerical activity values are meaningful only with the assay, substrate, temperature, pH, and product basis stated.

In Plain Language. A larger activity number does not automatically mean a better bate. Different tests and formulations may not be directly comparable.

Example. Two bate suppliers' activity figures are compared only after checking how each was measured.

See Also: Protease; Chemical Offer.

112. Overbating

Technical Definition. Excessive enzymatic treatment relative to the stock and article, potentially producing weak or loose grain, excessive softness, or other structural loss.

In Plain Language. The desired cleaning and softening can go too far. The condition of the pelt determines success, not simply completion of a nominal running time.

Example. Unexpectedly loose grain leads the technician to review enzyme dose, temperature, and exposure.

See Also: Bating; Loose Grain.

113. Drenching

Technical Definition. A historical preparatory treatment, often using fermented bran or similar materials, in which generated acids and associated biological action helped prepare skins for tannage. Historical practice varied considerably.

In Plain Language. This term appears in older leather manuals beside bating and puering. It describes an older treatment family and should not be translated directly into a modern enzyme recipe.

Example. An instructor explains a historical drench as context while teaching modern controlled pelt preparation separately.

See Also: Puering; Bating.

114. Puering

Technical Definition. A historical softening and cleaning treatment associated with dog-dung preparations, whose biological action helped remove unwanted skin constituents. It belongs to the history of processes later made more controllable through formulated enzymes.

In Plain Language. The old name explains why the development of standardized bates mattered. It is historical vocabulary, not a contemporary processing recommendation.

Example. A nineteenth-century manual's puering stage is compared with the purpose and control of modern bating.

See Also: Drenching; Protease.

L4-D | Rinse & Scud Check

115. Scud

Technical Definition. Residual material on or within the prepared grain, including loosened hair roots, pigment, epidermal debris, grease, and other preparation residues.

In Plain Language. Scud is an established tannery term for a mixture of preparation residues. Its composition varies with the stock and process. Leaving it behind can interfere with a clean surface and even coloration.

Example. A grain check finds residual root debris that needs removal before tanning.

See Also: Scudding; Bating; Calcium Soap.

116. Scudding

Technical Definition. Mechanical working of the prepared grain to expel or remove scud, historically with a blunt-edged tool over a beam and also by suitable machinery.

In Plain Language. Scudding cleans remaining material from the prepared surface. Modern chemical preparation may reduce the need for a distinct manual operation.

Example. The simulator's Rinse & Scud Check includes inspection and conditional removal where needed.

See Also: Scud; Fleshing.

117. Rinsing

Technical Definition. Washing with fresh or suitably managed process water to reduce residual liquor, dissolved substances, and loosened material before the next stage.

In Plain Language. A rinse changes what carries forward. Its effectiveness depends on exchange and drainage, not simply adding water to an unchanged dirty bath.

Example. After bating, rinsing reduces spent enzyme liquor and solubilized debris.

See Also: Carryover; Spent Float.

118. Carryover

Technical Definition. Material transferred unintentionally or as an unavoidable residue from one operation into the next, including retained liquor, dissolved chemicals, loose fibers, and suspended matter.

In Plain Language. The hides bring some of the previous bath with them. That residue can change the next bath's chemistry and its required control.

Example. Residual alkalinity changes the amount of acid needed in a subsequent preparation stage.

See Also: Rinsing; Float; Fix and Wash.

L4-E | Degrease

119. Degreasing

Technical Definition. Removal of excess natural fat using appropriate aqueous surfactant systems, solvent systems, or other controlled methods. Need and intensity vary strongly with species and article.

In Plain Language. Excess fat can obstruct even processing. Removing it is different from the later deliberate addition of carefully selected lubricants.

Example. A naturally fatty sheepskin may need a dedicated degreasing treatment that the simulator's reference cattle route normally bypasses.

See Also: Fatliquoring; Emulsion.

120. Emulsion

Technical Definition. A dispersion of droplets of one liquid in another liquid with which it does not readily mix, maintained sufficiently stable by an appropriate emulsifying system.

In Plain Language. An emulsion lets oil travel in a water-based bath as small droplets. Its stability can change when salts, acids, heat, or other chemicals are introduced.

Example. A fatliquor emulsion distributes lubricant through wet leather before controlled deposition.

See Also: Surfactant; Fatliquor; Fixation.

STAGE 05

Primary Tannage

Primary tannage stabilizes the prepared hide using a selected tanning system. Shared chemical concepts introduce the chrome, wet-white, drum-vegetable, traditional-vegetable, and oak-bark routes, each with its own processing sequence.

L5-B | Pickle

121. Tanyard

Technical Definition. The department or process grouping centered on tanning, historically a yard of tanning pits. Contemporary boundaries may include pickling and related handling before or after primary tannage.

In Plain Language. It names the part of the tannery where prepared skin becomes stabilized leather. A modern tanyard can consist largely of enclosed drums.

Example. A learner moving from beamhouse to tanyard shifts from preparing the structure to stabilizing it.

See Also: Beamhouse; Tanning.

122. Pickling

Technical Definition. Controlled acidification of prepared pelt for a selected tannage or preservation route, conventionally with sufficient salt or another swelling-control system. Acidity must reach the required depth.

In Plain Language. The pickle prepares the chemical conditions for what follows. Its name does not establish one universal pH, salt content, or overnight holding time.

Example. A chrome route establishes an appropriately acidified cross-section before adding its tanning system.

See Also: Pickled Pelt; Acid Swelling; Cross-Section Check.

123. Pickled Pelt

Technical Definition. Untanned prepared skin held in a controlled acid-and-electrolyte condition for further processing or temporary preservation. Its suitability for storage depends on the complete system.

In Plain Language. Pickled pelt is a real tradable intermediate, but it has not yet received the stabilizing tannage that makes leather.

Example. A specialist processor receives pickled skins and begins with the appropriate tanning route.

See Also: Pelt; Wet Blue; Pickling.

124. Acid Swelling

Technical Definition. Swelling of collagen in acidic conditions, influenced by its charge and osmotic effects. In conventional pickling, adequate electrolyte or an alternative controlled system moderates excessive swelling. [03]

In Plain Language. Acid can make the pelt swell strongly when the bath is unsuitable. The pickle's salt and acid system are designed together.

Example. A technician checks the swelling-control conditions before approving the acidification program.

See Also: Sodium Chloride; Swelling.

125. Formic Acid

Technical Definition. A small organic acid used in leather processes for controlled acidification, including selected pickling, dye-fixation, and fatliquor-fixation systems.

In Plain Language. Its role is to change the chemical environment at the required stage. The way an acid is introduced and distributed matters as well as its total offer.

Example. A wet-end process uses staged acidification after distribution of dyes and lubricants.

See Also: Fixation; pH; Sulfuric Acid.

126. Sulfuric Acid

Technical Definition. A strong mineral acid used in some leather pickling and other chemical systems. Its concentration, dilution, distribution, and compatibility with residual chemicals require established industrial controls.

In Plain Language. This is one possible acid ingredient, not a definition of all pickling. A process description should identify the actual acid system used.

Example. Two tanning recipes use different acid systems while both include a stage called Pickle.

See Also: Pickling; Formic Acid.

127. Sodium Formate

Technical Definition. The sodium salt of formic acid, used in selected leather systems for buffering, neutralization, or modification of metal-complex behavior, depending on the recipe.

In Plain Language. A chemical's function changes with its surroundings. Formate used before chrome tannage is not automatically doing the same job as formate in the wet end.

Example. A batch sheet identifies formate within a particular preparation system rather than listing it as a universal pickle requirement.

See Also: Buffer; Masking Agent; Neutralization.

128. Cross-Section Check

Technical Definition. Examination of a freshly exposed thickness section to assess internal condition, such as acidity, penetration, color distribution, or an untanned core, using an appropriate method.

In Plain Language. The inside can tell a different story from the surface or bath. A cross-section check asks whether treatment reached the required depth.

Example. The operator checks an interior section before deciding that tanning-agent penetration is sufficient.

See Also: Penetration; Through-Dyed; Strike-Through.

L5-C | Chrome Tannage

129. Tanning

Technical Definition. Treatment that stabilizes the collagen structure of a prepared hide or skin against deterioration and improves its behavior under heat, moisture, and mechanical use, producing leather.

In Plain Language. Tanning is the key conversion from prepared skin to leather. Later operations still have considerable work to do in establishing color, softness, thickness, and surface.

Example. Wet blue has completed primary tanning but has not yet acquired the final character of upholstery leather.

See Also: Tannage; Retanning; Leather.

130. Tannage

Technical Definition. The tanning treatment or system applied to material, and by extension the resulting class of leather, as in chrome tannage or vegetable tannage.

In Plain Language. The word identifies the stabilizing approach. It should be considered separately from species, cut, surface correction, and finish.

Example. A leather can be bovine, vegetable-tanned, full-grain, dyed, and waxed at the same time.

See Also: Tanning; Article; Finish.

131. Tannant

Technical Definition. A substance or formulated system capable of contributing to the stabilization of hide collagen during tanning. Tannants include mineral salts, plant tannins, and several organic chemical families.

In Plain Language. Tannant is the broad word for the active tanning material. Tannin is the narrower word most often used for plant polyphenols.

Example. Chromium salts and chestnut extract are both tannants, but only the latter supplies vegetable tannins.

See Also: Tannin; Chrome Tanning.

132. Chrome Tanning

Technical Definition. Tanning based on chromium(III) complexes, commonly introduced as basic chromium sulfate, with controlled penetration and fixation to create a stabilized collagen network.

In Plain Language. Chrome tanning establishes a versatile wet intermediate. It does not require the finished leather to be blue, shiny, or heavily coated.

Example. Blue-green wet blue is later retanned and dyed to produce a pale pink garment leather.

See Also: Wet Blue; Basification; Chromium(III).

133. Chromium(III)

Technical Definition. Chromium in the trivalent oxidation state, used in modern conventional chrome-tanning complexes. Its chemistry and toxicological behavior differ from those of hexavalent chromium.

In Plain Language. The Roman numeral identifies a chemical state. It matters because the tannant and a possible unwanted later oxidation product are different substances.

Example. A discussion of chrome tanning identifies Cr(III) explicitly before discussing Cr(VI) prevention.

See Also: Chromium(VI); Basic Chromium Sulfate.

134. Chromium(VI)

Technical Definition. Chromium in the hexavalent oxidation state, an unwanted substance in modern chrome-tanned leather that may form under unfavorable processing, storage, or aging conditions. It is not the intended modern tannant. [13]

In Plain Language. Its possible formation is a separate chemical-control question. The presence of chromium-based tannage does not by itself state a leather’s measured Cr(VI) result.

Example. A product assessment uses the applicable analytical test and conditioning requirements rather than inferring a result from leather color.

See Also: Chromium(III); Restricted Substance.

135. Basic Chromium Sulfate

Technical Definition. A family of hydrolyzed chromium(III) sulfate tanning complexes characterized partly by basicity. In this chemical name, basic does not mean that the tanning bath is alkaline.

In Plain Language. The name can mislead a beginner: the product can operate in an acidic bath. Its controlled chemistry allows penetration before stronger fixation develops.

Example. A tanner uses basic chromium sulfate in a low-pH tanning stage and then basifies the bath.

See Also: Basicity; Basification; Chrome Tanning.

136. Basicity

Technical Definition. In chrome-tanning chemistry, the percentage of chromium's valence equivalents represented by bound hydroxyl groups under the conventional salt-description system. One hydroxyl per trivalent chromium corresponds to about 33 percent basicity. This is distinct from measured bath pH. [36]

In Plain Language. Basicity describes the tanning complex; pH describes the bath's acidity. They are connected in processing but are not interchangeable numbers.

Example. A chrome product specification states basicity while the drum record separately tracks pH.

See Also: Basic Chromium Sulfate; pH.

137. Coordination Complex

Technical Definition. A chemical structure in which a central metal ion is associated with surrounding ligands. Chrome tanning involves changing chromium complexes and interactions with suitable collagen groups.

In Plain Language. The metal does its tanning work as part of a chemical arrangement. Changing that arrangement changes how readily it moves and binds.

Example. Masking and basification alter the behavior of the chromium-containing system during tanning.

See Also: Masking Agent; Basification.

138. Masking Agent

Technical Definition. An agent that complexes with a tanning metal and modifies its reactivity, penetration, or fixation behavior. The effect depends on the ligand, metal, concentration, and process conditions.

In Plain Language. Masking helps control when and where a mineral tanning system reacts. It is a chemical adjustment, unrelated to hiding surface blemishes.

Example. A chrome formulation uses selected masking chemistry to support penetration before fixation.

See Also: Coordination Complex; Penetration; Sequestering Agent.

139. Penetration

Technical Definition. Movement and distribution of a processing substance into the hide or leather thickness. Penetration must be distinguished from fixation and from a visible color indicator alone.

In Plain Language. A chemical needs to reach the places where it is supposed to work. Being present near the surface is insufficient when the specification requires treatment through the thickness.

Example. A tanning batch is checked for interior penetration before the process is driven toward stronger binding.

See Also: Diffusion; Fixation; Strike-Through.

140. Fixation

Technical Definition. Binding, deposition, or retention of a process substance in the leather under the chemistry of the selected system. The mechanism differs between tannants, dyes, fatliquors, and finishes.

In Plain Language. Fixation is the stage of making the distributed material stay and do its job. It should happen in the right places, not prematurely at the outside.

Example. After adequate distribution, the wet-end recipe changes conditions to retain the selected dye and lubricant.

See Also: Penetration; Exhaustion; Fixative.

141. Basification

Technical Definition. Controlled increase of pH during a tanning process, especially chrome tannage, to increase tanning-system reactivity and promote fixation after suitable penetration. [02]

In Plain Language. The process gradually changes from conditions favorable to entry toward conditions favorable to binding. Moving too quickly can concentrate fixation near the surface.

Example. The operator follows a controlled pH progression rather than treating one final bath reading as proof of a successful tannage.

See Also: Basicity; Fixation.

142. Sodium Bicarbonate

Technical Definition. The mild alkali NaHCO3, used in selected basification and neutralization systems. Its practical effect depends on dose, distribution, buffering, temperature, and existing bath chemistry.

In Plain Language. It is a familiar compound doing a specialized industrial job. Its controlled use helps avoid abrupt local pH changes.

Example. A chrome-tanning program uses a specified bicarbonate addition system during basification.

See Also: Alkali; Basification; Neutralization.

143. Exhaustion

Technical Definition. The extent to which an offered chemical is removed from the process bath, commonly expressed as a fraction of the initial offer under a specified measurement method.

In Plain Language. High exhaustion means little of the measured substance remains in the bath. It does not, by itself, prove even distribution or durable useful fixation in the leather.

Example. A clear-looking dye bath is assessed alongside shade, penetration, and fastness results.

See Also: Chemical Offer; Fixation; Spent Float.

144. Wet Blue

Technical Definition. Chrome-tanned leather in a wet intermediate state, typically blue-green before subsequent article development. It can be processed onward or traded between manufacturing stages. [34]

In Plain Language. It is already leather, but its final color, fullness, softness, and finish are still largely open design questions. This is a technical intermediate-state name: blue color alone does not identify the tanning history.

Example. A finisher purchases wet blue, shaves it to a working substance, and develops several different articles.

See Also: Wet White; Crust; Retanning.

145. Antioxidant

Technical Definition. A substance used to reduce or interrupt oxidation reactions in a defined system. In leather processing, selected formulations may use antioxidants to help manage oil stability or other oxidation-related concerns.

In Plain Language. An antioxidant has a particular job within the recipe. Its presence does not replace testing or establish that oxidation can never occur.

Example. A fatliquor system includes measures to manage oxidation during later processing and aging.

See Also: Chromium(VI); Fatliquor.

L5-D | Wet-White Tannage

146. Wet White

Technical Definition. A pale wet leather intermediate produced by a chromium-free tanning system. Possible systems include selected aluminium or zirconium salts, aldehyde chemistry, syntans, and other organic or combined approaches. [34]

In Plain Language. Wet white describes a family of intermediates, not one recipe. The actual chemistry matters to later processing and finished performance. It is a recognized technical intermediate category, although the name also appears in trade listings.

Example. Two pale wet-white batches need different retanning programs because their primary systems differ.

See Also: Chrome-Free; Metal-Free; Aldehyde Tanning.

147. Chrome-Free

Technical Definition. Leather tanned without chromium salts and meeting a defined chromium-content limit. LWG's 2024 definitions list sets that limit at 0.1 percent of dry leather mass. The category does not automatically exclude other metals or aldehydes. [34]

In Plain Language. This tells you something specific about chromium. It does not supply a complete chemistry, environmental, or performance profile.

Example. An aluminium-based wet-white system is chromium-free while still using a metal tannant.

See Also: Metal-Free; Wet White.

148. Metal-Free

Technical Definition. A tanning-material classification with a defined limit for tanning metals. LWG's 2024 definitions list allows no more than 0.1 percent combined chromium, aluminium, titanium, zirconium, and iron by dry leather mass, excluding metals in finishes. It does not mean zero detectable metal atoms. [34]

In Plain Language. Treat the claim as a defined specification requiring evidence. It says something narrower than chemical-free or impact-free.

Example. A buyer requests the relevant compositional declaration and test basis for a metal-free article.

See Also: Chrome-Free; Restricted Substance.

149. Aldehyde Tanning

Technical Definition. Tanning using suitable aldehyde chemistry, often through reactions involving collagen amino groups. Formulations and combinations differ, and resulting performance must be specified for the actual system.

In Plain Language. Aldehyde describes a chemical family that can contribute to pale leather intermediates. It is not a synonym for every wet-white process.

Example. A wet-white recipe identifies its aldehyde system because that choice affects later retanning and color behavior.

See Also: Wet White; Glutaraldehyde.

150. Glutaraldehyde

Technical Definition. A dialdehyde used in some tanning and retanning systems, including modified commercial formulations. Its reactions with collagen can contribute to stabilization and article properties.

In Plain Language. It is one specific member of the wider aldehyde family. A finished-leather description should not assume it was used merely because the leather is pale.

Example. The tannery's declared wet-white system provides evidence for a glutaraldehyde-related process claim.

See Also: Aldehyde Tanning; Wet White.

151. Aluminium Tanning

Technical Definition. Stabilization using suitable aluminium salts or complexes, alone or in combinations. Processing behavior and water stability depend on the particular system and subsequent treatments.

In Plain Language. Aluminium chemistry has both historical and modern uses. A modern combined tannage should be described by its actual formulation rather than equated with historical alum tawing.

Example. A pale intermediate contains an aluminium component and therefore is not automatically metal-free.

See Also: Tawing; Wet White; Chrome-Free.

152. Zirconium Tanning

Technical Definition. Tanning or retanning employing zirconium compounds as part of a mineral stabilization system. It is one possible contributor to pale leather intermediates and specialized properties.

In Plain Language. Zirconium is another metal option within the broader tanning vocabulary. Its presence shows why pale color alone cannot identify an organic or metal-free recipe.

Example. A wet-white specification identifies a zirconium-containing system explicitly.

See Also: Wet White; Metal-Free.

153. Tawing

Technical Definition. A traditional skin-dressing treatment associated with alum salts and often other ingredients. Classical alum-tawed material can have substantially different water behavior from durable combined modern tannages.

In Plain Language. Tawing is important historical vocabulary, especially for bookbinding and gloves. It should not be casually substituted for the name of a modern tanning system.

Example. A conservator identifies an alum-tawed binding before deciding how moisture might affect it.

See Also: Aluminium Tanning; Parchment.

154. Phosphonium Tanning System

Technical Definition. A tanning or pretanning approach using suitable phosphorus-containing phosphonium compounds as part of a defined stabilization system.

In Plain Language. It is one of several specialized alternatives a learner may encounter in wet-white literature. Pale appearance alone cannot identify it.

Example. A research description specifies phosphonium chemistry rather than using wet white as a complete recipe name.

See Also: Wet White; Tannant.

155. Oxazolidine

Technical Definition. A member of a heterocyclic organic compound family used in some specialized tanning or crosslinking systems. Behavior depends on the selected compound and application conditions.

In Plain Language. The term identifies a chemical family, not an interchangeable substitute for every tannant. A process account needs the actual formulation.

Example. A chrome-free development paper identifies an oxazolidine-containing system among its experimental treatments.

See Also: Wet White; Aldehyde Tanning.

156. Titanium Tanning

Technical Definition. Use of appropriate titanium compounds in a mineral tanning system, often in combinations designed for specific stabilization and article requirements.

In Plain Language. Titanium is another possible tanning metal. A chromium-free claim therefore tells less than a full description of the mineral system.

Example. A pale leather's formulation declares its titanium-containing tanning treatment.

See Also: Chrome-Free; Metal-Free.

L5-E | Drum Vegetable

157. Vegetable Tanning

Technical Definition. Tanning based principally on plant-derived tannins interacting with the collagen structure. Extract selection, mixture, concentration, acidity, temperature, and movement influence penetration and final properties. [30]

In Plain Language. Vegetable refers to the tanning source. The resulting leather can be light or dark, flexible or firm, natural-colored or dyed, depending on the full process. The informal abbreviation veg tan refers to this tanning family. The material being tanned is still animal hide or skin.

Example. A firm tooling side and a supple vegetable-tanned bag leather represent different articles within the same broad tannage family.

