



THE VALUE OF A
UNIQUE MATERIAL



No one knows leather and material like we do.

We directly monitor every single stage of the tanning process. Our knowledge comes from over 50 years' experience, working in direct contact with this noble, precious and virtually indestructible material. In this manual, we are going to tell you everything we have learnt about leather, its virtues, its character and its secrets.

INDEX

LEATHER AND MAN. TWO HISTORIES IN ONE	2-3
PREHISTORIC TIMES THE MIDDLE AGES THE MODERN ERA TODAY	
ONE MATERIAL, INFINITE QUALITY	4-5
EACH LEATHER HAS ITS OWN CHARACTERISTICS THE LEATHER STRUCTURE THE EFFECTS OF TANNING THE QUALITY-PRICE RATIO	
THE ORIGIN OF THE LEATHER	6
BREEDING WITHOUT ENCLOSURES BREEDING IN BARN THE QUALITY PARTS OF THE HIDE	
ALL THE SECRETS OF TANNING	8-10
THE PRELIMINARY STAGES THE TANNINS OUR TANNERY PROCESSING STAGES ARRIVAL IN WET BLUE STATUS RINSING PRESSING 1 ST SELECTION SPLITTING SHAVING RETANNING, DYING, FAT LIQUORING DRYING AND NAILING TRIMMING STAKING SEALING AND GRINDING FINISHING FULLING 2 ND SELECTION MEASUREMENT AND PACKING QUALITY CONTROL	
CRAFTSMANSHIP: AN ADDED VALUE	12-13
NATUZZI LEATHER CLASSIFICATION NATURAL LEATHER OILED WAXED GREASED LEATHER PROTECTED LEATHER	
NATURAL OR PROTECTED: HOW TO CHOOSE?	14
NATURAL PROTECTED LEATHER GRAIN LEATHER THICKNESS	
LEATHER QUALITIES	16

LEATHER AND MAN. TWO HISTORIES IN ONE.

Tanning is one of the oldest manufacturing techniques, employed ever since the skins of hunted animals were first used for clothing and shelter.

Man immediately began to experiment, trying to make it more flexible and harder-wearing. It was soon discovered that putrefaction could be slowed by drying the leather or rubbing it with salt, but the real breakthrough happened when tanning properties were discovered in the berries of certain trees (and oak in particular).

Another ancient tanning method uses alum, a common mineral, widely available in nature, particularly in volcanic areas.



PREHISTORIC TIMES

Traces of these techniques, which were gradually refined and improved, have been found in numerous documents, as well as archaeological spots. From the 5th to the 3rd millennium B.C., in Mesopotamia, the Sumer were using leather for clothing and jewellery, whilst the Assyrian population used leather for shoes and rafts. The Indians were the first to actually work the leather using the technique we know today as “Moroccan”, while the Egyptians became highly skilled in using leather for clothing (even going as far as making gloves!), tools, weapons and ornaments.

The historian Strabo tells us that the Phoenicians shaped it into pipes for water.

The Romans used it for shoes and clothes, shields and tack.

THE MIDDLE AGES

It was in 8th century Spain, under the domination of the Moors, that “Cordoba leather” working was developed, which would then remain famous in Europe for centuries. But as Marco Polo wrote in his “Travels”, leather was not only used extensively in the west: the Mongols were also using leather for flasks, blankets, masks and hats.

From that era, right up to the last century, little major progress was made in terms of the manufacturing processes used: oil tanning was used to produce protective clothing and alum tanning was also fairly widespread, albeit with less than perfect results. The depilatory action of lime was also discovered, a technique that is still used today. Various finishing processes were added to make the leather softer and give it a more attractive appearance, particularly through dyeing.

A part from practical purposes, leather was also used for decoration; in the early 1300s, for example, leather was combined with wood to create artistic objects such as padded furniture (particularly in Venice in the 15th and 16th centuries), boxes and jewellery boxes and binding.

THE MODERN ERA

The discovery of the tanning properties of chrome salts half-way through the last century, led to major progress in the quality of production. Another revolutionary change was the move from using ditches for tanning to rotating drums instead, as was the discovery of new types of tannins. One result of these innovations was a major reduction in the tanning time: from 8-12 months to just a few weeks.

TODAY

Apart from the improvements seen in terms of efficiency and ease of working, the systems and tools used to work the leather have remained virtually unaltered. Leather tanning is an industry that still continues to be very much an artisan business even today, with the result depending largely on the art and skills of the tanner.

ONE MATERIAL, INFINITE QUALITY

As we have seen, leather has been tightly bound to the history of man. It is a natural, living material that bears all the marks of its experience. Its distinctive nature perhaps lies precisely in its natural authenticity.

