



***La Scarpa. The sustainable leather choice.***

**LA SCARPA** | CONCERIA

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**CONCERIA LA SCARPA**

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# LA SCARPA TANNERY

## OUR IDENTITY

The Scarpa S.r.l tannery is located in the hamlet of Ponte a Egola, belonging to the municipality of San Miniato, in the province of Pisa. The tannery is therefore part of the tanning district of Santa Croce sull'Arno. The tannery activity is aimed at obtaining finished calfskin for footwear, clothing and leather goods.

### THE CIRCULAR BUSINESS MODEL

The tannery uses exclusively bovine skin for the food industry. Raw hides represent a **slaughterhouse** waste that the tannery reuses as raw material thus **avoiding the production of waste**.

La Scarpa fur leathers are purchased directly from French and Irish slaughterhouses and are cut and selected directly by the company to give the leathers the right size.

The La Scarpa tannery produces **vegetable tanned leather**, a niche product that has allowed the company to position itself in the fine leather segment. The leather is treated with **tannins of natural origin** in slowly rotating wooden drums, the leather therefore has plenty of time to absorb these products and give the characteristics that make the final product unique. The **absence of toxic substances** such as azo dyes, nickel or pentachlorophenol and chromium VI is guaranteed by monitoring the tanning products used in compliance with European regulations such as REACH, ECHA and CADS.

### SUSTAINABLE TANNING

The leathers undergo a preparatory treatment for the tanning phase. The wet white pre-tanning process, with **low environmental impact and chromium-free**, allows the creation of all types of items from automotive to furniture, from clothing and accessories to shoes..





## QUALITY AND SUSTAINABILITY CERTIFICATIONS

The tannery La Scarpa S.r.l. has always been attentive to **environmental protection and efficient use of natural resources**. In this scenario, La Scarpa S.r.l. has chosen to obtain **ISO 14001: 2015** accreditation, an environmental management standard that certifies the company's commitment to **reducing the environmental impact in all business processes**.

With a view to the company's commitment to increasingly ecological production, the tannery obtained the prestigious **LWG (Leather Working Group) certification** in March 2021, which takes into account factors relating to the environment, the conduct of tannery operations, use of energy and water, waste management and restricted substances.