See Also: Tannin; Drum Vegetable Tanning; Pit Tanning.

158. Tannin

Technical Definition. A member of a diverse group of plant polyphenols able to associate strongly with proteins and contribute to tanning. Commercial extracts contain mixtures whose behavior depends on botanical source and processing.

In Plain Language. Tannin is not one universal brown chemical. Different extracts contribute different combinations of penetration, color, body, and surface character.

Example. A tanner blends extracts to obtain a balance that one extract alone would not provide.

See Also: Hydrolysable Tannin; Condensed Tannin; Tannant.

159. Polyphenol

Technical Definition. An organic compound with multiple phenolic groups; vegetable tannins belong to this broad chemical territory. Molecular size and arrangement influence their interaction with proteins.

In Plain Language. This names a chemical feature shared by many plant compounds. Only a suitable compound or mixture with the right behavior is useful as a tanning system.

Example. A lesson on tannin chemistry explains protein interaction without equating every plant polyphenol with a practical tannant.

See Also: Tannin; Hydrogen Bond.

160. Hydrolysable Tannin

Technical Definition. A tannin family containing hydrolysable linkages, commonly organized around a central polyol such as a sugar. Important tanning groups include gallotannins and ellagitannins.

In Plain Language. The name describes chemical structure and potential breakdown reactions. It does not mean the resulting leather simply dissolves in water.

Example. Chestnut and tara extracts introduce different members of the hydrolysable-tannin family.

See Also: Condensed Tannin; Chestnut Extract; Tara Extract.

161. Condensed Tannin

Technical Definition. A tannin family built primarily from linked flavonoid units, commonly termed proanthocyanidins. Mimosa and quebracho are important commercial sources.

In Plain Language. This is another structural family of vegetable tannins. Tanners select and blend sources for their processing behavior, not just their family name.

Example. A recipe combines a condensed-tannin extract with other materials to tune filling and shade.

See Also: Hydrolysable Tannin; Mimosa Extract; Quebracho Extract.

162. Hydrogen Bond

Technical Definition. An attractive interaction involving hydrogen attached to an electronegative atom and another suitable electron-rich site. Hydrogen bonding is among the interactions relevant to collagen, water, and vegetable tannins.

In Plain Language. Many comparatively small attractions can collectively affect the material. Vegetable tanning is better understood as a network of interactions than as one simple universal bond.

Example. A tannin molecule can associate at several points within the collagen environment.

See Also: Polyphenol; Tannin; Collagen.

163. Astringency

Technical Definition. In vegetable-tanning practice, the tendency of a tanning liquor or extract to combine with or contract the hide structure, influenced by tannin type, acidity, concentration, and temperature.

In Plain Language. A strongly reactive liquor may act too quickly at the outside of a pelt. Tanners balance reaction strength with the need to reach the interior.

Example. The early pit liquors are selected to encourage even penetration before stronger tanning conditions are applied.

See Also: Case Hardening; Pit Tanning; Penetration.

164. Case Hardening

Technical Definition. Premature strong treatment or setting of an outer region that impedes even processing of the interior. In vegetable tanning, excessively astringent initial conditions can produce this surface-dominated effect.

In Plain Language. The outside gets ahead of the inside and makes completion more difficult. A dark or firm exterior is therefore not proof of thorough tanning.

Example. A tanner avoids exposing untanned thick stock immediately to an excessively strong vegetable liquor.

See Also: Astringency; Cross-Section Check.

165. Tanning Extract

Technical Definition. A concentrated preparation obtained from tannin-bearing plant material, supplied in a form such as liquid or powder and characterized by composition and application behavior.

In Plain Language. An extract is the prepared ingredient; bark, wood, pods, or leaves are its source materials. Concentration and modification affect how it behaves in the tannery.

Example. A drum tannery meters commercial extracts rather than filling the vessel with loose bark.

See Also: Tannin; Chemical Offer.

166. Mimosa Extract

Technical Definition. A vegetable tanning extract commonly obtained from black-wattle bark, notably Acacia mearnsii, and characterized predominantly by condensed tannins. [16]

In Plain Language. Mimosa is an established trade name for this tannin source. It does not refer indiscriminately to every ornamental plant sold as mimosa.

Example. A tanner includes mimosa in an extract blend for the desired body and color response.

See Also: Condensed Tannin; Tanning Extract.

167. Quebracho Extract

Technical Definition. A condensed-tannin-rich extract from the wood of commercial quebracho species. Modified grades are supplied to adjust solubility and processing behavior. [14]

In Plain Language. Quebracho is one ingredient family with several commercial forms. Product selection matters as well as the botanical name.

Example. A tannery specifies a particular soluble quebracho grade for its drum process.

See Also: Condensed Tannin; Tanning Extract.

168. Chestnut Extract

Technical Definition. A vegetable tanning extract obtained from chestnut wood, rich in hydrolysable tannins, especially ellagitannin-related constituents. [14]

In Plain Language. Chestnut is one of the classic tanning ingredients used to influence the leather’s body and character. It is often considered as part of a blend.

Example. A sole-leather recipe uses chestnut extract within its selected vegetable-tanning system.

See Also: Hydrolysable Tannin; Tanning Extract.

169. Tara Extract

Technical Definition. A tanning extract from tara pods, associated primarily with hydrolysable gallotannins and used in suitable pale and other vegetable-tanning or retanning systems. [15]

In Plain Language. The source is the pod material, not the seed gum sold for other uses. Tara can help a tanner design a different color and property balance from darker extract systems.

Example. A pale-leather development trial evaluates tara as one part of its retanning blend.

See Also: Hydrolysable Tannin; Retanning.

170. Sumac

Technical Definition. A traditional tannin source, especially leaves of suitable sumac species, associated with hydrolysable tannins and the production of certain light-colored and fine leathers.

In Plain Language. Sumac appears often in older descriptions of fine goatskin and bookbinding leather. The exact botanical source and tanning practice still matter.

Example. A historical morocco-leather description names sumac as its vegetable-tanning material.

See Also: Morocco; Hydrolysable Tannin.

171. Myrobalan

Technical Definition. A tannin-bearing fruit source, especially Terminalia chebula, used in vegetable tanning and blends. The name also appears as myrabolan and myrobalans. [14]

In Plain Language. This is another plant ingredient a learner can encounter in recipes without recognizing it as a tanning source. Its role belongs to the extract blend.

Example. A technical account lists myrobalan alongside other vegetable materials used for a particular leather.

See Also: Tanning Extract; Vegetable Tanning.

172. Drum Vegetable Tanning

Technical Definition. Vegetable tanning conducted principally in a rotating drum with controlled extract additions and mechanical action. Some routes combine a drum with other preparatory or tanning stages.

In Plain Language. Movement and concentrated extracts make vegetable tanning possible on schedules different from long pit systems. The shorter route remains vegetable tanning.

Example. The simulator’s Drum Vegetable route is an alternative to its traditional pit and heritage oak-bark routes.

See Also: Pit Tanning; Mechanical Action; Tanning Extract.

173. Gambier

Technical Definition. A vegetable tanning source obtained from suitable Uncaria plant material and associated with condensed tannins. Commercial extracts are used in selected tanning and retanning applications. [14]

In Plain Language. Gambier is a plant-extract name worth recognizing in fine-leather accounts. Its exact contribution depends on the blend and process.

Example. A tanning description lists gambier as an ingredient in a fine-grain article.

See Also: Condensed Tannin; Tanning Extract.

174. Tannic Acid

Technical Definition. A name commonly applied to particular hydrolysable gallotannin preparations, sometimes used loosely in older accounts for vegetable tanning substances in general.

In Plain Language. Modern explanations should distinguish a particular tannic-acid preparation from the broad family of tannins. Vegetable leather does not all use one identical acid.

Example. An instructor clarifies an older manual’s use of tannic acid before comparing mimosa and chestnut chemistry.

See Also: Tannin; Hydrolysable Tannin.

L5-F | Traditional Vegetable

175. Pit Tanning

Technical Definition. Vegetable tanning in a sequence or arrangement of pits containing controlled liquors, often progressing from less astringent to stronger conditions as tanning develops.

In Plain Language. The pits create a staged environment for penetration and filling. Different tanneries organize movement, liquor renewal, and residence differently.

Example. Thick hides move through a series of vegetable liquors before final drying and dressing.

See Also: Handler; Layaway; Countercurrent.

176. Handler

Technical Definition. In traditional vegetable tanning, a pit or stage in which hides are moved or handled through suitable liquors to promote even early treatment. Terminology varies between historical systems.

In Plain Language. Here handler names a stage or pit, not simply a worker. Movement helps expose surfaces and supports gradual penetration.

Example. A historical process describes a handler series before the hides enter a longer stationary tanning stage.

See Also: Pit Tanning; Rocker Pit.

177. Rocker Pit

Technical Definition. A tanning pit equipped to move or rock a frame supporting the hides, creating gentle relative movement between the stock and tanning liquor.

In Plain Language. The hides receive motion without being tumbled in a drum. It is one way to support even liquor contact during a long pit route.

Example. Suspended hides move gently in a mechanically driven pit frame.

See Also: Handler; Pit Tanning.

178. Countercurrent

Technical Definition. An arrangement in which material and treatment medium progress in opposing effective directions, allowing fresher or stronger liquor to contact more advanced material.

In Plain Language. The sequence makes better use of the liquor while giving incoming hides milder initial conditions. It is an organizational principle, not one fixed recipe.

Example. Fresh tanning liquor is introduced toward the advanced end of a pit sequence and reused toward earlier stages.

See Also: Pit Tanning; Astringency.

179. Layaway

Technical Definition. A prolonged tanning stage in which hides are laid or packed in pits, often with tanning material between layers, under the conditions of a particular traditional vegetable system.

In Plain Language. It describes how the hides spend part of their tanning time. The details need the tannery's process account because historical names and methods differ.

Example. A long vegetable route follows early suspended treatment with hides laid in layers for continued tanning.

See Also: Handler; Oak-Bark Tanning.

L5-G | Heritage Oak-Bark

180. Oak-Bark Tanning

Technical Definition. Vegetable tanning using oak bark as a principal tannin source, commonly associated with long traditional pit processes and heavy leather articles. [18]

In Plain Language. Oak bark identifies an ingredient and a family of traditions. A particular tannery's year-long process is a named example, not the timing of all vegetable leather.

Example. J&FJ Baker describes three months with suspended hides followed by nine months layered with bark.

See Also: Layaway; Tanbark.

181. Tanbark

Technical Definition. Bark used as a source of tannins for tanning, from suitable species such as oak or wattle. Its preparation and extraction determine the liquor available to the tannery.

In Plain Language. Tanbark is the raw botanical material. Tanning liquor is what the water extracts from it, and commercial extracts are concentrated preparations.

Example. Crushed bark is steeped so its soluble tanning constituents pass into the liquor.

See Also: Tanning Extract; Oak-Bark Tanning.

L5-H | Tannage Check

182. Hydrothermal Stability

Technical Definition. Resistance of hydrated collagenous material to heat-induced structural change and shrinkage. Tannage and testing conditions strongly affect the measured behavior.

In Plain Language. This asks how the leather behaves when heat and water act together. It is a meaningful tanning property, but a test appropriate to one tannage may not suit another.

Example. A tanner chooses an appropriate stability test for wet blue rather than applying the same boiling criterion to every wet-white system.

See Also: Shrinkage Temperature; Boil Test.

183. Shrinkage Temperature

Technical Definition. The temperature at which a leather or hide specimen begins a defined shrinkage response under a specified heated-liquid test method.

In Plain Language. The value helps assess stabilization, but only when the method and material state are stated. It is not a universal safe-use temperature for every finished product.

Example. A laboratory compares wet-tanned specimens using the same defined heating procedure.

See Also: Hydrothermal Stability; Tannage Check.

184. Boil Test

Technical Definition. A specified assessment of dimensional or area stability in boiling water, used for suitable materials such as wet blue. It is a particular test rather than a universal definition of fully tanned leather. [17]

In Plain Language. Some chrome-tanned intermediates are expected to meet an appropriate boiling-water assessment. Other tannages need different acceptance criteria.

Example. The operator uses the designated wet-blue procedure and records the result against that article’s specification.

See Also: Shrinkage Temperature; Wet Blue.

185. Tannage Check

Technical Definition. An assessment that the chosen tanning system has achieved the required penetration, fixation, stability, and other process-specific endpoints.

In Plain Language. The question is whether this tannage has done its intended work. Appearance, a bath reading, and elapsed time alone may leave important uncertainties. This is the simulator’s umbrella label for route-specific checks, whose methods and limits must be specified separately.

Example. A batch is held for further assessment when the surface appears tanned but the cross-section remains questionable.

See Also: Cross-Section Check; Hydrothermal Stability; Quality Gate.

STAGE 06

Tanned-State Handling and Thickness

After primary tanning, the leather is drained, rested, and prepared for thickness control. Splitting, shaving, and intermediate handling establish its condition for further article development.

L6-B | Drain & Age

186. Draining

Technical Definition. Removal of freely draining process liquid after a wet operation, commonly by placing leather on a suitable support. It does not remove all the water held within the structure.

In Plain Language. The bath can leave while the leather remains thoroughly wet. Draining is followed by other operations when more controlled moisture reduction is required.

Example. Wet blue rests on a support before passing through a sammying machine.

See Also: Horsing; Sammying; Aging.

187. Horsing

Technical Definition. Placing wet hides or leather over a raised support, traditionally called a horse, for drainage, resting, storage, or staging between operations.

In Plain Language. The name describes the support and handling practice, not the animal source of the leather. Time on the horse can also allow internal distribution to continue.

Example. Cattle leather is horsed after a wet-end batch and then sent to dewatering.

See Also: Draining; Aging.

188. Aging

Technical Definition. A controlled holding period during which chemical fixation, moisture distribution, fat migration, or other equilibration may continue. Its purpose depends on the process stage.

In Plain Language. Resting can be useful processing time even when no machine is moving. It should be distinguished from patina or deterioration over years of use.

Example. A tanned batch is drained and held before thickness work to support the intended process condition.

See Also: Equilibration; Patina; Horsing.

189. Equilibration

Technical Definition. Movement toward a more balanced distribution of moisture, temperature, or processing substances within a material or between it and its surroundings.

In Plain Language. The outside and inside need time to become more alike. A surface reading immediately after treatment can differ from the condition after a rest.

Example. Moisture introduced by conditioning spreads through the leather before staking.

See Also: Aging; Conditioning; Moisture Content.

L6-C | Sammy & Set

190. Sammying

Technical Definition. Mechanical reduction of free water in wet leather by pressure, commonly using rollers and absorbent felts. The operation is also written samming or samming-out.

In Plain Language. The machine squeezes out water so later handling and processing are more predictable. It does not fully dry the leather.

Example. Sammed wet blue remains damp enough for controlled splitting and shaving.

See Also: Setting Out; Dewatering; Vacuum Drying.

191. Setting Out

Technical Definition. Mechanical spreading and smoothing of wet leather to reduce creases, improve flatness, and influence area and fiber orientation. It may be combined with sammying.

In Plain Language. Setting works the sheet into a flatter shape. Its purpose extends beyond removing water, even when both actions happen in one machine.

Example. A combined Sammy & Set machine removes free liquor while spreading wrinkles from the side.

See Also: Sammying; Area Yield.

192. Dewatering

Technical Definition. Reduction of water content by a mechanical or other separation process, distinguished from evaporative drying when describing tannery operations.

In Plain Language. Removing liquid mechanically reduces the water that later dryers must evaporate. The remaining moisture still matters to thickness work and drying behavior.

Example. A sammying press lowers the water load before a vacuum-drying cycle.

See Also: Sammying; Drying.

L6-D | Deferred Split

193. Deferred Splitting

Technical Definition. Splitting postponed until after primary tanning rather than performed on limed pelt. The simulator uses this term for its alternative tanned-state splitting route.

In Plain Language. The layer cut happens later, after the swollen raw preparation state has changed. That can support tighter thickness control for the selected stock and equipment.

Example. A route bypasses Lime Split, tans the material, and then divides it at Deferred Split.

See Also: Lime Splitting; Wet-Blue Splitting.

194. Wet-Blue Splitting

Technical Definition. Layer separation carried out on chrome-tanned wet-blue leather. It produces a grain layer and one or more lower layers in the tanned state.

In Plain Language. The useful lower sheet is already chrome-tanned when it is separated. Its next operations can be designed for a split article.

Example. A wet-blue flesh split is routed to suede development while its grain partner becomes upper leather.

See Also: Deferred Splitting; Flesh Split.

L6-E | Shave

195. Shaving

Technical Definition. Controlled removal of thin material from the flesh side, usually with a spiral-bladed cylinder, to equalize and reduce substance. The removed material is fine shavings rather than a continuous second sheet.

In Plain Language. Shaving tunes thickness after larger shape or layer decisions. It cannot add thickness to an area already cut too thin.

Example. A side with uneven wet substance receives a controlled shaving pass before retanning.

See Also: Splitting; Shavings; Substance.

196. Shavings

Technical Definition. Small fragments removed during shaving, carrying the chemical history of the material at that stage. Wet-blue shavings therefore differ from untanned trimmings and vegetable-tanned shavings.

In Plain Language. These are removed pieces of the leather-forming structure. Their composition governs the available reuse or disposal routes.

Example. The tannery segregates chrome-bearing shavings from a different production stream.

See Also: Shaving; By-Product.

197. Substance

Technical Definition. The physical thickness of leather or an intermediate, measured under a specified method and material condition. It is a traditional leather-trade term.

In Plain Language. When a tanner asks for substance, they usually mean thickness. Wet and finished measurements should not be assumed identical.

Example. A specification calls for finished substance of 1.4 to 1.6 millimeters.

See Also: Thickness Gauge; Ounce; Shaving.

198. Shaved Weight

Technical Definition. The measured mass of leather after shaving, commonly used as a recipe basis for post-tanning wet-end additions. Moisture and handling conditions affect that mass.

In Plain Language. It is a new working denominator after unwanted thickness has been removed. Reusing an earlier raw-hide weight would give a different offer.

Example. A retanning batch sheet calculates products on its stated shaved-weight basis.

See Also: Recipe Weight; Chemical Offer.

L6-F | Grade or Store

199. Intermediate Leather

Technical Definition. Leather at a defined manufacturing stage before completion as a finished article, including wet blue, wet white, and crust. Different businesses may specialize in different stages.

In Plain Language. A tannery does not have to perform the whole route. A stable intermediate can be sold to another business for further development.

Example. One company produces wet blue while another retans, dyes, dries, and finishes it.

See Also: Wet Blue; Wet White; Crust.

200. Fungicide

Technical Definition. An agent selected to control fungal growth in a material or process under defined conditions. It is a particular type of biocidal treatment.

In Plain Language. Tanned leather can still grow mold under unsuitable conditions. Tanning stability and resistance to fungal growth are different questions.

Example. A stored wet intermediate is managed under an appropriate preservation and environmental-control system.

See Also: Biocide; Mold; Wet Blue.

STAGE 07

Post-Tanning Wet End

The wet end develops the leather's fullness, color, softness, and lubrication. Penetration, uptake, distribution, and fixation describe how processing ingredients enter the leather and are retained within its structure.

L7-B | Wash or Wet Back

201. Wet End

Technical Definition. The post-tanning wet-processing sequence used to develop article properties, commonly including washing, neutralizing, retanning, dyeing, fatliquoring, and fixation.

In Plain Language. This is where a general-purpose tanned intermediate acquires much of its specific character. Several operations can share the same drum and liquor-management sequence.

Example. A wet-end recipe develops body, shade, and softness for a handbag article.

See Also: Retanning; Dyeing; Fatliquoring.

202. Wet Back

Technical Definition. Rewetting of stored, partly dried, or dry leather to restore the moisture and accessibility required for further wet processing. Fresh wet stock may need only a wash.

In Plain Language. An intermediate that has dried cannot always go straight into a dye recipe designed for wet leather. Its interior first needs to become suitably accessible.

Example. Undyed crust is wetted back before a later dyeing operation.

See Also: Rehydration; Crust; Wet End.

L7-C | Neutralize

203. Neutralization

Technical Definition. Controlled adjustment of acidic leather to the charge and pH conditions needed for later wet-end chemicals, with a defined depth and endpoint. It does not generally mean bringing the leather to pH 7.

In Plain Language. The aim is the right reactivity for the next ingredients. Overreactive surfaces may trap products outside before they have penetrated.

Example. A chrome article is neutralized to support even entry of anionic retanning materials and dyes.

See Also: Anionic; Cationic; pH.

204. Anionic

Technical Definition. Bearing a net negative electrical charge in the relevant medium. Many leather dyes, fatliquors, and retanning auxiliaries behave anionically under their working conditions.

In Plain Language. Charge helps determine attraction, compatibility, and where an ingredient binds. It is one reason the order of additions matters.

Example. An anionic dye can bind strongly to a sufficiently cationic leather surface.

See Also: Cationic; Neutralization; Fixation.

205. Cationic

Technical Definition. Bearing a net positive electrical charge in the relevant medium. Acidic chrome leather and some fixatives can show important cationic behavior.

In Plain Language. Positive and negative chemical species can attract strongly. An uncontrolled reaction in the bath or at the surface can make distribution uneven.

Example. A cationic fixative is introduced only at the stage intended by the dyeing system.

