

THE STRUCTURE OF LEATHER

The structure of leather is very complex. The main layers are the grain, the corium and the flesh.

The grain includes the epidermis or "skin" of the animal and the follicles in which the hairs of the animal grow. The feature of the grain layer is its, fine tough, fibrous structure. It also displays all the natural hallmarks and characteristics of the animal's lifestyle.

The corium underlies the grain layer. It is composed of a looser fibrous structure.

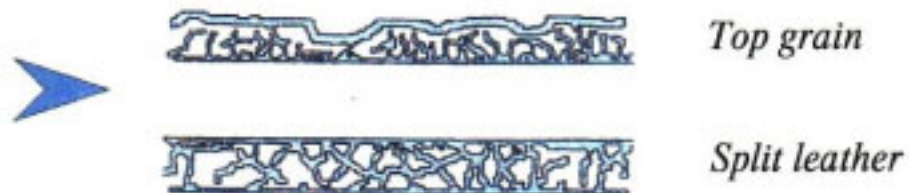
The grain and the corium form the outer layer of an animal and encase the flesh, blood vessels and bones.



The basic structure of leather

SPLITTING THE HIDE

The hide is split into two main layers to produce leather. These are known as top grain leather and split leather. The outer layer that includes the epidermis is the top grain leather while the lower layer is the softer, less durable corium layer.



A horizontal band saw produces top grain and split leather

THE HALLMARKS OF NATURAL LEATHER

Because leather is a natural product, it will carry the marks of authenticity. Permanent marks are caused by a number of different factors that occur during the life of the animal.

These include:

- *Trees, barbed wire or other sharp objects cause scratches.*
- *Goat marks caused by other animals.*
- *Salt stains. If the animal was to lie in an area that contains surface salt this will contaminate the skin.*
- *Insect bites are when parasites such as ticks either bite or burrow into the skin of the animal.*
- *Brands are deliberately put onto the skin to identify the animal. These leave a permanent mark on the leather.*
- *Fresh urine and dung will burn the skin, leaving a permanent mark.*
- *Healed scars are where the grain, corium and even the flesh layers have been cut, thus leaving a permanent scar.*
- *Warts, curry comb scratches, fat and neck folds are all part of the animals lifestyle.*
- *Vein marks are caused by veins that penetrate through corium therefore leaving an impression on the underneath side of the grain layer. Once the leather is stretched these may become visible on the surface.*

The natural hallmarks of leather authenticate the product, testifying to its natural origin and differentiating it from man made plastic materials. Furniture manufacturers should cut their panels to restrict the number of visible blemishes on any piece of furniture. However, most defects do not detract from the ultimate performance of the leather. For this reason, they are not faults but provide unmistakable hallmarks of quality. We are only enhancing what nature has created.

TOP GRAIN LEATHER

The outer skin or epidermis (top grain leather) is more durable and once it has been processed it is ideal for upholstery leather and can be used in many different situations such as domestic and contract furniture, automotive (seating and steering wheels), aircraft and marine.

TYPES OF UPHOLSTERY LEATHER

Various types of upholstery leather are produced from top grain leather.

- *Aniline dyed full grain leather, i.e. no pigmented finish.*
- *Masked aniline full grain leather, i.e. slightly pigmented finish.*
- *Semi-aniline full grain leather, i.e. a light pigmented finish.*

All of the above leathers are called full grain leathers because they have not been buffed or spot snuffed. Buffing or spot snuffing alters the surface structure. Please note that even if full grain leather has been embossed, it is still considered to be full grain, as the process has not damaged the natural grain.

***Aniline leather** is dyed through full grain leather. This is where the leather is simply aniline dyed through and should have a soil resistant treatment applied to the surface. With aniline leather it will vary in colour not only within the hide (mottled effect) but also from hide to hide. With this type of leather as there is no pigmented finish the leather will take on a patina.*

***Pull up leather** is also derived from aniline leather and normally is of a thicker substance. The Pull Up effect is obtained by forcing special oils into the leather. Once pressure is applied to the surface the oils are dispersed and a slightly lighter base colour is evident. Once the pressure is released the oil will migrate back. Please do not mistake this type of leather with a wax finish Pull Up effect. This is where a wax is applied to the surface and is often referred to as the poor man's Pull Up as the leather is not normally as supple and the wax finish has a tendency to mark.*