EACH LEATHER HAS ITS OWN CHARACTERISTICS

Leather comes from different animals with different characteristics. The softer leathers (goat, lamb and calf), the most delicate treatments (chamois, nap) and the most valuable skins (crocodile and snake) are generally used in clothing and the fashion industry. Bovine leather (although buffalo and pork leather can also be used) is generally preferred for padded furniture.

THE LEATHER STRUCTURE

Leather has two main layers: the epidermis and the dermis. The first and outermost part is usually removed and destroyed. The dermis consists of:

- connective fibre tissue (mainly collagen)
- cells that produce the dermal structures
- base substance (a viscous fluid surrounding the fibres, removed during tanning)
- adipose tissue

The Malpighian layer, which lies between the epidermis and the dermis, is made up of a series of sub-layers. The epidermis accounts for approximately 1.1% of the thickness of raw leather; the dermis 85%.

THE EFFECTS OF TANNING

Tanning mainly involves the dermis and specifically the collagen fibres. In chemical terms, it fixes the lateral ionisable groups of collagen fibres, increasing the hydrogen bonds between collagen molecules. This bond opens up the reticular structure, leaving leather more flexible and occupying all sites (thereby preventing decomposition).

THE QUALITY-PRICE RATIO

The end quality and price of an article depend on three main factors:

- The origin of the leather
- The selection process
- The finish applied

Approximately 60% of the final cost of the finished leather depends on the raw material used.

THE ORIGIN OF THE LEATHER

BREEDING WITHOUT ENCLOSURES

Hot/dry climates = more insects = more bites

Breeding without enclosures = less control over diet/health

Breeding without enclosures = branded animals = one or more brands on each hide

Open spaces = more fights/scratches = more scarring

BREEDING IN BARN

Cold climates = fewer insects = fewer bites

Breeding in stalls = complete control over diet/health

Stalls = less direct contact with other animals = less scarring

Stalls = whole life spent in the same place = animals sit in their own excrement

THE QUALITY PARTS OF THE HIDE

The quality of the leather can vary significantly from one part of the hide to another. The most valuable part runs from the belly to the backbone. This part has a more even, more compact grain and is softer and fuller to the touch.

By contrast, the part over the backbone has a very small grain and, due to the lack of fibre, this part of the leather is less elastic and therefore withstands stress less well. When considering what characteristics the leather article will have, reference must be made to the “noble” part of the hide.



ALL THE SECRETS OF TANNING

THE TANNINS

There are numerous agents and tanning methods: chrome, vegetable, alum, oil, aldehyde.

The choice is connected with the intended final purpose of the leather (clothing, shoes, furnishing, etc.).

The most common tanning agent used is chrome, which leaves leather a delicate blue colour (hence the term “wet blue”).

THE PRELIMINARY STAGES

The hide is removed after the animal is butchered and then undergoes several different pre-working stages:

- Conservation with sodium salts
- Rinsing to remove salt and dirt
- Skiving to remove tissues, meat and any remaining fat
- Liming to remove hair
- Tanning to transform the proteins of the raw hide into a stable material that will not putrefy.

OUR TANNERY PROCESSING STAGES

ARRIVAL IN WET BLUE STATUS

This is the start of the process, with the hides reaching the tannery in “wet blue” status.

RINSING

The hides are placed in large drums where they are washed with water. This process is necessary to clean away any residue from the hides left by the previous stage and to moisturise the fibres evenly. All the water used in tanning is processed a great many times in order to purify it and only then is it returned to nature. This commitment with regards to the environment has earned Natco ISO 14000 certification for environmental responsibility.

PRESSING

After a first drying, the damp hides are then placed underneath a giant press to remove all residual excess water.

1ST SELECTION

Hides are evaluated and classified according to intended purpose.

SPLITTING

Hides are split into two layers: the “flower” and the “crust”. The FLOWER is the upper layer, the noble part of the hide. The CRUST is the lower layer, which in its natural state is chamois.

In order to be used as upholstery, the crust is subjected to certain processes that recreate a surface similar to that of the flower (but the characteristics and performance of the two materials remain very different).

SHAVING

Hides are shaved underneath in order to ensure an even thickness, which is then tested by a thickness gauge. This process also removes most of the fibres on the back of the hide.

RETANNING, DYING, FAT LIQUORING

The hides still in wet blue status are left for approximately 8-12 hours at a controlled temperature in wide drums, immersed in a mix of dyes and products that help: Obtain a fullness and consistency to the touch (retanning and fat liquoring). Ensure colour and protective agents penetrate properly (dying).

Each colour requires a specific formula, also referred to as its “cocktail”.

DRYING AND NAILING

Hides are dried to remove excess moisture. Drying can be obtained in different ways. Hides can be:
Nailed (or stapled) to wide mesh frames and placed in large drying furnaces (30 minutes)
Dried by air and heat, enabling the hides to maintain greater elasticity (45 minutes)
Air-dried naturally (this process takes a long time and is therefore more expensive).