See Also: Anionic; Fixative; Neutralization.

206. Nonionic

Technical Definition. Having no net ionic charge in the relevant working medium, as used to describe some surfactants and auxiliaries. Other chemical interactions still determine compatibility.

In Plain Language. Nonionic does not mean inactive. Such a product can help wetting or emulsification without relying on the same charge behavior as an anionic product.

Example. A selected nonionic surfactant supports degreasing in a compatible bath.

See Also: Surfactant; Anionic; Emulsion.

207. Isoelectric Point

Technical Definition. The pH at which a protein or treated collagen system has approximately zero net electrical charge under specified conditions. Tanning and other treatments can alter the relevant charge behavior.

In Plain Language. This helps explain why the same dye behaves differently on different leathers. The chemical history changes how the leather attracts charged ingredients.

Example. A wet-white system cannot automatically inherit a wet-blue neutralization program merely because both intermediates look pale.

See Also: Neutralization; Anionic; Cationic.

L7-D | Retan

208. Retanning

Technical Definition. Treatment of already tanned leather with additional tanning or property-building agents to modify fullness, firmness, softness, break, dye response, and other article characteristics.

In Plain Language. Primary tanning creates a stable starting material. Retanning helps decide what kind of leather that material will become.

Example. The same wet blue is developed into a firm bag article or a softer upholstery article using different retanning systems.

See Also: Syntan; Fullness; Combination Tanning.

209. Syntan

Technical Definition. A synthetic tanning agent, traditionally including aromatic condensation products and, in broader commercial usage, varied synthetic products for tanning and retanning functions.

In Plain Language. Syntan names a broad chemical product category. Some products contribute tanning or filling; others mainly assist dispersion, penetration, or color behavior.

Example. A retanning recipe distinguishes a filling syntan from an auxiliary selected mainly to support distribution.

See Also: Retanning; Replacement Syntan; Auxiliary Syntan.

210. Replacement Syntan

Technical Definition. A syntan designed to provide substantial tanning or property-building action and substitute for part of another tanning system, historically often vegetable extract.

In Plain Language. The product contributes directly to the developed leather. Its role differs from an auxiliary whose main job is helping other ingredients work.

Example. A pale-leather retan replaces part of a darker extract system with a suitable synthetic tanning agent.

See Also: Syntan; Auxiliary Syntan.

211. Auxiliary Syntan

Technical Definition. A synthetic tanning auxiliary used primarily to improve functions such as dispersion, penetration, compatibility, or color development, with performance dependent on the product.

In Plain Language. It is a helper within the recipe, even though its name includes tan. The label does not establish that it can independently supply the required primary tannage.

Example. A dispersing auxiliary supports more even distribution of a retanning blend.

See Also: Syntan; Penetration.

212. Resin Retan

Technical Definition. A retanning treatment using suitable polymeric or resin-forming agents to influence filling, structure, surface support, and article properties.

In Plain Language. The goal can be to make loosely structured regions feel more substantial or behave more consistently. Too much filling can also change softness and weight undesirably.

Example. A corrected-grain article receives a filling retan to support the intended finishing response.

See Also: Fullness; Acrylic Retan; Impregnation.

213. Acrylic Retan

Technical Definition. A retanning system using suitable acrylic polymers or copolymers to modify filling, distribution, grain character, and other properties according to formulation.

In Plain Language. An acrylic used inside the wet leather has a different job from an acrylic binder forming a surface film. The location and formulation matter.

Example. A wet-end acrylic product helps develop body before the leather reaches a separate coating line.

See Also: Resin Retan; Acrylic Binder.

214. Combination Tanning

Technical Definition. Tanning that uses more than one tanning system in a meaningful combination, commonly chrome and vegetable tanning, with sequence and proportions affecting the resulting material.

In Plain Language. A leather need not belong to only one simple tanning family. Describing the order gives more information than saying it was tanned twice.

Example. Chrome primary tannage followed by substantial vegetable retanning produces a chrome-vegetable combination article.

See Also: Semi-Chrome; Retanning; Chromexcel.

215. Semi-Chrome

Technical Definition. In established technical usage, leather first vegetable-tanned and subsequently treated with chromium tanning salts. Historical and commercial terminology should be checked when precision matters.

In Plain Language. The sequence is the useful distinction. It reverses the familiar chrome-first, vegetable-retanned example.

Example. A curriculum diagram shows vegetable then chrome for semi-chrome and labels the opposite sequence separately.

See Also: Combination Tanning; Retanning.

216. Fullness

Technical Definition. The sense of a well-filled, substantial internal structure, distinct from thickness alone. It reflects raw material, preparation, retannage, lubrication, and mechanical treatment. [43]

In Plain Language. Two leathers of equal thickness can feel very different when pinched and bent. One may feel compact and supported while the other feels empty. Fullness is an established sensory descriptor. An agreed reference sample gives it a clearer purchasing meaning than the word alone.

Example. A thin bag leather feels substantial because its structure is well developed for that article.

See Also: Empty Handle; Body; Retanning.

217. Empty Handle

Technical Definition. A perceived lack of body or structural fullness in leather, often described as thin-feeling, hollow, or insufficiently supported relative to the intended article.

In Plain Language. The leather may measure the correct thickness yet lack the feel the buyer expects. The diagnosis considers the whole processing history.

Example. A sample meets substance requirements but is rejected against the approved bag-leather hand standard.

See Also: Fullness; Handle; Specification.

218. Body

Technical Definition. The combined impression of substance, fullness, firmness, and support in a leather article. It is a sensory and functional descriptor rather than a single standardized measurement.

In Plain Language. Body is why one leather stands up in a structured bag and another collapses softly. Thickness contributes, but does not explain the whole result.

Example. A handbag specification asks for enough body to support an unlined panel.

See Also: Fullness; Temper; Handle.

L7-E | Dye

219. Dyeing

Technical Definition. Coloration using dyes that dissolve or are molecularly distributed in the selected medium and associate with the leather. The desired depth may range from surface emphasis to through-color.

In Plain Language. Dye gives color within the material or its surface region. It usually leaves more underlying detail visible than an opaque pigment film.

Example. A drum-dyed brown side retains natural grain variation beneath its transparent finish.

See Also: Pigment; Through-Dyed; Drum-Dyed.

220. Dyestuff

Technical Definition. A dye material or commercial dye preparation used to impart color. Its class, concentration, solubility, affinity, and fastness characteristics affect application.

In Plain Language. Dyestuff is the ingredient; dyeing is the operation. A familiar color name does not identify which dye chemistry produced it.

Example. A black recipe combines selected dyestuffs to meet shade and fastness requirements.

See Also: Acid Dye; Metal-Complex Dye; Colorfastness.

221. Drum-Dyed

Technical Definition. Colored by a dyeing operation in a rotating process drum. The term describes application method and does not, by itself, certify complete penetration through the thickness.

In Plain Language. A dye can be introduced in the drum yet remain more concentrated near the surfaces. Through-dyed is a separate requirement.

Example. A drum-dyed side is cross-sectioned to confirm whether it also meets the buyer’s through-color specification.

See Also: Through-Dyed; Dyeing.

222. Through-Dyed

Technical Definition. Dyed so that the specified color extends through the required thickness, assessed to an agreed depth and uniformity criterion.

In Plain Language. The cut edge has color inside as well as outside. The degree of matching can still vary, so exact requirements belong in the specification.

Example. A dark wallet leather is selected with through-color so ordinary cut edges do not reveal a pale center.

See Also: Drum-Dyed; Cross-Section Check; Tea-Core.

223. Strike

Technical Definition. The initial uptake or attraction of a dye or other process material to leather. A rapid strike can concentrate color at readily accessible surfaces before even distribution develops.

In Plain Language. The dye can grab too quickly. The dyer controls chemistry and additions to balance entry with attachment.

Example. A level-dyeing program moderates initial strike before driving final fixation.

See Also: Levelness; Fixation; Penetration.

224. Strike-Through

Technical Definition. A trade expression for penetration of dye or another visible treatment through the leather section. Its meaning must be tied to the substance being assessed.

In Plain Language. It asks whether the treatment reached across the thickness. A visible line or color is evidence of distribution, not a complete test of all tanning properties.

Example. A dye trial is cut and examined for strike-through before the recipe is approved.

See Also: Through-Dyed; Cross-Section Check.

225. Levelness

Technical Definition. Uniformity of color or treatment across a piece and among pieces in a batch, assessed against the intended article appearance.

In Plain Language. Levelness means the color has developed as evenly as the design requires. A deliberately mottled article has a different standard from a uniform upholstery article.

Example. A pale batch is checked for darker necks and lighter bellies before release.

See Also: Strike; Shade Lot; Color Matching.

226. Acid Dye

Technical Definition. A dye class commonly carrying anionic groups and applied under conditions that promote affinity for suitable sites in leather. The class name does not define one exact application pH.

In Plain Language. This is a chemistry category, not a claim that the finished leather contains a harsh acid surface. Performance depends on the particular dyestuff and process.

Example. A chrome-leather dyeing system uses selected acid dyes and a controlled fixation stage.

See Also: Anionic; Dyestuff.

227. Direct Dye

Technical Definition. A class of dyes with useful affinity for certain substrates, including selected leather applications. Molecular size and affinity influence shade development and penetration.

In Plain Language. Direct is a dye-class name, not a promise of complete penetration or a one-step process. Leather history and recipe still govern the result.

Example. A technician selects a direct-dye component for a particular shade-building requirement.

See Also: Dyestuff; Penetration.

228. Metal-Complex Dye

Technical Definition. A dye in which a metal is incorporated within the colorant’s molecular complex, affecting properties such as affinity, shade, and fastness.

In Plain Language. Metal in the dye is a separate question from metal in the primary tannage. A complete material specification may need to address both.

Example. A buyer checking a chemical claim reviews the dyestuff system as well as the stated tanning family.

See Also: Chrome-Free; Dyestuff; Colorfastness.

229. Reactive Dye

Technical Definition. A dye designed with groups capable of forming covalent bonds with suitable substrate sites under defined conditions. Selected systems have leather applications.

In Plain Language. The dye is designed to attach by a particular chemical route. The word reactive alone does not guarantee excellent fastness without the proper process.

Example. A development trial verifies both coloration and retained performance after the intended reactive-dye treatment.

See Also: Fixation; Colorfastness.

230. Basic Dye

Technical Definition. A dye class whose color-bearing species is cationic in its application medium. Selected uses depend on affinity and compatibility with the prepared leather.

In Plain Language. Basic describes the dye class, not a beginner-grade dye. Its charge can require a different application approach from an anionic dye.

Example. A specialist recipe identifies a cationic dye system and checks compatibility with preceding products.

See Also: Cationic; Acid Dye.

L7-F | Fatliquor or Stuff

231. Fatliquoring

Technical Definition. Controlled introduction and distribution of lubricating materials, commonly through an aqueous emulsion, to reduce excessive fiber adhesion during drying and develop flexibility and other properties.

In Plain Language. The tannery deliberately places selected lubricant within the structure. It is a different operation from applying a conditioner to a finished bag.

Example. A properly fatliquored leather can be dried and mechanically softened to a flexible handle.

See Also: Fatliquor; Stuffing; Staking.

232. Fatliquor

Technical Definition. A formulated lubricating product for wet-end application, often based on chemically modified natural or synthetic oils and emulsifying components.

In Plain Language. Fatliquor names the product that carries lubricant into wet leather. The formulation is designed to disperse, penetrate, and then deposit appropriately.

Example. A technician chooses a fatliquor for softness and fastness requirements rather than treating all oils as equivalents.

See Also: Emulsion; Fatliquoring; Oil.

233. Sulfated and Sulfited Oils

Technical Definition. Chemically modified oil families used in fatliquor formulations to provide polar functionality and support aqueous delivery. Sulfation, sulfitation, and sulfonation describe different chemical modifications.

In Plain Language. These names explain how an oily material can work in a watery drum. They do not mean the oil is the same chemical as the sulfide used for unhairing.

Example. A fatliquor specification identifies the modified-oil family and its compatible working conditions.

See Also: Fatliquor; Emulsion; Sodium Sulfide.

234. Stuffing

Technical Definition. Working substantial oils, fats, waxes, or greases into leather, especially heavy vegetable-tanned articles, to develop lubrication, body, water behavior, and use characteristics.

In Plain Language. Stuffing is related to fatliquoring in purpose but can use different quantities, ingredients, moisture states, and equipment.

Example. A harness article receives a stuffing treatment suited to its dense structure and intended service.

See Also: Hot Stuffing; Wet Stuffing; Fatliquoring.

235. Hot Stuffing

Technical Definition. Introduction of warmed fats, oils, and waxes into leather under a defined stuffing process, often by mechanical working in heated equipment. [19]

In Plain Language. Heat makes selected materials workable and helps them enter the leather. The treatment can create rich body and a characteristic oil or wax response.

Example. Horween describes hot stuffing with unrefined fats and oils in heated barrels for relevant articles.

See Also: Stuffing; Pull-Up.

236. Wet Stuffing

Technical Definition. A stuffing approach that delivers suitable heavier lubricating materials through an aqueous system, related to fatliquoring but directed toward the desired heavy or filled article character.

In Plain Language. The distinction concerns how the fats and waxes are delivered. The name does not mean soaking a finished product in arbitrary oil.

Example. A tannery uses an emulsified stuffing system to obtain a particular body and lubrication balance.

See Also: Hot Stuffing; Emulsion.

237. Tallow

Technical Definition. A rendered animal fat used in some traditional and contemporary leather stuffing or dressing formulations. Its composition and working properties depend on the source and preparation.

In Plain Language. Tallow is one possible ingredient in a blend. Its presence alone does not describe the whole recipe or the resulting water resistance.

Example. A heavy-leather dressing blends tallow with other oils or waxes for a specified handle.

See Also: Dubbin; Stuffing.

238. Dubbin

Technical Definition. A formulated leather dressing traditionally based on combinations of fats, oils, and waxes, used to influence lubrication, surface character, and water behavior.

In Plain Language. Dubbin is a blend with a purpose, not a single fixed substance. Different leather articles can receive different formulations.

Example. A currier selects a dressing for bridle leather with a different feel from a softer harness treatment.

See Also: Currying; Spue; Tallow.

239. Currying

Technical Definition. A traditional group of operations that develops tanned leather through thickness adjustment, lubrication, working, staining, and finishing. Historical divisions between tanner and currier varied.

In Plain Language. The currier turns a tanned material into a leather suited to use. Many of these jobs remain recognizable within modern wet-end and finishing operations.

Example. Hand setting, greasing, staining, and polishing contribute to a traditionally curried heavy leather.

See Also: Stuffing; Staining; Glazing.

240. Oil-Tanned

Technical Definition. An ambiguous commercial expression that may describe true oil tannage or, commonly in footwear and work-leather sales, leather heavily treated with oils after another primary tannage.

In Plain Language. Ask which meaning is intended. An oily boot leather may be chrome-tanned and subsequently lubricated, whereas chamois represents a different tanning chemistry.

Example. A supplier clarifies that its oil-tanned work leather is a chrome-based article with substantial oil treatment.

See Also: Chamois; Fatliquoring; Tannage.

241. Chamois

Technical Definition. A leather associated with oxidative oil tanning, classically made from prepared sheep or lamb splits, with related combination processes also used. Synthetic wiping materials may use the name commercially. [01]

In Plain Language. The familiar soft wiping leather illustrates an actual oil-tanning family. The product name on a synthetic cloth does not establish animal leather content.

Example. A curriculum compares oil-tanned chamois with an oil-treated chrome boot leather to clarify the difference.

See Also: Oil-Tanned; Split Leather.

L7-G | Fix & Wash

242. Fix and Wash

Technical Definition. The wet-end stage that establishes the required retention of distributed products and then reduces unfixed residues and salts through draining and washing.

In Plain Language. The leather first needs to hold the ingredients where they belong. Washing afterward removes what should not remain as loose residue or bath carryover.

Example. A dyed and fatliquored batch completes its fixation program before the final wash.

See Also: Fixation; Rinsing; Carryover.

243. Spent Float

Technical Definition. Process liquor remaining after treatment, containing residual chemicals and substances removed from the hides. Its composition depends on the operation and degree of uptake.

In Plain Language. Spent means used, not empty of chemicals. Different baths need different collection, reuse, recovery, or treatment decisions.

Example. A spent liming bath and a spent dye bath are characterized as different streams.

See Also: Exhaustion; Effluent.

244. Effluent

Technical Definition. Liquid discharge from a process or treatment system. Tannery effluent can contain dissolved and suspended material whose composition changes greatly between operations.

In Plain Language. The term names the outgoing liquid stream. Its management starts with knowing which process produced it and what it contains.

Example. A spent bath is characterized before the plant decides on recovery, segregation, or treatment.

See Also: Spent Float; COD; BOD.

245. COD

Technical Definition. Chemical oxygen demand: an analytical measure of the oxygen equivalent consumed in chemically oxidizing substances under a specified test.

In Plain Language. COD indicates an oxidizable load in wastewater. It does not identify every chemical present or prove that the stream is safe.

Example. A tannery compares COD loads before and after a defined treatment stage.

See Also: Effluent; BOD.

246. BOD

Technical Definition. Biochemical oxygen demand: oxygen consumed by biological activity in a sample under a specified test duration and conditions.

In Plain Language. BOD describes how much oxygen biological breakdown uses in the test. It is different from a complete inventory of pollutants.

Example. A treatment assessment interprets a five-day BOD result alongside other relevant measurements.

See Also: COD; Effluent.

247. Total Dissolved Solids

Technical Definition. A measure of dissolved residue in water under a stated analytical method, including substantial salt contributions in some tannery streams.

In Plain Language. Removing organic contamination does not automatically remove dissolved salt. Salinity needs its own place in water management.

Example. A well-treated-looking liquid still contains dissolved salts from preservation and pickling.

See Also: Sodium Chloride; Effluent.

L7-H | Drain & Age

248. Fat Migration

Technical Definition. Redistribution of oils, fats, or waxes within leather or toward its surface during resting, drying, storage, or use. The outcome depends on formulation and environmental conditions.

In Plain Language. The lubricant's position can continue changing after the drum stops. Useful equalization and unwanted surface deposits are different possible outcomes.

Example. A rest supports internal distribution, while a later pale surface deposit may require assessment for fatty spue.

See Also: Aging; Spue; Pull-Up.

STAGE 08

Initial Drying and Crust

Drying produces the intermediate leather known as crust. The drying method influences shape, area, and the conditioning needed for subsequent mechanical work.

L8-B | Sammy & Set

249. Drying

Technical Definition. Reduction of water or other volatile carrier in leather or a coating, usually by evaporation. Leather drying also changes fiber adhesion, area, shape, and handle.

In Plain Language. Drying is a material-development operation, not just waiting for water to disappear. The method and restraint affect the finished sheet.

Example. A toggle-dried side and a freely hung side can develop different area and stretch behavior.

See Also: Dewatering; Toggle Drying; Vacuum Drying.

250. Moisture Content

Technical Definition. The amount of water in a material, expressed on a stated wet-mass or dry-mass basis and measured by a defined method. Values on different bases are not directly interchangeable.

In Plain Language. A percentage needs both a denominator and a method. A meter’s reading may also depend on calibration for the material.

Example. A drying specification identifies the measurement method rather than using an unexplained moisture number.

See Also: Equilibration; Conditioning.

251. Area Yield

Technical Definition. The area obtained from a material input or operation on a stated comparison basis. Drying restraint, mechanical spreading, shrinkage, and measurement conditions influence the result.

In Plain Language. A tannery can affect how much sheet area remains, but a larger area is not automatically better if it compromises the desired handle or stability.

Example. A drying trial compares both measured area and the leather’s recovery after conditioning.

See Also: Setting Out; Cutting Yield; Dimensional Stability.

L8-C | Vacuum Dry

252. Vacuum Drying

Technical Definition. Drying under reduced pressure, commonly with leather spread against a heated table, to promote controlled evaporation at lower boiling conditions than atmospheric pressure.

In Plain Language. The machine combines heat, pressure reduction, and flat support. It can be part of a sequence rather than the sole drying method.

Example. A side receives a controlled vacuum stage followed by further air drying to the required condition.

See Also: Drying; Hang Drying.

L8-D | Toggle or Chamber

253. Toggle Drying

Technical Definition. Drying leather held at its perimeter by clips or toggles on a frame, imposing restraint while controlled air removes moisture.

In Plain Language. The frame holds the sheet open as it dries. Tension influences area, flatness, stretch, and eventual hand.

Example. A framed hide dries with perimeter clips visible around its edge.

See Also: Toggle; Chamber Drying; Area Yield.

254. Toggle

Technical Definition. A clip or fastening used to attach leather to a drying frame, and by extension the operation of fastening and stretching the leather in that system.

In Plain Language. The little clips are what give toggle drying its name. Their placement and tension affect how the sheet is held.

Example. An operator spreads a side evenly and secures its edge to a perforated frame.

See Also: Toggle Drying; Re-Drying.

255. Chamber Drying

Technical Definition. Drying within an enclosure controlling variables such as temperature, humidity, and airflow. The leather may be hung, supported, or restrained according to the equipment and article.

In Plain Language. Chamber describes the controlled environment. Toggle describes restraint, so the two terms can overlap without meaning exactly the same thing.