***Masked aniline** is basically the same as aniline leather except that it has a slight amount of pigmentation applied to the surface. This will reduce the colour variation not only within the hide but also from hide to hide.*

***Semi aniline** is again a dyed through full grain leather that has had a lightly pigmented finish applied to the surface. It still allows most of the natural characteristics of the animal's lifestyle to remain evident however the durability of the leather is enhanced.*

- *Pigmented finish snuffed or corrected grain, i.e. a full-pigmented finish.*
- *Corrected grain, i.e. a slightly lighter pigmented finish.*
- *Nubuck finish, buffed leather.*

***Pigmented finished** leather has normally been spot snuffed or buffed and has a full pigmented finish. It is more durable leather than the others and is often used in situations that require heavy-duty characteristics. However care must be taken not to apply too much pigmentation, as this will impair the breathing capabilities of the leather. If it cannot breathe and absorb moisture the leather will dry out and crack.*

***Corrected grain** as the name indicates has had the surface grain either partially or completely removed due to the fact that the tannery has deemed that the hide has too many natural hallmarks on the surface. This of course would reduce the cutting efficiency of the hide so the tannery will buff the surface and then apply a simulated grain to the surface after the pigmented finish is applied. This improves the durability of the surface. When produced by a tannery experienced in the manufacture of leather for upholstery, corrected grain leathers can be expected to give excellent service.*

***Nubuck leather** is top grain leather that has been buffed to produce a napped surface. The colour is obtained by the hide being aniline dyed through and can also be embossed and a light pigmented finish can be applied to the surface before the hide is buffed thus giving it a highlight appearance in the embossed areas. It is very soft and more liable to soiling than finished leather. Nubuck generally has a soil-resistant finish applied to the surface this will enhance and maintain the appearance of the leather and is a very specialised upholstery leather.*

Please note that all hides that have a pigmented finish should be aniline dyed through with a colour that is basically the same as the topcoat. It also has a clear PU coating sprayed over the pigmentation and to protect the environment all of the finishes should be water and not solvent based.

SPLIT LEATHER

Split leather is the layer, which does not include the grain layer. The split is generally abraded to produce a napped leather known as suede and is used for apparel and footwear. Even if a full-pigmented finish is applied to the surface, it is not generally suitable for upholstery applications and should not be confused with corrected grain leather. To the novice split leather with a pigmented finish can be indistinguishable from grain leather. For this reason, it is essential to deal only with reputable leather and/or furniture manufacturers. Some cheap leather furniture manufacturers use pigmented finished split leather on non-contact areas such as the back or outside arms. The consumer is generally not informed of this deceptive practice.

QUALITY HIDES PRODUCE QUALITY LEATHER

The best hides for upholstery leather

- *Come from large cattle, normally from a colder climate.*
- *Which have enjoyed good nutrition.*
- *Which have received good care.*
- *Have few blemishes such as scars, insect bites, and vein and other hallmarks.*

Tanneries, which do not pay proper attention to the selection of quality hides, tend to produce leather that may suffer from the following characteristics:

- *Excessive wastage caused by small hides.*
- *Excessive wastage caused by an excessive blemish rate.*
- *Poor durability because of the need for excessive correction due to inferior rawhide.*
- *Poor durability because of an excessively thick-pigmented finish. Too much pigmentation will make the leather too stiff. Thinner finishes would not cover the many blemishes.*
- *Inexperience on the part of the tannery. Upholstery is often not the prime interest of the tannery that may be more experienced in making leather for apparel or footwear.*

In hot and arid areas where the cattle are left to range free, they generally have more blemishes than animals from the colder regions.

Cattle of South German and Austrian origin because of the climate have a denser and finer hair pattern than cattle from hotter and arid areas. These animals tend to have a coarser hair and hair pattern to allow the animals to control their body temperature and therefore produce coarser grain leather.

Our parent company mainly uses rawhide of South German and Austrian origin so we can maintain the size, consistency and cleanness of the hide.

Because of this fact we are able to process fresh or green hides which has a large impact on the end product and also the environment.

Most other tanneries source their product from all over the world and to stabilise the rawhides during the shipment the hides have to be salted. These hides have to be processed more to remove the salt and additional chemicals have to be employed thus affecting our environment.