### CERTIFICATION

ISO 14001

LWG

INDITEX

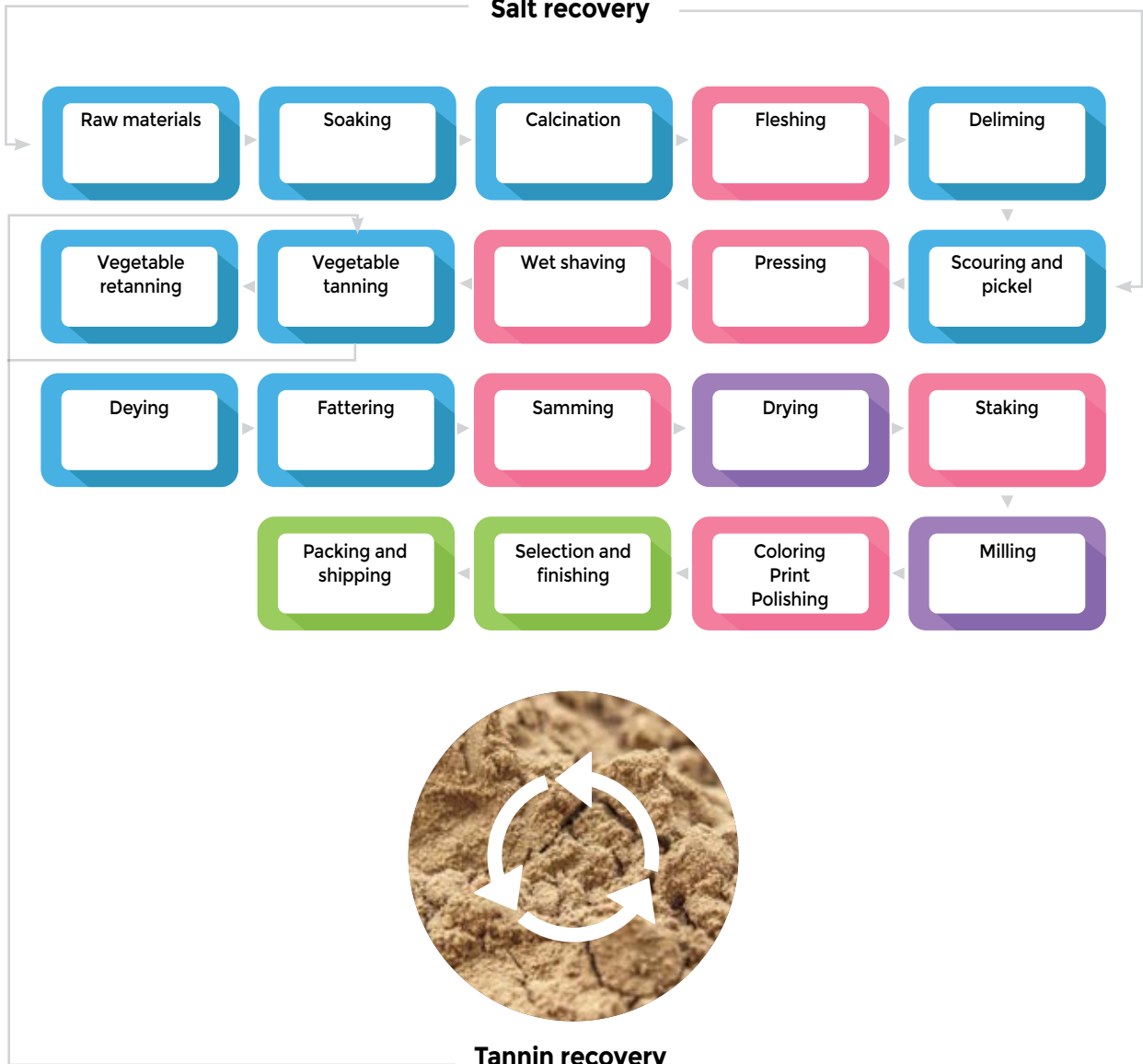
The tannery also adheres to the **Clear to Wear (CTW)** compliance standard developed by **Inditex Group**. Clear to Wear regulates substances whose use could be dangerous to human health. This category includes substances such as formaldehyde, heavy metals, amines. Clear to Wear also imposes limits as regards the composition, pH and solidity of the colors and sets the limits for the use of two parameters not envisaged by the regulations in force, namely organochlorine compounds and isocyanates.



# CIRCULARITY OF PRODUCTION PROCESS



## Salt recovery



## Tannin recovery



# THE CIRCULAR ECONOMY AND ATTENTION TO THE ENVIRONMENT

La Scarpa company's vision sets **circular economy as the fulcrum of its values and business strategy**.

Air, water, soil, territory are the targets of the environmental commitment of the La Scarpa tannery.

The **continuous improvement of the production processes** has made it possible to manage the critical aspects in a sustainable perspective.

Since 2019, our commitment has been concentrated on the development of experimental systems for the recovery of water from waste baths; the recovery of salt and the recovery and reuse of hot water. Furthermore, our business is moving towards the development of sustainable coatings, using a waste material to create a new product.

The critical aspects of the production process include water consumption and discharges; energy consumption; emissions into the atmosphere.



**Water** is one of the most used natural elements in the tanning cycle and water consumption is one of the environmental aspects with the greatest impact since it affects all the phases in which the drum is used, therefore from the pre-tanning, tanning and retanning operations.

For the production of sole leather and hide, ultrafiltration techniques of tanning baths have been tested which allow to recover the tannins not fixed to the hides, avoiding them being conveyed into the water drains and allowing, in part, their reuse.

**Energy consumption** related to all stages of the process (from receipt with storage in cold rooms, including all operations carried out in the drum up to mechanical operations). The electricity in the manufacturing process is mostly used to power the electric motors that drive the operating machines; for powering the pumps and for heating certain equipment.

**Atmospheric emissions** come only from some phases of the tanning cycle. The pollutants produced during the process phases are VOCs (volatile organic compounds) and hydrogen sulfide. During the spray painting phase, VOCs are emitted.