Example. A toggle frame passes through a heated chamber, while another chamber route dries suspended pieces.

See Also: Toggle Drying; Relative Humidity.

256. Relative Humidity

Technical Definition. The ratio of actual water-vapor pressure in air to the saturation vapor pressure at the same temperature, expressed as a percentage.

In Plain Language. Air's drying or conditioning effect depends on both humidity and temperature. The same percentage at different temperatures does not represent the same amount of water vapor.

Example. A controlled chamber manages humidity and temperature together to achieve even drying.

See Also: Equilibrium Moisture; Conditioning.

L8-E | Hang or Air

257. Hang Drying

Technical Definition. Drying leather while suspended from suitable supports, generally with less lateral restraint than a toggle frame. Air can be ambient or actively controlled.

In Plain Language. Hanging describes how the sheet is supported. The resulting time and feel depend on the air conditions and the leather itself.

Example. Sides hang from overhead rails while conditioned air circulates through the room.

See Also: Air Drying; Toggle Drying.

258. Air Drying

Technical Definition. Evaporative drying using surrounding or circulated air, with or without active control of heat and humidity. It encompasses several support arrangements.

In Plain Language. Air drying does not necessarily mean outdoors or uncontrolled. A carefully managed drying loft and a modern tunnel both use air.

Example. A tannery hangs sides in an enclosed loft with managed airflow.

See Also: Hang Drying; Chamber Drying.

L8-F | Paste Dry

259. Paste Drying

Technical Definition. Drying leather temporarily adhered, usually grain-side down, to a smooth plate with a suitable paste, followed by controlled release and cleaning.

In Plain Language. Temporary adhesion holds the leather flat while it dries. The paste is a processing aid whose residue and release behavior matter.

Example. A side is spread onto a plate, dried, and carefully removed without damaging its grain.

See Also: Setting Out; Vacuum Drying.

L8-G | Crust Check

260. Crust

Technical Definition. Leather that has been tanned, normally fatliquored, and dried before the final surface-finishing stage. It may be dyed or undyed, with different commercial variants.

In Plain Language. Crust is a useful manufacturing stopping point. It is not rawhide, and its color does not tell you whether all surface work is complete.

Example. A finisher buys dyed crust and develops the requested protective and decorative surface.

See Also: Dyed Crust; Pearl Crust; Intermediate Leather.

261. Dyed Crust

Technical Definition. Crust leather that has received dyeing before drying and remains available for subsequent surface-finishing operations.

In Plain Language. The color is already developed in the leather, while the visible and protective finish can still be changed.

Example. Brown dyed crust enters an embossing and finishing route for a structured bag article.

See Also: Crust; Dyeing; Finish.

262. Pearl Crust

Technical Definition. An undyed crust intermediate, commonly tanned, retanned, fatliquored, and dried, prepared for subsequent coloration or finishing.

In Plain Language. Pearl identifies a commercial intermediate condition. It does not guarantee one tannage or a specific finished shade.

Example. A processor purchases undyed pearl crust and develops several colors from that stock.

See Also: Crust; Wet Back.

263. Crust Check

Technical Definition. Assessment that dried intermediate leather has the moisture uniformity, area, flatness, surface condition, and integrity needed for the next operations.

In Plain Language. The leather can be dry at the outside and still be unsuitable for finishing. The check considers how it will respond to conditioning and mechanical work. The simulator groups these decisions under one checkpoint name; a tannery may distribute them among several inspections.

Example. Hard patches and uneven moisture cause a batch to be held for correction before staking.

See Also: Quality Gate; Conditioning; Moisture Content.

STAGE 09

Conditioning and Softening

Conditioning and mechanical work develop the leather’s flexibility, drape, and handle. Surface preparation includes the abrasive operations used to produce nubuck, suede, and corrected grain.

L9-B | Condition or Moisten

264. Conditioning

Technical Definition. Adjustment and equalization of moisture and temperature before mechanical work or testing. Production conditioning for staking and standardized laboratory conditioning have different purposes and requirements.

In Plain Language. The leather must be in the right state for the next operation. A light surface mist may require a rest before the interior is equally ready.

Example. Dry crust is moistened and allowed to equalize before staking.

See Also: Moistening; Equilibration; Laboratory Conditioning.

265. Moistening

Technical Definition. Controlled addition of water to leather by mist, spray, humid air, or another suitable method to reach the condition required for subsequent work.

In Plain Language. Moistening adds water; conditioning includes getting that water properly distributed. The two words can describe parts of one preparation sequence.

Example. A spray machine moistens crust and the leather then rests before mechanical softening.

See Also: Conditioning; Moisture Content.

266. Equilibrium Moisture

Technical Definition. The moisture condition approached when leather and its surrounding atmosphere reach a balance at a given temperature and relative humidity.

In Plain Language. Leather exchanges moisture with the room. Its weight, dimensions, and feel can therefore change without anyone adding a new finish.

Example. Test specimens are held in a defined atmosphere before comparative measurements are taken.

See Also: Relative Humidity; Laboratory Conditioning.

267. Plasticization

Technical Definition. Increased molecular or structural mobility caused by a substance such as water or a suitable plasticizer, affecting flexibility and mechanical response.

In Plain Language. A little correctly distributed moisture helps leather flex during processing. That temporary effect differs from the lubrication established by fatliquoring.

Example. Conditioned leather responds more safely and consistently to staking than excessively dry material.

See Also: Conditioning; Fatliquoring.

L9-C | Stake

268. Staking

Technical Definition. Mechanical flexing, stretching, or localized working of conditioned leather to loosen fiber adhesions formed during drying and develop softness, area, and drape.

In Plain Language. Staking works the dried structure so its parts can move again. Its result depends on moisture, previous lubrication, machine action, and pass count.

Example. A stiff-feeling crust becomes more supple after a suitable controlled staking pass.

See Also: Dry Milling; Drape; Fatliquoring.

269. Handle

Technical Definition. The overall tactile and bending impression of leather, including softness, fullness, firmness, surface feel, elasticity, and drape. Hand is a common synonym. [43]

In Plain Language. Handle is what you learn by touching, pinching, bending, and letting the sample fall. It combines several properties that thickness alone cannot explain. Hand and handle are established trade vocabulary for a combined sensory judgment. A claim such as soft hand needs a reference sample for precise comparison.

Example. Two one-millimeter samples have different handles: one feels papery, the other soft and full.

See Also: Temper; Fullness; Touch.

270. Temper

Technical Definition. A leather-trade description of firmness or flexibility in bending, typically ranging from soft through medium to firm or stiff. It is not a heat-treatment specification.

In Plain Language. Temper helps predict whether a material will drape or support its own shape. Supplier categories should be compared against samples.

Example. A structured wallet calls for a firmer temper than a softly gathered pouch.

See Also: Handle; Body; Drape.

271. Drape

Technical Definition. The way a sheet of leather hangs, folds, and conforms under its own weight or light force, influenced by thickness, stiffness, structure, and finishing.

In Plain Language. Drape describes the shape leather takes when it is allowed to fall. It matters especially to clothing and soft bags.

Example. A garment sample falls in fluid folds while a belt leather projects stiffly from the hand.

See Also: Temper; Staking; Handle.

272. Break

Technical Definition. The pattern of fine wrinkles and folds formed on the grain when leather is bent or compressed. Fine or coarse break describes this response, not a torn or fractured specimen.

In Plain Language. Gently bending the leather reveals how its surface and supporting structure work together. A coarse fold pattern can be an article characteristic or an unwanted looseness.

Example. A technician compares the grain break of a retanning trial with the approved reference sample.

See Also: Loose Grain; Grain Tightness; Grain Pattern.

273. Grain Tightness

Technical Definition. The degree to which the grain region is well supported by and moves coherently with the underlying leather structure, often assessed through bending and surface appearance.

In Plain Language. Tight grain forms a controlled, fine response when flexed. It should be judged for the article rather than equated with stiffness.

Example. A soft upper leather retains a fine break because its grain remains well supported.

See Also: Break; Loose Grain; Retanning.

274. Loose Grain

Technical Definition. Insufficient support or attachment between the grain region and underlying structure, often revealed as coarse wrinkling or a lifted, baggy surface when bent.

In Plain Language. The surface seems to move independently of the body beneath it. It is different from a deliberately pebbled texture pressed into an otherwise sound leather.

Example. A bent sample shows broad, unstable creases that differ from the approved fine-break standard.

See Also: Break; Pebble Grain; Overbating.

L9-D | Dry Mill

275. Dry Milling

Technical Definition. Tumbling leather in a drum, usually with controlled moisture, temperature, airflow, and dust removal, to develop softness, relaxation, and sometimes a more pronounced natural grain.

In Plain Language. Repeated flexing changes the feel and surface response of the sheet. Dry refers to the absence of a normal wet-process float, not necessarily zero moisture.

Example. A milled upholstery article develops a soft hand and a naturally varied pebble-like grain.

See Also: Milled Grain; Staking; Final Milling.

276. Milled Grain

Technical Definition. Surface texture developed or accentuated by mechanical milling and the leather's own structural response, producing a grain that can vary across the hide.

In Plain Language. The visible texture comes from how the leather relaxes and flexes. A uniform embossed print is made by a different mechanism.

Example. A naturally milled hide has larger grain in one region and a finer pattern elsewhere.

See Also: Dry Milling; Embossing; Pebble Grain.

277. Boarding

Technical Definition. Working folded leather with a boarding tool or equivalent action to soften it and develop its grain. Historical boarding methods vary in direction and effect.

In Plain Language. This is a traditional way of manipulating the surface and structure by folding and working. Related natural-grain effects can also be developed with modern machinery.

Example. A currier works a folded skin to raise and refine its grain character.

See Also: Milled Grain; Break; Currying.

L9-E | Re-Dry or Toggle

278. Re-Drying

Technical Definition. A further drying stage used after conditioning, milling, or other work to restore the moisture, shape, or area required by the article.

In Plain Language. Leather can need more than one drying event. Added conditioning water or a changed shape can make another controlled pass necessary.

Example. A softened side returns to a restrained drying stage before final surface preparation.

See Also: Conditioning; Toggle Drying.

L9-F | Buff or Snuff

279. Buffing

Technical Definition. Controlled abrasion of a leather surface using abrasive media to remove material, refine thickness or surface, correct grain, or develop a nap, depending on the treated face. [41]

In Plain Language. Buffing is material removal. It differs from polishing, which primarily smooths or develops gloss through friction. In everyday leather-care language, buff can also mean polishing with a cloth. Here it means abrasive surface preparation.

Example. Fine grain-side abrasion produces a nubuck surface, while lower-layer abrasion can develop suede.

See Also: Snuffing; Nubuck; Suede; Polishing.

280. Snuffing

Technical Definition. Light, controlled abrasion of the grain surface, commonly used to create a fine velvety effect or carry out limited surface correction.

In Plain Language. The term often signals a delicate buffing action. Even light removal changes whether the original grain has been retained intact.

Example. A nubuck article is snuffed to produce a short, fine nap.

See Also: Buffing; Full Grain; Nubuck.

281. Nap

Technical Definition. Short, exposed surface fibers arranged to create a velvety or suede-like effect. Fiber length, density, direction, and finishing determine its visual and tactile behavior.

In Plain Language. The color can appear lighter or darker when you brush the fibers in opposite directions, even though the dye itself has not changed.

Example. A hand drawn across suede leaves a temporary directional shade mark.

See Also: Suede; Nubuck; Two-Tone Effect.

282. Nubuck

Technical Definition. Leather whose grain side has been lightly abraded to create a fine velvety nap, often retaining recognizable traces of the original grain pattern.

In Plain Language. Nubuck’s fuzzy surface comes from the outside face of grain leather. That origin distinguishes it from the common lower-split suede route.

Example. A nubuck sample has a very short, fine nap produced by controlled grain-side abrasion.

See Also: Suede; Buffing; Grain Split.

283. Suede

Technical Definition. Leather with a mechanically developed napped wearing surface, commonly produced from a flesh split or the flesh side of a grain-bearing skin. [39]

In Plain Language. Suede describes a surface type rather than a single animal or tannage. The underlying layer and construction should be stated separately. In technical leather terminology, suede names a leather surface class. Commercial phrases such as faux suede describe a resemblance and require a separate material identification.

Example. A suede jacket and a split-suede work glove can use different skins and substances.

See Also: Nap; Split Leather; Roughout.

284. Roughout

Technical Definition. A grain-bearing leather presented with its flesh face outward as the wearing surface, commonly retaining the grain layer on the reverse. Terminology and finishing details vary by supplier.

In Plain Language. The orientation is central: the leather is used flesh-side out. That is different from assuming every fuzzy surface is a detached lower split.

Example. A boot’s exterior shows the rough flesh surface while the original grain face is inside.

See Also: Flesh Side; Suede; Grain Split.

285. Corrected Grain

Technical Definition. Leather whose original grain has been partly removed by abrasion or comparable corrective treatment and subsequently developed with an appropriate finish.

In Plain Language. The process changes the original surface to suit the article. Correction, pigment, and embossing often occur together, but they are distinct operations.

Example. A side is lightly buffed, given a supporting finish, and embossed with a uniform texture.

See Also: Full Grain; Pigmented Leather; Embossing.

L9-G | Dedust

286. Dedusting

Technical Definition. Removal and collection of loose surface dust, commonly after buffing, by brushes, controlled air, suction, or combined equipment.

In Plain Language. Loose particles can interfere with coating adhesion and appearance. The removed dust retains the material’s tanning and finishing history.

Example. A buffed side passes through a brush-and-extraction machine before receiving its basecoat.

See Also: Buffing; Adhesion; By-Product.

STAGE 10

Finish Building

Finishing develops the leather's appearance, surface feel, and protection through a sequence of treatments and coatings. Ingredients, application methods, drying, and curing contribute to the properties of the finished surface.

L10-B | Finish-Family Gate

287. Finish

Technical Definition. The surface treatment system applied or mechanically developed to establish appearance, touch, protection, and use behavior. The word can also mean the resulting surface state.

In Plain Language. Finish is another layer of description alongside tannage and grain structure. A leather can have a restrained transparent finish or a complex opaque coating system.

Example. Two similarly tanned sides receive different finishes for a natural-looking bag and a uniformly colored upholstery article.

See Also: Aniline Leather; Pigmented Leather; Topcoat.

288. Full Grain

Technical Definition. Leather retaining its original grain surface without corrective removal by buffing or similar mechanical treatment. Full grain does not, by itself, specify absence of dye, coating, or an impressed pattern. [37]

In Plain Language. Full grain is a technical description of surface retention, also used in sales language. It does not guarantee a particular grade, softness, or amount of protection.

Example. A full-grain leather can be drum-dyed and given a transparent protective topcoat.

See Also: Corrected Grain; Top Grain; Aniline Leather.

289. Top Grain

Technical Definition. A term with differing technical and commercial uses. The Leather Research Laboratory treats top grain as equivalent to full grain. Broader sales usage can refer to the upper, grain-bearing layer, including corrected material; the intended convention must be established. [37] [44]

In Plain Language. A technical reference and a seller may mean different things by top grain. Ask whether the original surface has been retained or buffed. The name alone does not establish a universal position in a quality ranking.

Example. A buyer asks whether a top-grain sample has been buffed and what finish it carries.

See Also: Full Grain; Corrected Grain; Grain Split.

290. Aniline Leather

Technical Definition. Leather whose natural grain remains clearly visible with no pigmented covering finish; a suitable non-pigmented surface treatment may be present under the applicable definition. [38]

In Plain Language. The natural surface remains part of what you see. Aniline is a finish-description term and does not mean that untreated aniline chemical has been poured onto the leather. The technical classification concerns pigment coverage and grain visibility; a natural-looking sales description alone does not establish it.

Example. A transparent brown finish shows scars and shade variation that an opaque pigment coat would hide.

See Also: Semi-Aniline; Naked Leather; Dyeing.

291. Semi-Aniline

Technical Definition. Leather with a finish containing a limited amount of pigment while the natural grain remains visible. Exact naming and performance requirements belong to the applicable definition and article. [38]

In Plain Language. It balances visible natural character with some color equalization and protection. The name alone does not establish a test result for stains or wear. Semi describes a finishing category, not a measured percentage of aniline leather in a mixture.

Example. A lightly pigmented upholstery leather still shows grain detail under its protective finish.

See Also: Aniline Leather; Pigmented Leather; Topcoat.

292. Pigmented Leather

Technical Definition. In the cited technical classification, leather with a pigment-containing finish that fully conceals the underlying surface. The broader phrase pigment-containing finish also covers lighter applications, including semi-aniline finishes. [38]

In Plain Language. Pigment helps create consistent color and coverage. Some pigment in a finish does not automatically place it in the fully covering pigmented-leather category. Full grain, corrected grain, and split describe separate aspects of the underlying material.

Example. An opaque black finish covers differences in the color of the underlying leather.

See Also: Pigment; Corrected Grain; Coated Leather.

293. Naked Leather

Technical Definition. A commercial term for leather carrying very little surface finishing or protection, commonly associated with visible natural character. Its precise meaning varies between suppliers.

In Plain Language. Treat naked as a request for more information about the actual treatment. A leather can have been tanned, dyed, and fatliquored while remaining lightly finished.

Example. A buyer tests a naked-leather sample for the appearance changes expected in its intended use.

See Also: Aniline Leather; Patina.

294. Nappa

Technical Definition. A term associated with soft, supple grain leather, historically and technically subject to narrower definitions, but used broadly in contemporary commerce. Napa is an alternative spelling. [01]

In Plain Language. Nappa generally communicates a soft article character. It does not reliably identify animal species, primary tannage, or the exact finish without a specification. LWG's terminology list uses a narrower definition: soft, full-grain, through-dyed, lightly finished leather. A commercial listing may use the name more broadly.

Example. A supplier offers bovine nappa for upholstery and a different lamb nappa for garments.

See Also: Handle; Temper; Article.

L10-C | Stain, Oil, Wax, or Impregnate

295. Staining

Technical Definition. Application of color, commonly using a dye-based liquid, to develop surface shade or an effect. In tannery language it can be part of finishing after earlier drum processing.

In Plain Language. A stain can alter the visible face without producing the same color through the entire thickness. Surface staining and through-dyeing answer different needs.

Example. A currier hand-stains a vegetable-tanned side to develop the requested brown surface.

See Also: Dyeing; Through-Dyed; Dye Color Coat.

296. Oil

Technical Definition. A liquid lubricating or effect-forming ingredient used in suitable wet-end or finishing systems. Its chemistry, oxidation behavior, delivery, and amount influence the resulting article.

In Plain Language. Oil is an ingredient category, not a complete tanning method. A surface oil can darken or change the feel of leather differently from an internally distributed fatliquor.

Example. A finishing pass develops a richer oily character after the wet-end lubrication has already been established.

See Also: Fatliquor; Oil-Tanned; Pull-Up.

297. Wax

Technical Definition. A solid or semi-solid material with characteristic melting and surface properties, used in leather to influence touch, gloss, water behavior, filling, and visual effects.

In Plain Language. Different waxes can create different feels and appearances. The wax may be inside the leather, at the surface, or part of a coating mixture.

Example. A waxed article develops lighter marks when flexed and a changed sheen after polishing.

See Also: Pull-Up; Spue; Polishing.

298. Pull-Up

Technical Definition. A designed temporary lightening or color change when leather is bent, stretched, or compressed, commonly associated with movement of oils and waxes within its structure. [19]

In Plain Language. The lighter area often changes again when the material relaxes or is worked. Pull-up is an effect and can occur in more than one tanning family.

Example. A brown sample becomes honey-colored over a bent knuckle, then darkens again as it relaxes.

See Also: Wax; Oil; Two-Tone Effect.

299. Impregnation

Technical Definition. Introduction of suitable materials into the near-surface or internal structure to modify properties such as grain support, absorption, or firmness. In finishing, it often refers to penetrating polymer treatment.

In Plain Language. An impregnation works within the substrate to prepare it for later work. It differs from a film designed mainly to sit on the outer face.

Example. A corrected-grain route uses an impregnation treatment before building its surface coating.

See Also: Basecoat; Resin Retan; Grain Tightness.

300. Spue

Technical Definition. A surface deposit arising from migration and crystallization of fatty or waxy constituents, commonly called fatty spue, spew, or bloom. Diagnosis must distinguish it from mold and other deposits.

In Plain Language. A pale coating on leather has several possible explanations. Some waxy blooms are expected article characteristics, while other deposits are defects.

Example. A waxed bridle sample shows a pale surface bloom that is interpreted using its known dressing history.

See Also: Fat Migration; Mold; Dubbin.

301. Tea-Core

Technical Definition. A commercial effect description for leather with a darker surface over a lighter, often brown, underlying color that becomes visible with wear. Exact dyeing and finishing routes vary.

In Plain Language. The visual change comes from contrasting color layers or depths. It is different from a temporary pull-up response when the leather is bent.

Example. A black boot develops brown highlights where its surface finish wears at the edges.

See Also: Through-Dyed; Pull-Up; Patina.

302. Antiquing

Technical Definition. Intentional development of aged-looking color variation, often through layered stains, selective removal, contrasting effects, or polishing.

In Plain Language. The tannery or maker creates an appearance associated with use before the object has naturally aged. It is a finish effect, not evidence of age.

Example. Darker color remains in embossed recesses while raised areas appear lighter.