Throughout the world the use of poor quality bovine and to a lesser degree water buffalo rawhides has increased over the recent years and this is having an impact not only with finished leathers but is also surfacing with some of the cheap imported furniture coming in from South East Asia. Some of these leathers have not performed well in service.

THE TANNERS EXPERTISE AND QUALITY ASSURANCE

A tannery that is committed to the production of high quality upholstery leathers should have an efficient quality assurance system in place. Only in this way can a consistent product be made from an inherently variable natural raw material.

Ways in which a supplier can be recognised as having a commitment to quality include the following:

- *Specialising in upholstery leathers.*
- *Achieving a recognised international standard of quality assurance such as*
- ***DIN EN 9001: 1994 and ISO/TS 16949: 1999** such as that achieved by Wollsdorf Leder.*
- *Protecting the environment to the industry's highest standards. **EN ISO 14001: 1996.***
- *Producing leathers that achieve satisfactory performance on industry recognised methods of test.*
- *Providing practical and effective care instructions.*
- *Providing effective support to deal with consumer's questions and claims.*
- *Sourcing of quality rawhides from a world-renowned area.*

The requirements of leather for apparel, sporting goods, footwear or luggage are quite different to those of upholstery. Leather that may be very well suited for apparel will not perform satisfactorily as upholstery. It is essential that the hides be selected, tanned and finished specifically for upholstery.

Where leather is corrected or napped to produce nubuck leather, it is essential that the correction or sueding processes be carefully controlled. Inexperienced tanneries may over-correct the leather or severely nap the leather so that the durability of the grain layer is impaired.

Naturally, an experienced tannery would not consider finishing split leather to produce a product that has the superficial appearance of full grain pigmented finish leather but with inferior performance.

GLOSSARY OF TERMS

Aniline dye: *Is the base colour that is used in the dyeing process and the hide should be dyed through.*

Aniline leather: *Leather that has been dyed through but does not have a pigmented finish. It may have a transparent PU or soil resistant treatment applied to the surface so that the natural grain of the leather is completely visible. It is a specialised and highly prized upholstery leather.*

Corrected grain leather: *Grain leather, which has had the top surface, buffed or abraded to obscure or remove blemishes such as scars or insect marks. Generally has a pigmented finish applied to the corrected surface.*

Chrome free: *Is where a tannery does not use chromium salts to process the rawhide to the wet blue stage. They will use an aluminium compound instead and the debate still rages as to whether one is better than the other. An environmentally friendly tannery will recover all of the chromium salts from the tanning process and bring them back up to strength so as they can be re-used.*

Chrome tanned leather: *Leather that has been tanned with chromium salts. This is the most widely used method of tanning used today.*

Full grain leather: *Grain leather that has not been buffed or abraded, i.e. corrected.*

Pigmented finish: *A coating which is applied to the surface of leather and which includes coloured pigments. This type of finish produces a more even colour and a more durable surface. May be applied to full grain, corrected grain or split leather.*