TRIMMING

Any parts that cannot be used are trimmed off to avoid every type of wastage.

STAKING

Once the hides are completely dry, they are mechanically staked to open fibres, leaving the leather softer. Staking can be repeated several times, depending on the specific article to be produced.

BUFFING AND GRINDING

Any small area with scratches or relief parts is sealed and ground to make the surface area more even. This process applies to certain protected leathers only.

FINISHING

All protected leathers are subjected to a finishing process that may include correction, pigmentation and protection. Correction: printing the grain is carried out using rollers and exploiting pressure and heat. Pigmentation: mechanical operation carried out by spraying.

One particular effect of pigmentation is the “clouding” that adds depth and increases the perceived value of the leather. Protection or Fixing: protective, fixing substances are added during or after pigmentation.

FULLING

When hides are completely dried, they are fullered (or butted) to soften them. The finished leather is therefore checked for temperature and humidity.

2ND SELECTION

Leather is a natural product. This is why marks on the hides (scratches, bites, scars) should not be considered flaws. Each natural mark is a mark of authenticity: with this in mind, the leather is once again evaluated, monitored and classified.

MEASUREMENT AND PACKING

The measured, weighed hides are assigned an identification barcode to guarantee their traceability. Once packaged and stacked, the hides are sent to the production plants.

QUALITY CONTROL

All leather is subject to a final quality control. Samples are taken of each lot to carry out laboratory quality tests: Stretching test, duration over time, resistance to light, strength of stitching, dry and damp rubbing, folding, bending.



CRAFTSMANSHIP: AN ADDED VALUE

When working and tanning leather, technology is important but man's intervention is also essential. The unique nature of each hides and each leather cannot be objectively classified and recognised, but rather should be evaluated by expert hands and eyes. The feel, softness and touch of the leather are all characteristics that the expert artisan measures by experience and sensitivity.

OUR LEATHER CLASSIFICATION

As technical classification is generally too complicated to be understood by the end customer, we apply a general classification to describe the leather items in the collection.

There are two different types:

NATURAL LEATHER
PROTECTED LEATHER

NATURAL LEATHER

This is obtained from hides that do not undergo any form of treatment that could modify the original surface. It is velvety soft to the touch with natural markings in full view: wrinkles, insect bites, veins, grain differences and scars. The colour and final appearance are generally not uniform. The result is a natural, precious, high quality upholstery, whilst technical performance is medium-low.

OILED WAXED GREASED LEATHER

These belong to the commercial category of Natural Leather. This is leather that is treated with wax, oil or grease during tanning or finishing, to give it a unique appearance. This leather shows all the normal signs of the animal's life, which, given the quantity of wax used, is generally deeper in colour (for example scars take on a darker hue). The shading and final appearance are not always even. Technical performance is medium-low.

PROTECTED LEATHER

Protected leather is obtained from hides to which a protective, colour coating has been applied. In some cases, it may also have been mechanically treated to modify the original surface (i.e. grinding, sealant, printing). The appearance and colour are fairly even; the natural signs are seen even if their visibility varies from one article to another. Protected leather is less fine than natural leather, but it does boast excellent technical performance: high resistance to light, dry, damp rubbing and folding.

NATURAL OR PROTECTED. HOW TO CHOOSE.

The two categories have different strengths.

NATURAL

Finishing not necessary, extremely natural and aniline
Natural colour variation
Natural characteristics
Extremely soft to the touch
Poor resistance to fading
Highly porous
Poor stain resistance

PROTECTED

Possible finishing processes: Grinding/Sealant/Printing/Pigmentation and Protection
Even colour
Less natural characteristics and appearance
Not quite as soft to the touch
Not overly porous
Good stain resistance

LEATHER GRAIN

Full flower: article not ground, not sealed and not printed
Flower: upper layer of the leather after splitting
Natural grain: unprinted grain, not to be confused with the commercial category "Natural"

Some differences in appearance are also due to different effects, such as "clouding" applied by mechanical spray or obtained by natural absorption (full flower and aniline leather).

LEATHER THICKNESS

Thickness is an important characteristic of the different types of leather. Thickness can be classified as:

Slim: from 0.8 to 1.2mm
Medium: from 1.3 to 1.5mm
Thick: from 1.6 to 2.2mm



LEATHER QUALITIES

Leather has unique physical-technical characteristics:

IT RESISTS TEARING
IT IS HIGHLY BREATHABLE
IT LASTS WELL OVER TIME
IT INSULATES AGAINST HEAT AND NOISE
IT IS AN ANTI-MITE MATERIAL (IT DOES NOT COLLECT DUST)

In addition to these characteristics, it also has a great many extraordinary "sensory" features:

SOFTNESS
THE FEEL
WARMTH
LIGHTNESS
PRECIOUSNESS
ELEGANCE