See Also: Patina; Two-Tone Effect; Tipping.

L10-D | Sealer or Basecoat

303. Sealer

Technical Definition. A preparatory surface treatment designed to moderate absorption or isolate the substrate so later coats develop more consistently.

In Plain Language. The sealer controls how the next layer meets the leather. Its role can overlap with a basecoat, depending on the finish system.

Example. A sealer reduces uneven uptake before a uniform color coat is applied.

See Also: Basecoat; Adhesion; Finish.

304. Basecoat

Technical Definition. An initial film-building finish layer that provides adhesion, filling, color foundation, and support for subsequent coats according to the system.

In Plain Language. The basecoat is the foundation of a layered finish. Poor attachment or excessive buildup here can affect every layer added later.

Example. A flexible basecoat supports a pigment coat and compatible topcoat on an upholstery article.

See Also: Binder; Sealer; Topcoat.

305. Binder

Technical Definition. A film-forming component that holds pigments and other finish ingredients together and helps attach the coating to the leather. Common families include proteins and synthetic polymers.

In Plain Language. Pigment needs something to keep it on the surface. The binder also has to flex appropriately with the leather.

Example. A black pigment dispersion is combined with a suitable binder to form a durable flexible coat.

See Also: Pigment; Acrylic Binder; Polyurethane.

306. Acrylic Binder

Technical Definition. A finish binder based on acrylic polymers or copolymers, formulated to provide a selected balance of film formation, flexibility, adhesion, and resistance.

In Plain Language. Acrylic names a broad polymer family. A soft basecoat acrylic and a harder finishing product can behave differently.

Example. A finisher chooses an acrylic-containing binder blend for the required flexibility and coverage.

See Also: Binder; Acrylic Retan; Film Formation.

307. Polyurethane

Technical Definition. A polymer family containing urethane linkages and used in varied leather coatings and finishes. Waterborne dispersions, solvent-based systems, and differing polymer chemistries produce different properties.

In Plain Language. PU does not identify one universal coating. Formulation and layer thickness determine much of the feel, flexibility, and resistance.

Example. A thin polyurethane-containing topcoat can protect a leather surface without resembling a thick plastic sheet.

See Also: Topcoat; Waterborne Finish; Hydrolysis.

308. Protein Finish

Technical Definition. A finish using proteins such as casein or albumen as important film-forming components, often combined with dyes, pigments, waxes, and suitable fixing treatments.

In Plain Language. This is a long-established finish family that can work with mechanical glazing. It is distinct from the collagen protein making up the leather underneath.

Example. A glazed leather develops brilliance through a compatible protein-based season and mechanical working.

See Also: Casein; Albumen; Glazing.

309. Casein

Technical Definition. A milk-protein family used in suitable prepared formulations as a leather-finishing binder. Application and fixing systems determine its film behavior and resistance.

In Plain Language. Casein is one traditional coating ingredient. Its presence does not mean that untreated milk is applied as a modern finish.

Example. A historical glazing account describes a casein-containing season followed by drying and polishing.

See Also: Protein Finish; Season; Fixative.

310. Albumen

Technical Definition. A protein material, historically including egg-derived preparations, used in some leather seasons and finishing systems to contribute film formation and gloss.

In Plain Language. Albumen appears in older recipes for fine glazed surfaces. Its effect belongs to the whole formulation and working sequence.

Example. An instructor identifies albumen as one binder used in traditional finishing literature.

See Also: Protein Finish; Glazing; Season.

311. Season

Technical Definition. A traditional term for a liquid leather-finishing preparation or an application of it, potentially containing binder, colorant, wax, and other ingredients.

In Plain Language. A season is a finishing mixture, not necessarily a period of aging. Older manuals may describe several seasons with drying and glazing between them.

Example. A currier applies a color season and later develops its appearance by glazing.

See Also: Protein Finish; Basecoat; Aging.

312. Filler

Technical Definition. An ingredient used to occupy voids, adjust body, or modify a finish film. Internal retanning fillers and surface-coating fillers have different locations and functions.

In Plain Language. The word needs context. Filling a loose leather structure is different from adding a powder to change a coating’s surface or economics.

Example. A surface formulation uses a filler to adjust its film while a separate retan develops internal fullness.

See Also: Fullness; Resin Retan; Basecoat.

313. Viscosity

Technical Definition. Resistance to flow under defined measurement conditions. Finish viscosity influences application, leveling, atomization, penetration, and the amount transferred.

In Plain Language. A coating can be too thin or too thick for the chosen equipment. Comparing readings requires a stated method and temperature.

Example. A roller-coating mixture is adjusted to suit its application system before production.

See Also: Roller Coating; Atomization; Levelness.

314. Solids Content

Technical Definition. The proportion of nonvolatile material in a product or coating mixture under a specified determination method, commonly expressed by mass.

In Plain Language. Two equally wet-looking coats can leave different amounts of material after drying. Solids helps explain the final film buildup.

Example. A higher-solids mixture can leave more dry finish from the same measured wet add-on.

See Also: Coat Weight; Film Formation.

315. Waterborne Finish

Technical Definition. A finish system in which water is the principal carrier, commonly containing dissolved or dispersed polymers and other auxiliaries. Co-solvents may still be present.

In Plain Language. Waterborne describes the delivery system, not a complete chemical or impact claim. Drying and compatibility remain important.

Example. A polyurethane dispersion is applied in a waterborne finish and dried under controlled conditions.

See Also: Solvent-Borne Finish; Polyurethane; VOC.

316. Solvent-Borne Finish

Technical Definition. A finish whose principal liquid carrier is an organic solvent or solvent mixture, selected to deliver its film-forming and effect ingredients.

In Plain Language. The solvent carries the coating and then leaves during drying. Its handling and emissions are part of the process design.

Example. A specified lacquer system uses a compatible solvent carrier and controlled drying equipment.

See Also: Waterborne Finish; Nitrocellulose; VOC.

L10-E | Intermediate Dry or Cure

317. Curing (Finish)

Technical Definition. Development of a coating’s intended properties through physical consolidation and, where applicable, chemical reaction such as crosslinking. It may continue after initial drying.

In Plain Language. A surface can feel dry before the finish has reached its final resistance. Dry-to-handle and fully cured are different conditions.

Example. A freshly coated sample is held for the specified cure before adhesion and rub testing.

See Also: Drying; Crosslinker; Film Formation.

318. Film Formation

Technical Definition. The development of a coherent coating from applied ingredients through processes such as carrier evaporation, polymer-particle coalescence, and chemical reaction.

In Plain Language. The finish must become a continuous working layer. Simply removing water does not ensure a sound film if conditions were unsuitable.

Example. A waterborne coating develops poor integrity when its film-forming requirements are not met.

See Also: Curing (Finish); Binder; Coalescence.

319. Coalescence

Technical Definition. The joining of dispersed polymer particles into a more continuous film as a coating dries under suitable conditions.

In Plain Language. In many waterborne finishes, the particles need to come together properly. The required temperature and formulation affect the resulting film.

Example. A drying trial checks that the coating forms a coherent layer rather than remaining weak and powdery.

See Also: Film Formation; Waterborne Finish.

320. Crosslinker

Technical Definition. A substance that forms chemical connections between suitable polymer or binder chains, modifying properties such as resistance, strength, and flexibility.

In Plain Language. More connections can improve some resistances while changing other behavior. The correct level is a formulation choice, not a rule that more is always better.

Example. A topcoat system uses its specified crosslinker and cure before wet-rub performance is assessed.

See Also: Curing (Finish); Binder; Flex Resistance.

321. VOC

Technical Definition. Volatile organic compound, a category whose precise definition depends on the measurement or regulatory context. In leather processing, organic carriers and other volatile constituents can contribute emissions.

In Plain Language. VOC describes chemicals that can leave the process or material into the air under relevant conditions. A waterborne label does not establish zero VOC.

Example. A finisher considers the carrier system and drying emissions when comparing formulations.

See Also: Waterborne Finish; Solvent-Borne Finish; Fogging.

L10-F | Intermediate Plate or Iron

322. Plating

Technical Definition. Pressing leather against a plate or comparable controlled surface, often with heat, to influence flatness, gloss, compactness, and surface character.

In Plain Language. Plating develops the surface through contact and pressure. A patterned plate can also emboss, while a smooth one mainly levels or polishes the surface.

Example. A smooth hydraulic plate levels a finish between coating stages.

See Also: Ironing; Embossing; Dwell Time.

323. Ironing

Technical Definition. Controlled heat-and-pressure treatment of leather, commonly in a through-feed roller system, to smooth and develop the surface.

In Plain Language. This is tannery machinery terminology. The result depends on the machine, finish, moisture, temperature, pressure, and contact time.

Example. A side passes through a controlled ironing roller after an intermediate coat has stabilized.

See Also: Plating; Thermoplastic; Dwell Time.

324. Thermoplastic

Technical Definition. Describing a material that softens with heating and stiffens again on cooling within its appropriate working range, without requiring a new permanent crosslinking reaction for that change.

In Plain Language. Heat can let parts of a finish move and reshape under a plate. Excessive treatment can also change the surface in unwanted ways.

Example. An ironing pass levels a thermoplastic-containing finish and the surface sets again as it cools.

See Also: Polyurethane; Plating; Curing (Finish).

325. Dwell Time

Technical Definition. The duration for which leather experiences a defined treatment condition, such as contact under pressure in a heated press.

In Plain Language. A machine’s setting is incomplete without time. Equal temperature and pressure can give different results when contact lasts longer.

Example. An embossing trial records dwell along with the plate, pressure, and temperature.

See Also: Embossing; Plating.

L10-G | Pigment or Color Coat

326. Pigment

Technical Definition. An insoluble colorant dispersed as particles in a medium and retained in a suitable binder. It differs from a dye dissolved or molecularly distributed in the coloring system.

In Plain Language. Pigment creates color as particles within a surface film. Its coverage can hide underlying variations that remain visible through a transparent dye treatment.

Example. A white pigment coat masks the darker substrate beneath it.

See Also: Dyeing; Binder; Hiding Power.

327. Dye Color Coat

Technical Definition. A surface-finishing layer whose coloration is supplied principally by dye rather than an opaque pigment dispersion, within a compatible finishing system.

In Plain Language. Dye can be applied during surface finishing as well as in a drum. A dye coat is therefore not proof that the leather is through-dyed.

Example. A transparent brown color coat deepens the face shade while leaving grain detail visible.

See Also: Staining; Pigment; Through-Dyed.

328. Hiding Power

Technical Definition. The ability of a coating to obscure the color or appearance of the substrate under specified application and assessment conditions.

In Plain Language. A high-hiding film can make uneven leather look more uniform. That coverage is different from removing a defect or restoring lost structure.

Example. An opaque pigment formulation covers color variation but does not repair a deep flay cut.

See Also: Pigment; Opacity; Corrected Grain.

329. Opacity

Technical Definition. The extent to which a material or layer prevents light transmission and conceals what lies beneath, assessed under defined conditions.

In Plain Language. Opacity helps explain why some finishes show every natural mark while others present an even field of color.

Example. Increasing opaque pigment in a coating reduces visibility of the underlying grain details.

See Also: Hiding Power; Aniline Leather.

330. Coat Weight

Technical Definition. The mass of applied coating per unit area, stated as wet add-on or dry film mass as appropriate. The distinction and measurement basis must be specified.

In Plain Language. Counting coats is not enough: one heavy pass can leave more material than several light passes.

Example. A development record compares dry coat weight as well as the number of spray passes.

See Also: Solids Content; Spray Coating.

331. Spray Coating

Technical Definition. Application of a liquid finish as atomized droplets from spray equipment, with manual or automated movement and controlled collection of overspray.

In Plain Language. The spray system must place the right amount evenly across an irregular sheet. Gun settings, movement, mixture, and conveyor speed all contribute.

Example. An automatic booth applies a color layer as a side passes beneath its moving guns.

See Also: Atomization; Overspray; Transfer Efficiency.

332. Atomization

Technical Definition. Breakup of a liquid coating into droplets suitable for spray application. Droplet formation depends on the equipment and liquid properties.

In Plain Language. The spray has to be fine and consistent enough for the intended film. An unsuitable droplet pattern can produce uneven surface texture.

Example. A finisher adjusts the application system when the coating deposits as coarse wet spots.

See Also: Spray Coating; Viscosity.

333. Roller Coating

Technical Definition. Application of a measured finish layer by transfer from a controlled roller surface as leather passes through the machine.

In Plain Language. The roller meters and transfers the liquid. Different configurations can apply color, wax, impregnation, or special effects.

Example. A roller coater lays down a consistent basecoat before drying.

See Also: Coat Weight; Tipping; Basecoat.

334. Curtain Coating

Technical Definition. Application in which leather passes beneath a continuous falling curtain of liquid finish, receiving a controlled film.

In Plain Language. The material moves through a sheet of liquid. The process requires suitable flow and handling to achieve even coverage.

Example. A finishing line applies a coating from a stable liquid curtain before the drying stage.

See Also: Viscosity; Coat Weight.

335. Padding

Technical Definition. Application of a liquid finish by a pad or related contact tool, manually or mechanically, to work color or other ingredients onto the leather surface.

In Plain Language. Padding is a direct-contact application method. It can leave a different penetration and effect from spraying the same mixture.

Example. A worker pads stain onto a side while controlling overlap and shade uniformity.

See Also: Staining; Roller Coating.

336. Overspray

Technical Definition. Sprayed finish that does not deposit on the intended leather surface, becoming material to collect or manage within the booth and ventilation system.

In Plain Language. Some sprayed product misses the leather. Equipment and application design affect how much is lost this way.

Example. A sensor-controlled spray line avoids spraying the gaps between passing hides.

See Also: Spray Coating; Transfer Efficiency.

337. Transfer Efficiency

Technical Definition. The fraction of applied coating material that reaches the intended substrate, measured on a stated basis.

In Plain Language. It describes how effectively the application system uses the finish. It is different from how much pigment hides the substrate or how well the film adheres.

Example. A roller or spray trial compares material deposited on leather with the amount supplied to the application system.

See Also: Overspray; Adhesion; Coat Weight.

L10-H | Topcoat or Fixative

338. Topcoat

Technical Definition. The outer finish layer designed to establish surface protection, gloss, touch, slip, and resistance appropriate to the article.

In Plain Language. The topcoat is the layer that meets hands, clothing, cleaning, and abrasion. It must remain compatible with the layers and leather beneath.

Example. A matte topcoat changes the surface sheen while providing the specified rub resistance.

See Also: Basecoat; Touch; Colorfastness.

339. Fixative

Technical Definition. A product used to improve retention or resistance of a dye, protein finish, or other treatment through a mechanism specific to the system.

In Plain Language. Fixative describes a job, not one universal chemical. A dye fixative and a protein-finish fixing agent may be entirely different products.

Example. A finishing system uses its designated fixing treatment before resistance testing.

See Also: Fixation; Protein Finish; Crosslinker.

340. Nitrocellulose

Technical Definition. A chemically modified cellulose used in suitable lacquer formulations for film formation and surface effects, including certain leather finishes.

In Plain Language. This is a particular coating family with a long industrial history. Its behavior should be understood from the actual formulation and carrier system.

Example. A leather-finishing description identifies a nitrocellulose lacquer as distinct from a polyurethane topcoat.

See Also: Solvent-Borne Finish; Topcoat.

341. Matting Agent

Technical Definition. A finish ingredient used to reduce specular gloss by modifying surface or film optical behavior, commonly through fine particles or other designed structures.

In Plain Language. A matte appearance can be built into the finish. It is not reliable evidence that a leather lacks a coating.

Example. A coated upholstery leather receives a low-gloss topcoat with a suitable matting system.

See Also: Gloss; Topcoat.

342. Touch

Technical Definition. The immediate surface sensation of leather, including qualities such as dry, waxy, oily, silky, slippery, or tacky. It is one component of overall handle.

In Plain Language. Touch describes what your fingers meet at the surface; temper describes bending behavior. A firm leather can still feel silky.

Example. A sample has a firm body but a smooth, low-friction touch from its topcoat.

See Also: Handle; Temper; Topcoat.

343. Silicone

Technical Definition. A family of silicon-oxygen-based polymers and related materials used in selected finishing auxiliaries to modify properties such as slip, touch, or water behavior.

In Plain Language. Silicone is different from silicon metal and from silica powder. Its function depends on the formulation and where it is used.

Example. A topcoat auxiliary changes surface slip while the overall finish retains its required adhesion and resistance.

See Also: Touch; Topcoat; Matting Agent.

344. Shellac

Technical Definition. A natural resin derived from lac-insect secretions and used in suitable varnish, dressing, and historical leather-finishing systems.

In Plain Language. Shellac is a finishing resin, not an animal-skin layer or a tanning species. Older recipes may combine it with other binders and effects.

Example. A historical finishing account identifies shellac as one ingredient contributing surface gloss.

See Also: Season; Gloss; Protein Finish.

STAGE 11

Finish Development and Approval

Pressing, embossing, glazing, rolling, and polishing develop surface texture and appearance according to the article. Visual inspection and physical and chemical tests assess the finished leather against its specification.

L11-B | Press, Emboss, Glaze, or Roll

345. Pressing

Technical Definition. Application of controlled pressure, with or without heat and a defined tool surface, to alter leather flatness, texture, density, or finish behavior.

In Plain Language. Press is the broad action. Plate, emboss, and roll describe more specific ways that pressure can be used.

Example. A smooth press develops flatness while an engraved tool impresses a texture.

See Also: Plating; Embossing; Rolling.

346. Embossing

Technical Definition. Impressing a relief pattern into a material with a patterned plate, roller, or comparable tool under controlled pressure and often heat.

In Plain Language. The pattern is deliberately made at the surface. It can resemble natural grain, another animal, a woven fabric, or an abstract design.

Example. A cattle leather receives a crocodile-style emboss without becoming crocodile leather.

See Also: Grain Pattern; Saffiano; Embossing Plate.

347. Embossing Plate

Technical Definition. A patterned tooling surface, commonly mounted in a press, that transfers its relief geometry to the leather under defined conditions.

In Plain Language. The plate is the physical pattern master. Pattern scale, repeat, orientation, depth, and tool condition affect the result.

Example. A finisher changes plates to produce either a fine crosshatch or a larger pebble texture.

See Also: Embossing; Pattern Repeat; Dwell Time.

348. Grain Pattern

Technical Definition. The visible arrangement of surface features on leather, produced by natural skin structure, mechanical development, embossing, or a combination.

In Plain Language. A grain pattern tells you what the surface looks like. It does not necessarily reveal the animal, tanning system, or whether the surface was corrected.

Example. A pebble-like appearance may be naturally milled on one sample and embossed on another.

See Also: Grain; Milled Grain; Pebble Grain.

349. Print

Technical Definition. In leather trade usage, either an impressed surface pattern or a color design applied by a printing process. The intended meaning must be established from context.

In Plain Language. Scotch print often means embossing. A floral print may mean applied ink or color. A photograph alone may not tell you which process was used.

Example. A recipe card specifies Emboss for a Scotch-grain texture and separately records any color application.

See Also: Embossing; Color Printing; Scotch Grain.

350. Crosshatch

Technical Definition. A surface pattern made from intersecting sets of lines, producing a lattice or small diamond-like fields. On leather it may be impressed, printed, or otherwise developed.

In Plain Language. Crosshatch describes geometry. Saffiano is one recognizable leather-related use, but many other patterns can cross in two directions.

Example. Two swatches both have crossed lines, but one has a much coarser pitch and a less regular repeat.

See Also: Saffiano; Russian Hatch; Pattern Scale.

351. Saffiano

Technical Definition. A leather trade and design term associated with a fine, regular crosshatch texture impressed into the surface. Prada describes its Saffiano material with a crosshatch pattern and waxed finish; other suppliers' Saffiano-style materials vary. [22]

In Plain Language. Look for tightly repeated intersecting diagonal lines. The pattern name alone cannot establish the underlying animal, tanning system, layer, or exact coating chemistry. The same visual vocabulary is also used on non-leather materials.

Example. For an unidentified sample, a useful description is "leather with a Saffiano-style crosshatch emboss." Record any known species, tannage, or coating as separate facts.

See Also: Crosshatch; Epsom; Russian Hatch.

352. Scotch Grain

Technical Definition. A family of embossed leather grain patterns associated especially with country footwear, generally presenting a pronounced irregular pebble-like texture. Scotch print is a common alternative expression. [23]

In Plain Language. It is a pattern family, with scale and shape varying among suppliers. It does not establish Scottish origin, a particular animal, or one tanning recipe. It is also visually different from Saffiano's fine intersecting lines.

Example. A boot maker specifies a particular Scotch-grain reference swatch so the tannery matches the intended scale and relief rather than any vaguely pebbled surface.

See Also: Pebble Grain; Print; Saffiano.

353. Pebble Grain

Technical Definition. A descriptive family of rounded, granular surface textures. The effect may be naturally developed by milling or imposed by embossing, depending on the leather.

In Plain Language. Pebble tells you the look, not how it was made. Ask whether the grain was milled, shrunken, embossed, or developed through a combination.

Example. One pebble sample has an extremely regular repeat, while a naturally milled sample varies markedly across the hide.

See Also: Milled Grain; Embossing; Scotch Grain.