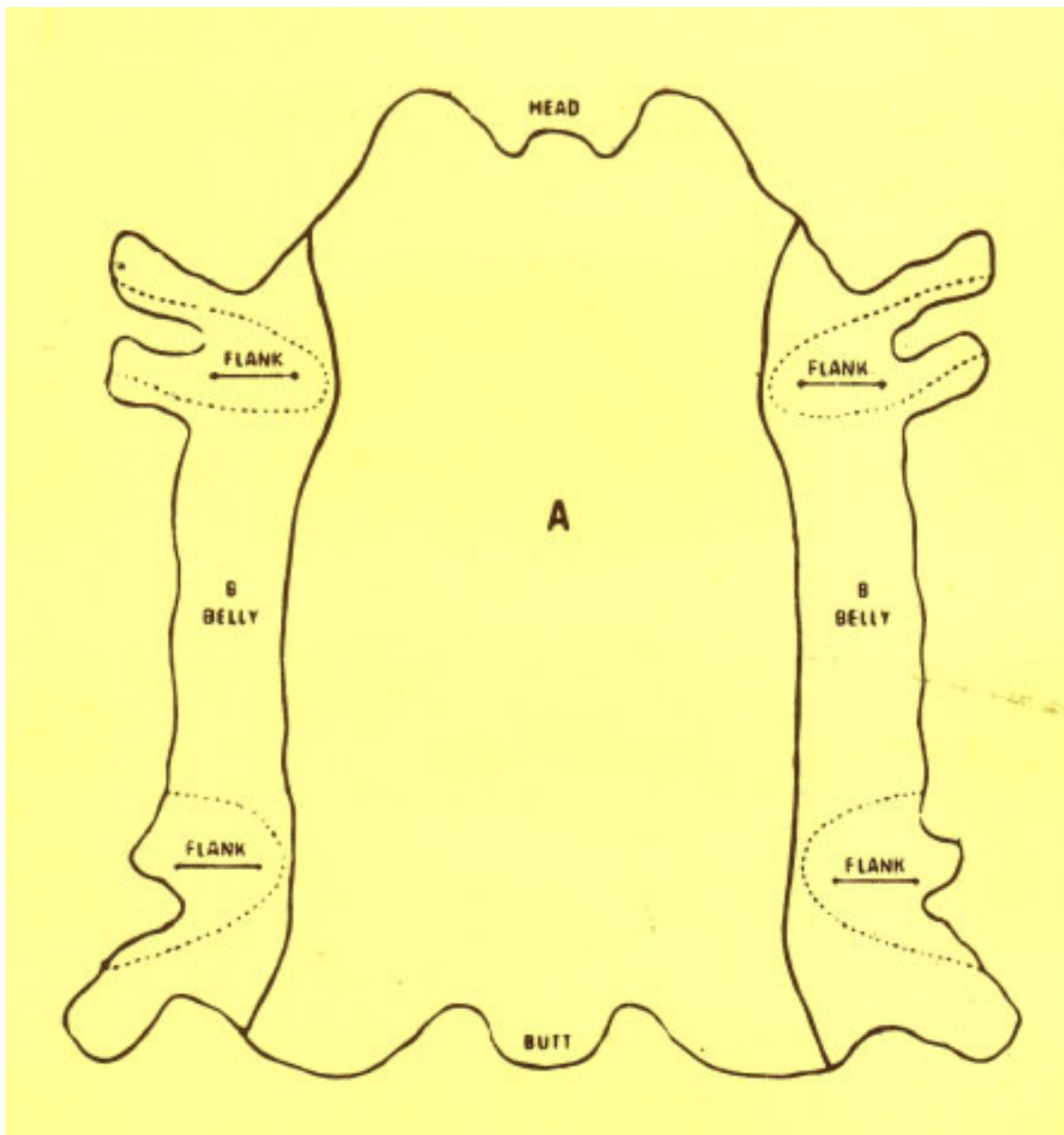
Semi-aniline leather: *A top grain leather which has been dyed through and given a light pigmented finish. This produces an even colour and improves the durability of the leather when compared with aniline leather.*

Split leather: *Leather that does not include the top grain layer. Produced by splitting the hide in to the grain layer and one or more split layers. Not suitable for upholstery even if a pigmented finish has been applied.*

Suede: *Split leather which has velvet-like nap produced by buffing.*

Tanning: *Processes that convert rawhides into leather. Without tanning, the hides would become putrid.*

Vegetable tanned: *Leather that has been tanned using vegetable tanning agents such as the bark of selected trees. This method of tanning is less widely used for modern upholstery leathers. It is mainly used for specific leather products that require a thicker and stiffer type of leather.*



CUTTING INSTRUCTIONS FOR GENUINE LEATHER

A hide of genuine leather is a natural product and caution must be exercised when cutting one. The above diagram shows various areas of a hide and should be cut as follows.

Section A which consists of the backbone and upper body is the prime area of the hide and should be used for the seats, inside backs, cushion borders, inside arms and all other areas that receive constant wear and are put under strain. These components should be relatively free of obvious marks. Section B includes the flank and belly section of the hide and should be used for the outside backs, arms and other parts of the furniture that are non-wearing surfaces and/or receive little flexing. Leather does not have a memory as such and will normally stretch in one direction.

Remember that leathers that feel very soft in the beginning may have a tendency to puddle sooner, especially in the areas where tension is applied. The reason for this is that during the processing of the leather the hides are tumbled for a longer period thus breaking up the fibre structure to a greater extent.