354. Russian Hatch

Technical Definition. A trade description for a hatched or diamond-pattern leather surface associated with Russian-style leather traditions and modern interpretations. Pattern, tannage, dressing, and origin require separate evidence. [24]

In Plain Language. The hatch appearance and the historical recipe are different claims. A modern embossed sample may resemble historical Russia leather without reproducing its materials or process.

Example. An unidentified swatch is described as a Russian-style hatch emboss, while a named tannery's documented article is described using its own process evidence.

See Also: Russia Leather; Crosshatch; Saffiano.

355. Russia Leather

Technical Definition. A historical leather family associated with particular tanning and birch-oil dressing traditions, often carrying a distinctive hatched surface. Modern revival articles differ in what they reproduce. [24]

In Plain Language. The name refers to more than a diamond print. A pattern, aroma, country of manufacture, and documented historical-style process are separate pieces of information.

Example. A teacher compares a modern hatch-embossed swatch with a documented Russia-style article without treating them as equivalent recipes.

See Also: Russian Hatch; Currying.

356. Willow Grain

Technical Definition. A named family of directional, relatively linear grain embossings. A supplier's pattern reference establishes its actual appearance and scale. [25]

In Plain Language. Its lines create a visible direction that matters when cutting panels. A shoe or bag can look mismatched if adjacent pieces point different ways.

Example. Crockett & Jones describes cutting its Willow Grain in the direction of the pattern, increasing cutting constraints.

See Also: Pattern Direction; Embossing.

357. Epsom

Technical Definition. A named calf-leather article associated with Hermès and a fine, regular mechanically impressed grain. The name is also used loosely by sellers of similar-looking leathers. [26]

In Plain Language. It is best treated as an article name with a recognizable texture, not a universal manufacturing recipe. Similar-looking market samples need their own material specifications.

Example. A generic sample is recorded as having an Epsom-style fine embossed grain unless its actual article identity is documented.

See Also: Saffiano; Article; Embossing.

358. Epi

Technical Definition. Louis Vuitton’s named leather family with a characteristic directional, wave-like embossed grain and associated color treatment. Epi-style is a descriptive comparison for unrelated materials. [27]

In Plain Language. Its ridged lines differ from a crosshatch and from rounded pebble grain. The brand’s article identity cannot be inferred solely from a similar pattern.

Example. A learner compares Epi’s linear waves with Saffiano’s crossing lines on a pattern reference sheet.

See Also: Pattern Direction; Crosshatch; Two-Tone Effect.

359. Basketweave Emboss

Technical Definition. An impressed pattern that imitates interlaced strips or basket weaving on a continuous leather surface.

In Plain Language. The sheet only appears woven. A real woven-leather panel is made by physically interlacing separate strips and has a different construction.

Example. A belt has a repeated basketweave relief pressed into its intact face.

See Also: Embossing; Pattern Repeat.

360. Crocodile and Alligator Emboss

Technical Definition. Impressed patterns imitating the scale layout of crocodilian skin on another substrate. The emboss does not establish reptile species or animal origin.

In Plain Language. Croc-embossed cowhide remains cowhide. Pattern scale and body-region imitation can vary widely and affect how panels should be cut.

Example. A maker records “bovine leather, crocodile-style emboss” and keeps species identification separate from surface design.

See Also: Embossing; Pattern Direction; Print.

361. Lizard Emboss

Technical Definition. A fine-scale patterned relief imitating lizard skin on leather or another material, with design and scale determined by the tooling.

In Plain Language. The small repeated scale effect is an appearance treatment. It provides no proof of actual lizard skin.

Example. A watch-strap maker uses lizard-embossed calf and labels the underlying material accordingly.

See Also: Embossing; Pattern Scale.

362. Ostrich Emboss

Technical Definition. An impressed surface effect imitating features associated with ostrich leather, especially raised quill-follicle marks, on another substrate.

In Plain Language. The visible bumps can be made by tooling. Actual ostrich leather has its own anatomical distribution and material characteristics.

Example. A cattle-leather swatch carries an ostrich-style pattern and remains identified as bovine.

See Also: Embossing; Hair Follicle.

363. Shagreen

Technical Definition. A historically variable name for granular decorative skin surfaces, now commonly associated with ray skin and its imitations. Historical shagreen also includes prepared non-ray materials. [28]

In Plain Language. Ask whether the material is actual ray skin, another historical preparation, embossed leather, or a synthetic imitation. The texture name alone is insufficient.

Example. A furniture panel specified as shagreen-effect leather is documented separately from genuine ray skin.

See Also: Embossing; Print.

364. Shrunken Grain

Technical Definition. A pronounced, irregular grain effect developed through processes that deliberately shrink or contract the grain structure. An embossed imitation is a different production route.

In Plain Language. The texture can come from actual structural development rather than a repeating plate. Similar appearance does not prove the same process.

Example. A shrunken-grain article has uneven folds and valleys that vary across the hide.

See Also: Milled Grain; Pebble Grain; Embossing.

365. Pattern Repeat

Technical Definition. The recurring unit of an applied or impressed design, including the distance and arrangement over which it repeats.

In Plain Language. Repeat helps distinguish a designed pattern and affects visual matching. It is useful evidence but cannot identify all processing details by itself.

Example. A maker aligns repeated scale groups across adjacent handbag panels.

See Also: Pattern Direction; Pattern Scale.

366. Pattern Scale

Technical Definition. The size of the individual features and repeated units within a texture or print, specified independently of the overall leather dimensions.

In Plain Language. Two patterns with the same name can look very different when their features are different sizes. A swatch or dimensional reference resolves the ambiguity.

Example. A fine Scotch-grain wallet leather is distinguished from a coarser boot pattern.

See Also: Scotch Grain; Pattern Repeat.

367. Pattern Direction

Technical Definition. The orientation of a directional surface design relative to the leather sheet or a cut component. It is distinct from the internal fiber orientation of the hide.

In Plain Language. Visible lines and structural stretch can impose separate cutting constraints. Both can matter in planning a product.

Example. A bag maker aligns linear embossing vertically on every front panel while checking suitable structural placement.

See Also: Willow Grain; Cutting Yield.

368. Color Printing

Technical Definition. Application of a designed color image or pattern to the leather surface, using a printing method such as roller, screen, transfer, or digital application.

In Plain Language. Color printing changes the visible design without necessarily producing relief. It may be combined with embossing as a separate effect.

Example. A floral color print is applied to smooth leather that has no raised floral texture.

See Also: Print; Embossing; Transfer Coating.

369. Tipping

Technical Definition. Selective application of color or finish to raised areas of a textured surface, producing contrast with the lower recesses.

In Plain Language. Only the tops receive the contrasting effect. It can make an existing grain easier to see and create a two-tone appearance.

Example. A darker roller-applied color catches the tops of a pebble emboss while the valleys stay lighter.

See Also: Two-Tone Effect; Roller Coating.

370. Two-Tone Effect

Technical Definition. A designed or observed appearance involving two distinguishable color values, produced through coloration, relief, directional nap, pull-up, or another specified mechanism.

In Plain Language. Two-tone describes the result, not one process. Identify why the two colors appear before inferring the manufacturing route.

Example. A tipped embossed leather and brushed suede both show two tones for different reasons.

See Also: Tipping; Nap; Pull-Up.

371. Transfer Coating

Technical Definition. Application of a preformed or separately formed finish layer to leather through a transfer process, often using a release carrier to establish the final surface. [12]

In Plain Language. The surface can be formed elsewhere and then attached to the leather. The method can create texture and color without a conventional direct spray sequence.

Example. A split substrate receives a designed surface film from a release-paper system.

See Also: Coated Split; Laminated Leather; Release Paper.

372. Release Paper

Technical Definition. A carrier designed to hold a coating during film formation and then release it in a transfer process. Its surface can impart texture or gloss.

In Plain Language. The paper is a temporary tool, not necessarily a permanent part of the leather. Its texture can become the finish texture.

Example. An embossed release carrier gives a transferred coating its repeated surface pattern.

See Also: Transfer Coating; Pattern Repeat.

373. Laminated Leather

Technical Definition. Leather carrying a bonded additional layer, often a polymer film or foil, with formal naming dependent on the material construction and applicable definition. [01] [40]

In Plain Language. Lamination adds a separate layer to the leather. A complete description should state what that layer is and how the composite is classified. Definitions differ between references: LWG describes a transferred film within a thickness limit, while the Leather Research Laboratory uses a broader composite category. Identify the construction and the convention being used.

Example. A metallic film is bonded to leather for a decorative article.

See Also: Transfer Coating; Coated Leather; Foil Finish.

374. Foil Finish

Technical Definition. A decorative surface produced by transfer or attachment of a thin effect-bearing layer, often metallic-looking, patterned, or iridescent.

In Plain Language. The visual effect comes from the applied layer. It is separate from the leather’s primary tannage and natural grain.

Example. A smooth leather receives a metallic foil effect for a fashion accessory.

See Also: Laminated Leather; Transfer Coating.

375. Coated Leather

Technical Definition. Leather whose applied surface coating is thicker than 0.15 millimeters but no more than one-third of the total product thickness, under the cited technical definition. Casual trade use of coated is often broader. [35]

In Plain Language. In ordinary speech, any finished leather might be called coated. Technical classification depends on the actual layer and the applicable definition, not just whether the surface looks shiny.

Example. A specification states coating thickness and material construction rather than relying only on the word coated.

See Also: Pigmented Leather; Coated Split.

376. Coated Split

Technical Definition. Split leather carrying a surface coating that supplies the visible face and potentially a grain-like texture. Formal naming depends on coating construction and thickness.

In Plain Language. The smooth outer face is built onto a lower hide layer. It should not be described as retained original grain.

Example. A flesh split receives a pigmented textured film and is sold with its split origin declared.

See Also: Flesh Split; Full Grain; Transfer Coating.

377. Patent Leather

Technical Definition. Leather with a strongly reflective, typically mirror-like surface created by an appropriate coating system, historically and currently using different varnish or resin families. [01]

In Plain Language. Patent describes the glossy article appearance. It is more specific than simply saying a leather was polished. The technical material category also has coating-thickness limits. A patent-effect appearance by itself establishes only the look.

Example. A dress-shoe leather receives a continuous high-gloss coating for a patent effect.

See Also: Gloss; Topcoat; Polyurethane.

378. Glazing

Technical Definition. Mechanical surface development using pressure and friction from a hard, smooth tool such as glass or agate, often acting on a compatible finishing system.

In Plain Language. Glazing can produce a dense, brilliant face through repeated working. It differs from spraying on a glossy film, though both chemistry and mechanical action may contribute.

Example. A glazing machine works a prepared skin with a reciprocating smooth hard tool.

See Also: Protein Finish; Polishing; Glass Glazing.

379. Glass Glazing

Technical Definition. Glazing performed with a smooth glass tool, manually or mechanically, to develop surface smoothness and brilliance.

In Plain Language. The glass is the working tool, not a layer left on the leather. A compatible surface responds to pressure and friction.

Example. A glass rod works a prepared surface until the desired sheen develops.

See Also: Glazing; Currying.

380. Rolling

Technical Definition. Compression and smoothing through rollers, especially associated with developing density and surface character in heavy leather such as sole or belting stock.

In Plain Language. Rolling here develops the material under pressure. It is a different use of the word from rolling finished sides into a shipping bundle.

Example. Dense sole leather is mechanically rolled before final measurement and grading.

See Also: Sole Leather; Roll, Bundle, and Label; Pressing.

L11-C | Final Mill or Polish

381. Final Milling

Technical Definition. A milling treatment applied late in article development, potentially after coating, to adjust softness, break, and surface relaxation.

In Plain Language. The finish has to tolerate the mechanical action. Milling a coated article can produce a different response from milling uncoated crust.

Example. A finished upholstery article receives a controlled final mill to reach the approved handle.

See Also: Dry Milling; Break; Topcoat.

382. Polishing

Technical Definition. Surface working with brushes, cloth, fibers, or other suitable tools to develop smoothness, luster, or the appearance of waxes and finishes. [41]

In Plain Language. Polishing primarily develops the surface through friction. Buffing, in the abrasive preparation sense, deliberately removes material. Leather-care instructions may call this buffing; the glossary uses Buffing for the tannery’s abrasive preparation step.

Example. A polishing cylinder develops the sheen of a waxed leather after its earlier finishing stages.

See Also: Buffing; Glazing; Wax.

383. Burnishing

Technical Definition. Development of a smoother, denser, often darker or glossier surface through pressure and friction, sometimes with suitable ingredients. Tannery face burnishing and craft edge burnishing are related but distinct applications.

In Plain Language. The word describes a worked surface effect. It does not establish that every leather will respond equally or that the treatment occurred on an edge.

Example. A leather selected for burnishable shoe uppers develops darker highlights under controlled working.

See Also: Polishing; Antiquing; Glazing.

384. Gloss

Technical Definition. The degree and character of specular light reflection from a surface, assessed visually or instrumentally under specified geometry.

In Plain Language. Gloss describes how sharply the surface reflects light. A shiny leather may have been glazed, polished, plated, or given a glossy coating.

Example. A finisher compares gloss readings and visual appearance against the approved surface standard.

See Also: Matting Agent; Patent Leather; Glazing.

L11-D | Finish Conformance

385. Conformance

Technical Definition. Satisfaction of the specified requirements for the intended leather article, assessed through appropriate visual, dimensional, physical, and chemical evidence.

In Plain Language. The first question is whether the leather meets the order. Grading then sorts acceptable pieces into useful commercial groups.

Example. Several saleable grades all pass the same required rub-fastness and substance limits.

See Also: Commercial Grade; Specification; Quality Gate.

386. Specification

Technical Definition. The agreed requirements defining a leather article, including relevant material identity, appearance, dimensions, handle, performance, test methods, and acceptance criteria.

In Plain Language. A useful specification combines measurable limits with agreed samples where words alone are insufficient. It gives quality inspection a clear target.

Example. A bag-leather order includes substance, shade reference, temper sample, and selected resistance requirements.

See Also: Conformance; Standard Sample.

387. Standard Sample

Technical Definition. An approved reference specimen used to communicate and assess characteristics such as shade, grain, touch, break, or temper, with controlled identification and storage.

In Plain Language. A real piece of leather can explain an appearance or hand more precisely than a short adjective. Its condition and age still need control. Standard here means the agreed reference for an article or order; it need not be a specimen issued by a standards organization.

Example. The inspector compares production against the signed-off sample for that article and color.

See Also: Color Matching; Specification; Handle.

388. Laboratory Conditioning

Technical Definition. Preparation of test specimens in a specified atmosphere for the period or equilibrium condition required by the test method.

In Plain Language. Testing pieces straight from different rooms or moisture states can make comparisons misleading. Conditioning creates a common starting point.

Example. Two leather batches are conditioned alike before thickness and strength results are compared.

See Also: Conditioning; Relative Humidity; Moisture Content.

389. Thickness Gauge

Technical Definition. An instrument measuring leather substance under specified contact geometry and pressure. Compression and local variation influence the reading.

In Plain Language. Leather is compressible, so the method matters. A single uncontrolled caliper reading may not represent the full piece or the specified test.

Example. An inspector measures the agreed positions using the designated leather-thickness method.

See Also: Substance; Tolerance.

390. Tensile Strength

Technical Definition. Resistance to rupture under a specified pulling test, commonly expressed relative to specimen cross-sectional area. Sampling direction, geometry, and conditioning affect the result. [29]

In Plain Language. It tests how a prepared strip withstands being pulled. It is different from how readily an existing cut will tear farther.

Example. Two strap materials are compared using the same specimen orientation and test method.

See Also: Tear Strength; Elongation.

391. Tear Strength

Technical Definition. Resistance to propagation of a tear under a specified specimen and loading method. Different tear-test geometries produce results that should not be interchanged casually.

In Plain Language. This asks how well the material resists a cut growing. It can matter around notches, holes, and other stress concentrations.

Example. A flexible leather meets tensile requirements but is separately evaluated for tear behavior near a designed opening.

See Also: Tensile Strength; Stitch-Tear Strength.

392. Stitch-Tear Strength

Technical Definition. Resistance to tearing caused by concentrated loading through a stitch or a specified stitch-like fixture under a defined method.

In Plain Language. A strong sheet still has to tolerate force at its holes. Seam design and stitch placement interact with this material property.

Example. A bag-leather assessment considers stitch-tear behavior for a stressed handle attachment.

See Also: Tear Strength; Tensile Strength.

393. Elongation

Technical Definition. The increase in specimen length under a stated load or at rupture, often expressed as a percentage of the original gauge length. [29]

In Plain Language. Stretch can be useful for forming and comfort, or unwanted in a strap. The measurement needs the force or endpoint stated.

Example. Two leathers reach the same breaking force but stretch by different amounts before breaking.

See Also: Tensile Strength; Elastic Recovery.

394. Elastic Recovery

Technical Definition. The degree to which material returns toward its original dimensions after a load or deformation is removed, under defined conditions.

In Plain Language. Stretching and staying stretched are different behaviors. A leather can extend easily yet recover well, or retain a permanent set.

Example. A formed panel is assessed for how much shape it retains after the forming force is released.

See Also: Elongation; Dimensional Stability.

395. Flex Resistance

Technical Definition. Resistance to damage during repeated bending under a specified method, including cracking, finish failure, or structural deterioration. [09]

In Plain Language. A leather that survives one bend may still fail after repeated use. Dry and wet flex tests answer different questions.

Example. A shoe-upper finish is evaluated after repeated flexing in the required condition.

See Also: Finish Cracking; Curing (Finish).

396. Abrasion Resistance

Technical Definition. Resistance to surface wear under a defined rubbing or abrading action, load, counterface, and endpoint.

In Plain Language. Abrasion concerns wear from repeated contact. A result is meaningful only with the method and the type of damage being assessed.

Example. An upholstery finish is tested for surface wear under the specified abrasion procedure.

See Also: Rub Fastness; Topcoat.

397. Rub Fastness

Technical Definition. Resistance to color transfer or surface alteration under specified rubbing conditions, commonly assessed separately for dry and wet rubbing. [08]

In Plain Language. The test asks what transfers to the rubbing material and what happens to the leather face. Good dry results do not automatically predict good wet results.

Example. A dark strap leather is tested with a wet rubbing pad because it may contact damp clothing.

See Also: Crocking; Colorfastness.

398. Crocking

Technical Definition. Transfer of color from a material to another surface through rubbing, with dry and wet conditions distinguished. [42]

In Plain Language. This is the unwanted color left on something else through contact. It is different from a dye simply fading in light. Crocking is established testing vocabulary, also reflected in the instrument name crockmeter.

Example. A poorly fixed dark surface leaves color on a light cloth during rubbing.

See Also: Rub Fastness; Lightfastness.

399. Colorfastness

Technical Definition. Resistance to color change or transfer under a specified exposure, such as rubbing, water, perspiration, or light. Each exposure requires its own assessment.

In Plain Language. There is no single all-purpose fastness result. A leather can perform well in one condition and poorly in another.

Example. A seat-leather specification includes both rubbing and light exposure requirements.

See Also: Rub Fastness; Lightfastness; Perspiration Resistance.

400. Lightfastness

Technical Definition. Resistance to color or appearance change under a defined light-exposure test, with the light source, exposure, and grading system specified.

In Plain Language. It concerns fading or other changes caused by light. It depends on the whole leather and finish system, not just the dye name.

Example. A pale upholstery sample is assessed because it may receive prolonged daylight exposure.

See Also: Colorfastness; Patina.

401. Perspiration Resistance

Technical Definition. Resistance to specified changes when exposed to a defined artificial-perspiration system, potentially assessing color transfer, appearance, or material behavior.

In Plain Language. Sweat creates different conditions from plain water. Articles worn against the body may need tests that represent that contact.

Example. A watch-strap leather is evaluated using the applicable perspiration-related requirements.

See Also: Colorfastness; Water Absorption.

402. Adhesion

Technical Definition. The attachment between a finish and leather or between layers of a finishing system, assessed with an appropriate method and failure interpretation. [07]

In Plain Language. A coating needs to stay attached while the article flexes and is used. A strong film can still fail if its attachment underneath is poor.

Example. An adhesion test distinguishes detachment at the leather surface from failure within the coating.

See Also: Delamination; Basecoat; Topcoat.

403. Delamination

Technical Definition. Separation between layers in a composite material or finish system, potentially at the leather-coating interface or between coating layers.

In Plain Language. Peeling has a location and a cause. Identifying which layers separated helps distinguish an adhesion problem from structural tearing.

Example. A transferred surface film lifts from its split substrate during testing.

See Also: Adhesion; Transfer Coating.

404. Finish Cracking

Technical Definition. Formation of fractures in the surface coating under stress or exposure, influenced by film flexibility, thickness, adhesion, cure, and underlying leather movement.

In Plain Language. The coating can crack even when the leather beneath remains intact. Conversely, a surface crack can also accompany deeper structural damage.

Example. A thick, insufficiently flexible finish develops fine cracks at a repeatedly bent area.

See Also: Flex Resistance; Coat Weight; Curing (Finish).

405. Blocking

Technical Definition. Unwanted sticking of contacting leather or coated surfaces during stacking, rolling, packing, or storage, influenced by finish state, heat, moisture, pressure, and time.

In Plain Language. Two finished faces can adhere while stored together. A dry-looking surface may still need further cure or different packing conditions.

Example. A freshly finished lot is held before packing to avoid surfaces sticking inside the roll.

See Also: Curing (Finish); Finished-Goods Store.

406. Hydrolysis

Technical Definition. Chemical cleavage involving water, relevant to deterioration of certain polymers and biological structures under particular conditions. Susceptibility varies across coating chemistries and environments.

In Plain Language. Water and heat can contribute to breakdown in some finish systems over time. The word does not mean every polyurethane coating behaves identically.

Example. A material specification includes an appropriate aging assessment for a coating used in warm, humid conditions.

See Also: Polyurethane; Delamination.

407. Water Absorption

Technical Definition. The amount of water taken into leather under a defined exposure and measurement method. [10]

In Plain Language. Absorbing water is different from allowing it to pass all the way through. Both behaviors can matter to footwear and other articles.

Example. A leather gains mass during a water-absorption test without immediately leaking through its thickness.

See Also: Water Resistance; Water-Vapor Permeability.

408. Water Resistance

Technical Definition. The ability to resist specified water wetting, entry, penetration, or related damage under defined conditions. The term needs a test and endpoint to be precise.

In Plain Language. A surface that briefly beads water has demonstrated only one behavior. Longer exposure and repeated flexing can produce different results.

Example. A boot-leather specification defines the required dynamic water-resistance test rather than relying on a droplet demonstration.

See Also: Water Absorption; Waterproof.

409. Waterproof

Technical Definition. A performance claim that a material or product prevents water passage under stated conditions. Product waterproofness also depends on seams, construction, openings, and maintenance.

In Plain Language. The word needs boundaries. A tested leather panel does not automatically make a sewn boot waterproof.

Example. A manufacturer distinguishes the leather’s water test from the assembled footwear test.

See Also: Water Resistance; Specification.

410. Water-Vapor Permeability

Technical Definition. The rate at which water vapor passes through a material under a defined gradient and test method, generally normalized to area and time. [11]

In Plain Language. Vapor movement is different from liquid-water leakage. Finishes and the leather structure both influence the result.

Example. A footwear upper is assessed for vapor transmission as part of its comfort-related material requirements.

See Also: Breathability; Water Absorption.

411. Breathability

Technical Definition. A broad commercial term that can refer to water-vapor permeability, moisture management, or air permeability. It requires specific measurements to become a technical claim.

In Plain Language. Ask what the supplier measured. A leather's moisture absorption and vapor transmission are related to comfort but are not the same property.

Example. A comparison replaces "more breathable" with results from an agreed water-vapor test.

See Also: Water-Vapor Permeability; Water Absorption.

412. Color Matching

Technical Definition. Comparison and adjustment of color against an agreed standard under controlled viewing and, where useful, instrumental conditions.

In Plain Language. A match depends on lighting, texture, gloss, and the observer or instrument. A phone photograph is a limited basis for approving production color.

Example. The inspector checks a batch against a reference under the specified viewing lights.

See Also: Metamerism; Spectrophotometer; Shade Lot.

413. Metamerism

Technical Definition. A condition in which two samples match in color under one illumination or viewing condition but differ under another because their spectral behavior differs.

In Plain Language. Two browns can agree in the workshop and disagree in daylight. That is why critical matching uses specified light sources.

Example. A bag panel and strap look matched under one lamp but diverge under a second light.

See Also: Color Matching; Spectrophotometer.

414. Spectrophotometer

Technical Definition. An instrument measuring wavelength-dependent optical response, used to calculate color values and support comparison under defined settings.

In Plain Language. It adds measured evidence to visual assessment. Texture, gloss, specimen placement, and instrument geometry still affect the result.

Example. A laboratory records color differences alongside a controlled visual comparison.

See Also: Color Matching; Delta E.

415. Delta E

Technical Definition. A numerical color-difference value calculated using a stated color space and formula. Different Delta E formulas and measurement setups are not interchangeable.

In Plain Language. It summarizes a difference under specified conditions. A pass limit should be agreed for the article and method rather than assumed universal.

Example. A color specification states the formula, viewing settings, and acceptance limit for its measurements.

See Also: Spectrophotometer; Specification.

416. Fogging

Technical Definition. Deposition of volatile constituents from a material onto a cooler surface under a specified assessment, especially relevant to automotive-interior materials.

In Plain Language. This asks whether emitted substances can condense and create a film elsewhere. It is different from measuring all odors or every VOC.

Example. An automotive leather is evaluated for condensable deposits under the prescribed fogging method.

See Also: VOC; Specification.

417. Restricted Substance

Technical Definition. A substance limited or prohibited by an applicable law, customer specification, or program, with defined scope, thresholds, and test requirements.

In Plain Language. The requirement needs its source and version. A passing result for one list or test does not automatically answer every chemical requirement.

Example. A buyer specifies which chemical requirements and analytical methods apply to the finished article.

See Also: RSL; MRSL; Chromium(VI).

418. RSL

Technical Definition. Restricted Substances List: a defined set of chemical restrictions generally applied to materials or finished products, subject to the issuing organization’s scope and methods.

In Plain Language. It focuses on what may remain in the assessed material. The exact list matters because different customers can set different requirements.

Example. A leather order identifies the customer RSL version against which testing will be evaluated.

See Also: MRSL; Restricted Substance.

419. MRSL

Technical Definition. Manufacturing Restricted Substances List: a defined set of restrictions addressing substances in chemical formulations used during manufacturing, with scope established by the issuing program.

In Plain Language. It addresses process inputs. An input-chemical requirement and a finished-material test answer different questions and can both be relevant.

Example. A tannery reviews its purchased formulations against the specified MRSL while separately assessing finished leather requirements.

See Also: RSL; Chemical Offer.

420. Rework

Technical Definition. A controlled additional or repeated operation intended to bring nonconforming material into the required condition, within the limits of what the material can tolerate.

In Plain Language. Rework needs a specific correctable problem. It cannot restore fibers removed by an overly deep cut or guarantee repair of every surface fault.

Example. A finish receives an approved corrective pass, while severely weakened material is diverted or rejected.

See Also: Conformance; Quality Gate; Tolerance.

STAGE 12

Measurement, Commercial Grading, and Shipping

Finished leather is measured, graded, sorted, packed, and stored for shipment. Commercial article names and purchasing terms help buyers specify material and plan its use in cutting and making.

L12-B | Final Trim

421. Final Trim

Technical Definition. Removal of unsuitable finished edges or damaged peripheral material before final measurement or packing, according to the tannery's route.

In Plain Language. This establishes the saleable outline. The removed pieces retain the parent leather's tannage and finish chemistry.

Example. A heavily marked fringe is removed before the side's area is recorded for sale.

See Also: Trimming; Area Measurement; By-Product.

L12-C | Measure

422. Area Measurement

Technical Definition. Determination of the surface area of an irregular leather sheet using a specified method, with controlled presentation, calibration, and recording.

In Plain Language. Leather is flexible and irregular, so feeding and flattening matter. A measured square footage is not the same as the area usable for a particular pattern.

Example. A side is measured flat and its total area is linked to its piece record.

See Also: Cutting Yield; Area Yield; Square Foot.

423. Square Foot

Technical Definition. A unit of area equal to a square measuring one foot on each side. One square foot is exactly 0.09290304 square meters.

In Plain Language. Leather area can be reported in square feet even though no side is actually square. Total area does not state the longest clean strap or largest clear panel available.

Example. A side measured at 20 square feet has approximately 1.86 square meters of total area.

See Also: Area Measurement; Cutting Yield.

424. Ounce

Technical Definition. In a common North American leather-thickness convention, one ounce corresponds approximately to 1/64 inch, or 0.397 millimeters, of substance. This use must be distinguished from actual mass. [30]

In Plain Language. A 5-ounce leather listing usually refers to thickness, not the weight of the entire piece. Suppliers often sell a range because natural material varies.

Example. A 4-to-5-ounce side corresponds approximately to 1.6-to-2.0-millimeter substance under this convention.

See Also: Substance; Iron; Recipe Weight.

425. Iron

Technical Definition. A traditional leather and footwear thickness unit equal to 1/48 inch, approximately 0.529 millimeters. [30]

In Plain Language. Irons and ounces are different thickness scales. Confirm the unit before comparing sole or insole specifications.

Example. Three irons correspond to about 1.59 millimeters, close to four ounces in the common thickness convention.

See Also: Ounce; Substance.

426. Tolerance

Technical Definition. The permitted range or variation around a specified value or condition, including thickness, shade, dimensions, or other measured characteristics.

In Plain Language. A tolerance defines how much variation is acceptable. The test method and where the measurements are taken need to accompany the limit.

Example. A nominal 1.5-millimeter article is accepted within its agreed 1.4-to-1.6-millimeter range.

See Also: Specification; Substance; Conformance.

L12-D | Commercial Grade & Sort

427. Commercial Grade

Technical Definition. A classification assigned under a tannery, supplier, article, or customer scheme using characteristics such as defects, usable area, appearance, size, and uniformity. [30]

In Plain Language. Grades help sort material for sale and use. There is no universal A-to-D scale that has the same meaning at every tannery.

Example. Several accepted sides share the same tannage and performance specification but have different grades because their clean cutting areas differ.

See Also: Conformance; Cutting Yield; Selection.

428. Selection

Technical Definition. A trade term for sorting or a sorted quality grouping, often based on surface condition, size, article suitability, or another declared commercial basis.

In Plain Language. First selection needs a supplier definition just as Grade A does. A familiar label is not enough to compare offerings from unrelated sellers.

Example. A buyer requests the selection criteria and representative samples before ordering.

See Also: Commercial Grade; Standard Sample.

429. Cutting Yield

Technical Definition. The useful output obtainable when actual product patterns are placed on leather, considering defects, orientation, stretch, panel size, and other constraints.

In Plain Language. Yield belongs to a particular product plan. A side that is inefficient for large bag panels may be excellent for small pieces.

Example. A wallet maker works around scattered marks that would prevent cutting a single large unmarked panel.

See Also: Area Measurement; Pattern Direction; Commercial Grade.

430. Shade Lot

Technical Definition. A grouping of pieces sufficiently consistent in color for a particular production or commercial purpose, under defined matching conditions.

In Plain Language. A color name does not guarantee a perfect match across batches. Keeping matching pieces together reduces visible differences within a finished object.

Example. A bag’s body, flap, and handles are cut from a compatible shade lot.

See Also: Lot; Color Matching; Levelness.

431. Dimensional Stability

Technical Definition. The ability to retain dimensions under specified changes in moisture, temperature, stress, or time.

In Plain Language. A piece’s measured shape can change after processing or use. Stability matters when panels must keep fitting together.

Example. An upholstery article is evaluated for dimensional changes under the conditions relevant to its application.

See Also: Elastic Recovery; Area Yield; Moisture Content.

432. Upper Leather

Technical Definition. Leather intended for the upper portion of footwear, above the sole assembly, with properties selected for the design and service conditions.

In Plain Language. Upper is an end-use category. A dress shoe, work boot, and soft moccasin can need very different upper articles.

Example. A shoe maker specifies upper leather for appearance, flexing, fit, and the relevant moisture conditions.

See Also: Article; Flex Resistance; Sole Leather.

433. Sole Leather

Technical Definition. Leather developed for footwear soles, commonly dense vegetable-tanned material with appropriate substance, compaction, and performance.

In Plain Language. Sole leather is engineered for a different job from a flexible upper. Rolling and the chosen vegetable route can help establish its character.

Example. A heavy vegetable-tanned bend is developed and measured for use in shoe soles.

See Also: Rolling; Bend; Upper Leather.

434. Harness Leather

Technical Definition. A heavy leather article developed for harness or related durable strap applications, traditionally vegetable-tanned and substantially lubricated or stuffed. Commercial versions vary. [33]

In Plain Language. The name suggests a use and characteristic body, not one guaranteed formula. Actual suitability depends on the specification and construction.

Example. A maker evaluates the thickness, stretch, and dressing of a harness article before selecting it for straps.

See Also: Stuffing; Bridle Leather; Latigo.

435. Bridle Leather

Technical Definition. A traditionally vegetable-tanned leather article developed for bridle and related strap work, with selected firmness, smoothness, and oil or wax dressing. Supplier formulations differ. [31]

In Plain Language. Bridle describes a developed article rather than simply a thickness. The smooth face and waxy character can also suit bags and small goods.

Example. A bag maker selects a bridle article for a firm polished appearance and checks its actual cutting and stitching behavior.

See Also: Dubbin; Spue; Harness Leather.

436. Latigo

Technical Definition. A leather trade article associated with durable, lubricated strap uses. Both combination-tanned and vegetable-tanned commercial versions exist, so the name alone does not identify tannage. [32]

In Plain Language. Latigo is a purchasing term that needs clarification. Ask about the tanning route, oil content, stretch, thickness, and intended use.

Example. Two suppliers offer latigo with different tanning systems and different hand.

See Also: Combination Tanning; Harness Leather; Oil-Tanned.

437. Skirting Leather

Technical Definition. A substantial leather article, commonly vegetable-tanned, developed for saddle components and related tooling or forming applications.

In Plain Language. Its selection can depend on where saddle parts are cut from the hide. A saddle-specific grade may emphasize different areas from a general small-goods grade.

Example. A saddle maker examines the prime seat-cutting region when selecting a skirting side.

See Also: Commercial Grade; Tooling Leather; Cutting Yield.

438. Tooling Leather

Technical Definition. Leather selected and developed to take controlled impressions, carving, and forming, commonly suitably prepared vegetable-tanned stock. [30]

In Plain Language. Tooling performance is a useful material property, not a guarantee attached to every vegetable-tanned leather. Dense finishes or unsuitable temper can change the response. This is an end-use description in commerce. A supplier may group tooling, carving, and strap leather under one article name.

Example. A craftsperson tests an offcut for clean impression and retained detail before beginning the full piece.

See Also: Vegetable Tanning; Temper; Skirting Leather.

439. Upholstery Leather

Technical Definition. Leather developed for covering furniture, seating, or related interiors, with requirements for usable panel area, handle, appearance, and application-specific performance.

In Plain Language. Upholstery is a broad end-use family. Automotive seating and occasional-use furniture can demand different test and finish systems.

Example. A large hide is selected for panel yield and matched to a defined furniture specification.

See Also: Whole Hide; Cutting Yield; Fogging.

440. Garment Leather

Technical Definition. Leather developed for clothing, emphasizing a suitable combination of low weight, flexibility, drape, strength, color behavior, and touch.

In Plain Language. A soft hand alone does not make a leather suitable for clothing. It also has to work at seams and in the intended wear and care conditions.

Example. A jacket maker compares light nappa and suede articles for drape and seam performance.

See Also: Nappa; Drape; Stitch-Tear Strength.

441. Lining Leather

Technical Definition. Leather intended for an interior or contact layer in footwear, bags, garments, or other goods, with properties chosen for that particular role.

In Plain Language. The inside layer needs its own specification. Color transfer, thickness, softness, moisture behavior, and attachment can all matter.

Example. A light bag lining is checked for rub transfer and compatibility with the construction adhesive.

See Also: Rub Fastness; Cementability.

442. Hair-On Leather

Technical Definition. Leather processed to retain its hair as part of the finished article, requiring a preparation route designed to preserve the hair and its attachment.

In Plain Language. The normal hair-off liming route cannot simply be followed unchanged. Hair retention is part of the article design from preparation onward.

Example. A decorative cattle-hide article preserves the original hair surface through a suitable specialist route.

See Also: Unhairing; Shearling.

443. Shearling

Technical Definition. Tanned sheep or lamb skin retaining its wool, typically trimmed to a suitable relatively even length, and dressed for the intended use.

In Plain Language. The wool remains attached to the skin that produced it. This differs from a fabric-backed imitation or separately attached fleece.

Example. A shearling jacket uses a wool-bearing skin whose reverse has also been developed for the garment.

See Also: Hair-On Leather; Double-Face Leather.

444. Double-Face Leather

Technical Definition. A leather or wool-on skin article developed so that both faces have an intended visible or functional finish, particularly in garments. [01]

In Plain Language. Both sides are part of the design. A wool face and a finished flesh face can each need their own appearance and performance requirements. LWG's technical definition centers on wool-bearing skins. Broader descriptions of leather finished on both faces should identify the material explicitly.

Example. A reversible shearling garment exposes either the wool or the finished leather side.

See Also: Shearling; Flesh Side.

445. Shell Cordovan

Technical Definition. Leather made from the dense shell structure in the hindquarters of equine hides, developed through a specialized process. It is a specific material, not merely a color or ordinary full-grain horsehide. [20]

In Plain Language. The shell is an anatomical feature with a distinctive compact structure. Cordovan can also be used as a color name, so the word shell matters.

Example. A burgundy calf shoe and a burgundy shell-cordovan shoe share a color but use different leather structures.

See Also: Calfskin; Grain; Glazing.

446. Chromexcel

Technical Definition. A proprietary Horween leather family documented as combination-tanned and developed with distinctive retanning and hot-stuffing processes, with individual article variants. [21]

In Plain Language. The name belongs to a documented maker and article family. A generic oily pull-up leather should be described by its observed properties rather than assigned this name.

Example. A recipe-card discussion uses Horween's account for a named Chromexcel article and labels any unverified step as inference.

See Also: Combination Tanning; Hot Stuffing; Pull-Up.

447. Morocco

Technical Definition. A historical and continuing fine-leather term associated especially with vegetable-tanned goatskin and its characteristic developed grain, notably in bookbinding. Historical trade usage includes variants and imitations.

In Plain Language. Morocco is not a guarantee that a leather was made in Morocco. A sound description identifies species, tannage, and the specific article.

Example. A binder specifies an appropriate goatskin morocco and checks its paring and tooling behavior.

See Also: Sumac; Skiver; Saffiano.

448. Skiver

Technical Definition. A thin grain split, traditionally associated especially with sheep or lamb skins and used in suitable lining, covering, or bookbinding applications.

In Plain Language. Skiver is a material name; skiving is a cutting operation. A thin skiver can retain the grain face despite having little substance.

Example. A bookbinder uses a thin grain split for a particular covering requirement.

See Also: Grain Split; Skiving; Morocco.

449. Skiving

Technical Definition. Localized or controlled thinning of leather with a knife or machine, often tapering component edges to reduce bulk in seams, folds, or joins.

In Plain Language. Skiving usually concerns a cut component or selected region. Tannery splitting generally controls a larger sheet's layers or substance.

Example. A wallet maker tapers an edge before folding it so the finished seam is less bulky.

See Also: Splitting; Shaving; Skiver.

450. Parchment

Technical Definition. Untanned skin prepared through cleaning, thinning, and drying under tension for writing, binding, or other specialized uses. Its material behavior differs from tanned leather.

In Plain Language. Parchment is another use of animal skin, but tanning is not what establishes its finished structure. Moisture can change its shape and tension significantly.

Example. A curriculum compares a parchment sheet with a tanned bookbinding leather to show two different material routes.

See Also: Rawhide; Tawing.

451. Bonded Leather

Technical Definition. A reconstituted material made using disintegrated leather fibers or particles with binders and potentially additional layers. Naming and composition requirements depend on the applicable product definition. [34]

In Plain Language. Its structure has been broken down and reassembled. That is different from an intact flesh split, which retains the hide's fibrous sheet structure. The commercial name contains leather, but the formal definition of leather cited here excludes disintegrated and reconstituted sheets.

Example. A material review distinguishes a coated split from a fiber-and-binder composite despite similar-looking surfaces.

See Also: Split Leather; Coated Split; Leather.

452. Genuine Leather

Technical Definition. A general commercial claim of leather content or identity, whose precise interpretation depends on context and applicable labeling requirements. It is not a universal technical grade.

In Plain Language. The words do not provide a complete quality specification. Ask for layer, species, tannage, finish, and performance information.

Example. A buyer replaces a vague genuine-leather description with the actual material construction and article specification.

See Also: Commercial Grade; Top Grain; Leather.

453. Cementability

Technical Definition. Suitability for bonding with an adhesive system under defined preparation, application, and service conditions. [19]

In Plain Language. Oils, waxes, surface finishes, and the chosen adhesive can change the bond. A leather that sews well may still need separate bonding evaluation. Cement is established footwear and leather-goods terminology for adhesive in this context.

Example. A heavily waxed lining surface is trial-bonded with the actual construction system before production.

See Also: Adhesion; Lining Leather.

L12-E | Roll, Bundle & Label

454. Roll, Bundle, and Label

Technical Definition. The packaging operation that groups finished pieces, protects their surfaces and shape, and records their quantity, area or weight, article, shade, and traceability information.

In Plain Language. Packaging preserves the material and its identity. The number of pieces in a bundle is a commercial choice, not a leather-production standard.

Example. A pack label carries its shade lot, total area, piece count, and order reference.

See Also: Rolling; Traceability; Shade Lot.

L12-F | Finished-Goods Store

455. Finished-Goods Store

Technical Definition. The controlled inventory location and holding stage for completed leather awaiting dispatch, with management of identity, environment, handling, and order release.

In Plain Language. The tannery has finished making the article, but poor storage can still damage it. Time in storage is an inventory condition rather than another tannage.

Example. A warehouse protects finished rolls from excessive pressure and humidity while keeping shade lots identified.

See Also: Blocking; Mold; Dispatch.

456. Mold

Technical Definition. Fungal growth that can occur on hides or leather under favorable moisture, temperature, and nutrient conditions. Its appearance must be distinguished from fatty or waxy deposits.

In Plain Language. Leather’s tanning stability does not make it immune to fungal growth. Identifying a pale deposit requires more than assuming every bloom is wax.

Example. A stored lot with an unfamiliar surface deposit is assessed against its storage and dressing history.

See Also: Fungicide; Spue; Finished-Goods Store.

457. Patina

Technical Definition. The cumulative change in leather appearance through use and exposure, including alterations in color, gloss, surface texture, and visible wear.

In Plain Language. Patina describes change over time, often valued aesthetically. It should still be distinguished from mold, finish failure, or other deterioration that harms the material.

Example. A lightly finished vegetable-tanned wallet darkens and develops polished contact areas through ordinary use.

See Also: Antiquing; Tea-Core; Aging.

L12-G | Ship

458. Dispatch

Technical Definition. Release, picking, verification, staging, and shipment of a completed order with its material and traceability records.

In Plain Language. This is the end of the modeled tannery route. The leather’s physical and documentary condition still needs to survive transport.

Example. The shipping record links the customer’s order to the packed article, shade lot, quantity, and area.

See Also: Traceability; Roll, Bundle, and Label.

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Isoelectric Point	207	L7-C	56
Jack Glazing (see Glazing)	378	L11-B	98
Keratin	071	L3-B	21
Kip	005	L1-B	4
Laboratory Conditioning	388	L11-D	101
Laminated Leather	373	L11-B	97
Latigo	436	L12-D	113
Layaway	179	L5-F	49
Leather	008	L1-B	5
Levelness	225	L7-E	61
Lightfastness	400	L11-D	103
Lime	068	L3-B	21
Lime Splitting	096	L3-F	27
Liming	067	L3-B	20
Lining Leather	441	L12-D	114
Liquor	048	L2-C	15
Lizard Emboss	361	L11-B	95
Loose Grain	274	L9-C	73
Lot	025	L1-B	9
Main Soak	044	L2-C	14
Manufacturing Restricted Substances List (see MRSL)	419	L11-D	107

Term or Lookup Expression	Entry	Process	Page
oz (see Ounce)	424	L12-C	110
Padding	335	L10-G	88
Paddle	050	L2-C	15
Papillary Layer	013	L1-B	6
Parchment	450	L12-D	116
Paste Drying	259	L8-F	69
Patent Leather	377	L11-B	98
Patina	457	L12-F	118
Pattern Direction	367	L11-B	96
Pattern Repeat	365	L11-B	95
Pattern Scale	366	L11-B	96
Pearl Crust	262	L8-G	70
Pebble Grain	353	L11-B	93
Pelt	078	L3-B	23
Penetration	139	L5-C	39
Perspiration Resistance	401	L11-D	104
pH	053	L2-C	16
Phosphonium Tanning System	154	L5-D	43
Pickled Pelt	123	L5-B	35
Pickling	122	L5-B	35
Pigment	326	L10-G	86
Pigmented Leather	292	L10-B	78
Pit Tanning	175	L5-F	48
Plasticization	267	L9-B	72
Plating	322	L10-F	85
Polishing	382	L11-C	99
Polyphenol	159	L5-E	44
Polyurethane	307	L10-D	82
Pressing	345	L11-B	91
Print	349	L11-B	92
Protease	110	L4-C	32
Protein Finish	308	L10-D	82
Puering	114	L4-C	33
Pull-Up	298	L10-C	80
Putrefaction	034	L1-C	11
Quality Gate	064	L2-D	19
Quebracho Extract	167	L5-E	46

Term or Lookup Expression	Entry	Process	Page
Scotch Print (see Scotch Grain)	352	L11-B	92
Scud	115	L4-D	33
Scudding	116	L4-D	33
Sealer	303	L10-D	81
Season	311	L10-D	83
Selection	428	L12-D	111
Semi-Aniline	291	L10-B	78
Semi-Chrome	215	L7-D	58
Sequestering Agent	108	L4-B	31
Set-Out (see Setting Out)	191	L6-C	52
Setting (see Setting Out)	191	L6-C	52
Setting Out	191	L6-C	52
Shade Lot	430	L12-D	111
Shagreen	363	L11-B	95
Shaved Weight	198	L6-E	54
Shaving	195	L6-E	53
Shavings	196	L6-E	53
Shearling	443	L12-D	114
Shellac	344	L10-H	90
Shell Cordovan	445	L12-D	115
Short Float	047	L2-C	15
Shoulder	093	L3-E	27
Shrinkage Temperature	183	L5-H	50
Shrunken Grain	364	L11-B	95
Side	088	L3-E	26
Siding	087	L3-E	25
Silicone	343	L10-H	90
Skin	002	L1-B	3
Skirting Leather	437	L12-D	113
Skiver	448	L12-D	115
Skiving	449	L12-D	116
Snuffing	280	L9-F	75
Soak Completion	063	L2-D	18
Soaking	042	L2-C	13
Sodium Bicarbonate	142	L5-C	40
Sodium Chloride	041	L2-B	13
Sodium Formate	127	L5-B	36

Term or Lookup Expression	Entry	Process	Page
Sodium Hydrosulfide	070	L3-B	21
Sodium Sulfide	069	L3-B	21
Sole Leather	433	L12-D	112
Solids Content	314	L10-D	83
Solvent-Borne Finish	316	L10-D	84
Specification	386	L11-D	100
Spectrophotometer	414	L11-D	106
Spent Float	243	L7-G	65
Spew (see Spue)	300	L10-C	80
Split Leather	101	L3-F	29
Splitting	095	L3-F	27
Spray Coating	331	L10-G	87
Spue	300	L10-C	80
Square Foot	423	L12-C	109
Staining	295	L10-C	79
Staking	268	L9-C	72
Staking Machine (see Staking)	268	L9-C	72
Standard Sample	387	L11-D	101
Stitch-Tear Strength	392	L11-D	102
Strike	223	L7-E	60
Strike-Through	224	L7-E	60
Stuffing	234	L7-F	63
Substance	197	L6-E	53
Suede	283	L9-F	76
Suede Split (see Split Leather)	101	L3-F	29
Sulfated and Sulfited Oils	233	L7-F	62
Sulfuric Acid	126	L5-B	36
Sumac	170	L5-E	47
Surfactant	055	L2-C	16
Swelling	074	L3-B	22
Syntan	209	L7-D	57
Tallow	237	L7-F	63
Tanbark	181	L5-G	49
Tannage	130	L5-C	37
Tannage Check	185	L5-H	50
Tannant	131	L5-C	37
Tannic Acid	174	L5-E	48

Term or Lookup Expression	Entry	Process	Page
Tannin	158	L5-E	44
Tanning	129	L5-C	37
Tanning Agent (see Tannant)	131	L5-C	37
Tanning Extract	165	L5-E	46
Tanyard	121	L5-B	35
Tara Extract	169	L5-E	47
Tawing	153	L5-D	43
Tea-Core	301	L10-C	80
Tear Strength	391	L11-D	102
Temper	270	L9-C	72
Tensile Strength	390	L11-D	101
Thermoplastic	324	L10-F	86
Thickness (see Substance)	197	L6-E	53
Thickness Gauge	389	L11-D	101
Through-Dyed	222	L7-E	60
Tipping	369	L11-B	96
Titanium Tanning	156	L5-D	44
Toggle	254	L8-D	68
Toggle Drying	253	L8-D	68
Tolerance	426	L12-C	110
Tooling Leather	438	L12-D	113
Topcoat	338	L10-H	89
Top Grain	289	L10-B	77
Total Dissolved Solids	247	L7-G	65
Touch	342	L10-H	90
Traceability	026	L1-B	9
Transfer Coating	371	L11-B	97
Transfer Efficiency	337	L10-G	89
Trimming	036	L1-D	11
Tumbling (see Dry Milling)	275	L9-D	74
Two-Tone Effect	370	L11-B	96
Unhairing	066	L3-B	20
Upholstery Leather	439	L12-D	113
Upper Leather	432	L12-D	112
Vacuum Drying	252	L8-C	68
Vegetable Extract (see Tanning Extract)	165	L5-E	46
Vegetable-Tanned (see Vegetable Tanning)	157	L5-E	44

Term or Lookup Expression	Entry	Process	Page
Vegetable Tanning	157	L5-E	44
Veg Tan (see Vegetable Tanning)	157	L5-E	44
Viscosity	313	L10-D	83
VOC	321	L10-E	85
Volatile Organic Compound (see VOC)	321	L10-E	85
Water Absorption	407	L11-D	105
Waterborne Finish	315	L10-D	84
Water Hardness	061	L2-C	18
Waterproof	409	L11-D	105
Water Resistance	408	L11-D	105
Water-Vapor Permeability	410	L11-D	106
Water Vapour Permeability (see Water-Vapor Permeability)	410	L11-D	106
Wax	297	L10-C	79
Wax Bloom (see Spue)	300	L10-C	80
Wet Back	202	L7-B	55
Wet Blue	144	L5-C	41
Wet-Blue (see Wet Blue)	144	L5-C	41
Wet-Blue Splitting	194	L6-D	53
Wet End	201	L7-B	55
Wet-Salted	021	L1-B	8
Wet Stuffing	236	L7-F	63
Wetting Agent	056	L2-C	17
Wet White	146	L5-D	41
Wet-White (see Wet White)	146	L5-D	41
Whole Hide	089	L3-E	26
Willow Grain	356	L11-B	93
Zirconium Tanning	152	L5-D	43

Source Notes

Initial external checks were made on 14 September 2026, with selected terminology references checked on 15 September 2026. The numbered references support selected definitions, usage distinctions, and named examples. They are not a claim-by-claim certification of all 458 entries. Unmarked definitions are editorial synthesis from the project context and require source review for a formally referenced edition.

Manufacturer material descriptions apply to the named producer or article. Public standards catalogues establish scope only; no full paid test method was reviewed or reproduced. Further reading is labeled separately.

Project Provenance

The term inventory was checked against the simulator’s process descriptions, 62 process codes, process-card contract, main tannery research document, and property-expansion research record. Model assumptions are not industry definitions. The companion editable Markdown and coverage map preserve the process mapping and editorial review priorities.

01. Leather Working Group: 74 Need-to-Know Leather Industry Terms (2025)

Industry terminology and selected material distinctions. Formal labeling definitions require the applicable standard and jurisdiction.

https://www.leatherworkinggroup.com/learn-more/features/74-essential-leather-industry-terms/

02. TFL: Basification pH of Chrome Tannage

Basification, penetration, and fixation in chrome tanning.

https://www.tfl.com/en/advice/application-advice/pickling-and-tanning-basification-ph-of-chrome-tannage.jsp

03. TFL: Salt Additions in Pickle

The role of salt in controlling acid swelling.

https://www.tfl.com/en/advice/application-advice/pickling-and-tanning-salt-additions-in-pickle.jsp

04. TFL: Calcium Soaps

Calcium-related deposits and their process context.

https://www.tfl.com/en/advice/application-advice/calcium-soaps.jsp

05. TFL: Liming, Scuff Marks

False-back damage from abrasion of swollen hides.

https://www.tfl.com/en/advice/application-advice/liming-scuff-marks.jsp

06. TFL: Delime and Bating, Toxic Gases

Hydrogen-sulfide hazard in the process sequence.

https://www.tfl.com/en/advice/application-advice/delime-and-bating-toxic-gases-%28bating%29.jsp

07. TFL: Physical Tests for Finished Leather, Adhesion of the Finishing

Adhesion as a distinct finish property.

https://www.tfl.com/en/advice/application-advice/physical-tests-for-finished-leather-adhesion-of-the-finishing.jsp

08. TFL: Physical Tests for Finished Leather, Dry/Wet Rub Resistance

Rub fastness and the relevance of test conditions.

https://www.tfl.com/en/advice/application-advice/physical-tests-for-finished-leather-dry-wet-rub-resistance.jsp

09. TFL: Physical Tests for Finished Leather, Dry and Wet Flexing

Flexing performance under specified conditions.

https://www.tfl.com/en/advice/application-advice/physical-tests-for-finished-leather-dry-and-wet-flexing.jsp

10. TFL: Physical Tests for Finished Leather, Water Absorption

Water uptake as distinct from vapor transmission.

https://www.tfl.com/en/advice/application-advice/physical-tests-for-finished-leather-water-absorption.jsp

11. TFL: Physical Tests for Finished Leather, Water Vapour Permeability

Transmission of water vapor through leather.

https://www.tfl.com/en/advice/application-advice/physical-tests-for-finished-leather-water-vapour-permeability.jsp

12. TFL: RODA Line for Transfer Coating

Transfer-coating process context; supplier-specific technology is not a universal recipe.

https://www.tfl.com/en/technologies/roda-line/

13. UNIDO Leather Panel: Sources, Detection and Avoidance of Hexavalent Chromium in Leather and Leather Products

Distinguishing Cr(III) tanning chemistry from Cr(VI). This glossary does not reproduce current legal limits.

https://leatherpanel.org/content/sources-detection-and-avoidance-hexavalent-chromium-leather-and-leather-products

14. Silvateam: Tannins for Leather Making

Botanical tanning extracts and plant-part distinctions.

https://www.silvateam.com/en/products-and-services/leather-tanning-solutions/tannins-leather-making.html

15. Silvateam: Tara Tannins

Tara tannins from pods, distinguished from seed-derived food gum.

https://www.silvateam.com/en/products-and-services/leather-tanning-solutions/plant-based-extracts/tara-tannins.html

16. JALCA: A Novel Laboratory Method for the Extraction of Black Wattle Bark Constituents (2025)

Public abstract checked for Acacia mearnsii bark as a tannin source; the full experimental method was not reviewed.

https://journals.uc.edu/index.php/JALCA/article/view/8644

17. ASTM D7477-16: Area Stability of Wet Blue Submersed in Boiling Water

Public catalogue scope only. Full paid method not reviewed; this is not an assertion of the current edition.

https://store.astm.org/d7477-16.html

18. J. & F. J. Baker: The Process

One working tannery's oak-bark process, including staged pit treatment. The producer's timing is not universal.

https://www.jfjbaker.co.uk/the-process/

19. Horween: Glossary of Terms

Producer vocabulary for stuffing, fatliquoring, pull-up, and leather articles.

https://www.horween.com/glossary

20. Horween: Leather

Producer description of genuine shell cordovan.

https://www.horween.com/leather

21. Horween: Chromexcel (2010)

Chromexcel as a named combination-tanned, hot-stuffed article.

https://www.horween.com/blog/2010/03/23/chromexcel%C2%AE-2

22. Prada: Saffiano Leather Mini Bag, Material Description

Prada's crosshatch and waxed-finish description; not a specification for every Saffiano-style material.

https://www.prada.com/th/en/p/saffiano-leather-mini-bag/1NF059_2DB3_F0924

23. Crockett & Jones: Men's Scotch Country Grain

A maker's example of embossed country-grain calf leather.

https://www.crockettandjones.com/collections/mens-scotch-country-grain

24. Leather Conservation Centre: From Russia With Love, Spotlight on Russia Leather (2021)

Historical Russia leather and hatched surfaces; historical recipes and animal sources varied.

https://leatherconservation.org/from-russia-with-love-spotlight-on-russia-leather/

25. Crockett & Jones: A Hand Grade Grain

Full-grain embossed willow calf and directional cutting considerations.

https://us.crockettandjones.com/blogs/the-article/a-hand-grade-grain

26. Hermès: Sac Sabot, Veau Epsom Material Notes

French material description identifying fine, regular mechanical embossing. Product listings can change.

https://www.hermes.com/ch/fr/product/sac-sabot-H087971CKAA/

27. Louis Vuitton: Epi Leather

Brand-associated wave texture and two-tone appearance.

https://us.louisvuitton.com/eng-us/recommendations/louis-vuitton-epi-leather/

28. Museum of Fine Arts Boston, CAMEO: Shagreen

Historical breadth of shagreen and the later shark/ray usage.

https://cameo.mfa.org/wiki/Shagreen

29. SATRA TM43: Tensile Strength and Extension at Break

Public method summary only; no copyrighted full test procedure reproduced.

https://www.satra.com/test_methods/detail.php?id=39

30. Hermann Oak: Leather Grading Guide

One tannery's commercial grading conventions; no universal letter-grade hierarchy inferred.

https://www.hermannoakleather.com/pages/leather-grading-guide

31. Wickett & Craig: English Bridle Sides

Producer-specific drum-dyed and hot-stuffed bridle example.

https://wickett-craig.com/leathers/english-bridle-sides/

32. Wickett & Craig: Oiled Latigo

Producer-specific oils, waxes, tallow, and pull-up example.

https://wickett-craig.com/leathers/oiled-latigo/

33. Wickett & Craig: Traditional Harness

Producer-specific hot stuffing and jack glazing.

https://wickett-craig.com/leathers/traditional-harness/

34. Leather Working Group: List of Definitions, Version 1.1 (January 2024)

Selected material, intermediate-state, and compositional definitions. The glossary identifies this edition rather than claiming to replace current specifications. Material and intermediate terminology was rechecked during the selective usage review.

https://www.leatherworkinggroup.com/fileadmin/uploads/lwg/Knowledge/LWG_List_of_Definitions_v1.1.pdf

35. University of Cincinnati Leather Research Laboratory: Coated Leather

The 0.15-millimeter and one-third-thickness boundaries in the technical material definition.

https://leatherusa.org/coated-leather

36. Polyhedron: Extended X-Ray Absorption Fine Structure Studies of the Role of Chromium in Leather Tanning (2001)

Public article preview checked for chrome-complex basicity terminology; full experimental paper not reviewed.

https://www.sciencedirect.com/science/article/abs/pii/S0277538700006112

37. University of Cincinnati Leather Research Laboratory: Full Grain & Top Grain

Technical surface-retention definitions and this laboratory's explicit equivalence of top grain and full grain. This convention is distinguished from broader commercial usage.

https://leatherusa.org/full-grain-top-grain

38. University of Cincinnati Leather Research Laboratory: Aniline, Semi-Aniline & Pigmented Leather

Pigment coverage distinguishes these technical finishing categories. The presence of some pigment alone does not establish the fully opaque category.

https://leatherusa.org/aniline-semi-aniline-pigmented-leather

39. University of Cincinnati Leather Research Laboratory: Suede & Nubuck Leather

Suede as a napped leather category and nubuck as grain-side abrasion; appearance comparisons require separate material identification.

https://leatherusa.org/suede-nubuck-leather

40. University of Cincinnati Leather Research Laboratory: Laminated Leather

A composite-oriented usage broader than LWG's transferred-film definition. Identify constituent layers and the reference convention when specifying the material.

https://leatherusa.org/laminated-leather

41. Assomac: Finishing Machinery

Separate machinery descriptions for abrasive buffing and surface polishing. The glossary distinguishes those tannery operations from everyday use of buff to mean polish.

https://assomac.it/en/technological-guide/tanning-machinery/a03-finishing-machinery/

42. SATRA: Evaluating Rub, Abrasion and Scuff Resistance (2020)

Public explanation of rubbing tests and the crockmeter's assessment of color transfer. No full test procedure or assertion of current method editions is supplied.

https://www.satra.com/bulletin/article.php?id=2578

43. Society of Leather Technologists & Chemists: Evaluation of Leather Handle Character by Discriminatory Two Class Analysis

Public abstract identifies hand evaluation of softness, fullness, and elasticity. Used for sensory terminology only; the full paper and experimental method were not reviewed.

https://sltc.org/product/evaluation-of-leather-handle-character-by-discriminatory-two-class-analysis/

44. North Star Leather: Top Grain Leather (2017)

A working leather-goods maker's account of conflicting trade usage, including top grain as an umbrella for full-grain and corrected leather. This commercial convention is compared with the Leather Research Laboratory's narrower equivalence.

https://nstarleather.wordpress.com/2017/06/21/top-grain-leather-full-grains-under-rated-and-misunderstood-little-brother/

Broader Context and Further Reading

European Commission JRC: Best Available Techniques Reference Document for the Tanning of Hides and Skins (2013)

Broad process and environmental reference already central to the simulator research. Selected process material consulted; not a new complete audit of the report.

https://bureau-industrial-transformation.jrc.ec.europa.eu/sites/default/files/2019-11/TAN_Published_def.pdf

UNIC: Production Process

Industry overview of the manufacturing sequence.

https://unic.it/en/italian-tanneries/production-process/

Assomac: Beamhouse Machinery

Machinery categories and operation vocabulary.

https://assomac.it/en/technological-guide/tanning-machinery/a01-beamhouse-machinery/

Assomac: Finishing Machinery

Finishing machinery and process context.

https://assomac.it/en/technological-guide/tanning-machinery/a03-finishing-machinery/

US EPA: AP-42 Section 9.15, Leather Tanning (1997)

Historical industrial process overview. Numerical operating and emission information is not treated as current.

https://www.epa.gov/sites/default/files/2020-10/documents/c9s15.pdf

SLTC, Richard Daniels: Making Leather, An Overview of Manufacture

Further reading. Course catalogue inspected; the complete image-based course PDFs were not reviewed for this edition.

https://sltc.org/making-leather-an-overview-of-manufacture/

Leather Naturally: A Guide to Modern Leather Making

Further reading. Public guide landing page inspected; no claim to have newly reviewed the entire downloadable guide.

https://www.leathernaturally.org/a-guide-to-modern-leather-making/