On the other hand, hydrogen sulphide is formed during delimiting / maceration phases. Emissions also derive from auxiliary thermal production systems, manual spraying booths and leather dryers which are controlled in accordance with the provisions of the law.

**The main circular economy actions adopted in the production cycle designed by the tannery concern the recovery of the tannin discharge baths and the recovery of salt.**



## RECOVERY OF WATER AFTER TANNING BATHS

Within the production cycle for the transformation of raw leather (tanning phase) from fresh salted to leather intended as a finished product, large quantities of water are used which, enriched with chemical products necessary for the tanning process, flow into the drain into the sewer. This process generates significant quantities of substances impacting the environment such as COD (concentration of organic substances) and SS (suspended solids), which require disposal through a purification process of the outgoing waste.

In order to reduce the impact of tanning and the costs deriving from the purification of wastewater, La Scarpa has carried out an **intense activity of analysis, tests and trials to reduce the use of pollutants**.

### REUSE OF TANNING WATER BATHS

**An innovative bath recovery system** has been studied, used in the tanning phase, which involves the reuse of the baths destined for unloading, stowed in a tank, reintroduced, instead of water, in the tanning phase. The development of the recovery system required multiple taking of samples from the bathroom, analyzed from time to time as tests were carried out by means of laboratory tests, and of the leather used for this **circular economy process**.

The first tests were carried out in the small drums and, subsequently, in the production drums to verify that the parameters were reproduced to scale, generating a considerable reduction of the polluting load.

The determination of the optimal parameters took place through the **development of a new tanning recipe** through tests and tests, carried out both internally and with the support of laboratories and chemical consultants external to the company.



Watch the video



## SALT RECOVERY

### RECOVERY OF 75% OF THE SALT

The raw hides arrive at the tannery with salt on the surface to guarantee their conservation; the salt acts as a buffering agent for the change of the PH of the leather (from basic to alkaline or vice versa), so that the skin does not undergo swelling. Considering the amount of salt present on the leather entering the tannery, La Scarpa has devised and developed an **innovative process to reuse the salt used for the preservation of the leather**, which involves specific sanitizing and cleaning treatments. To carry out this operation of salt recovery, a prototype of machinery able to separate the grains of salt from impurities, such as animal hair, small pieces of wood, gravel and dung, was studied designed and subsequently developed, with the support of external technical skills.

The prototype designed and built was necessary to experiment and to verify the effectiveness of the innovative processing system that would allow the recovery of the salt . The salt from a waste product, with high costs for disposal, become a new purified product and allowed to saving cost of raw materials.

The design, in addition to the study of the prototype plant, required the development of specific recipes and targeted testing activities on the salt recovered.

The "dirty" salt is stored in big bags, nylon bags then subsequently cleaned, "screened" and deposited in a steel box.



Watch the video

# LIFE CYCLE ASSESSMENT OF TANNERY






## REDUCTION OF ENVIRONMENTAL IMPACTS

**Attention to quality and the environment** have also been achieved thanks to the **research activities** carried out in collaboration with the main universities in the area. Thanks to the collaboration with Ergo, Spin Off of Sant'Anna University School of Pisa, the Life Cycle Assessment study was developed. Often abbreviated to LCA, the **Life Cycle Assessment** is a consolidated scientific methodology, based on the ISO 14040-44 standards, which allows to **quantify the environmental impacts** related to a good or a service. Environmental impacts cover all types of impact on the environment, such as the consumption of resources and energy, CO<sub>2</sub> emissions, the emission of hazardous substances. The approach of the procedure involves the evaluation of a product throughout its life, i.e. from the extraction of raw materials, the processing of materials, the manufacture of the product, distribution, use and end of life.

Through this study it was possible to quantify the environmental costs and benefits of the individual improvement actions introduced by the company in the production process and based on the principles of circular economy. The environmental assessments connected to the two investigated actions concerned the transport and production of salt and tannin raw materials and management of their end of life, excluding the production process in its entirety. **There is an average reduction of about 15% of the environmental impact thanks to the two circular solutions inserted in the production cycle. This result is achieved thanks to the reduction in the consumption of natural resources (salt and tannin) and the environmental load associated with their disposal.** To better understand the improvements obtained thanks to our commitment, we can compare the benefits obtained with commonly adopted daily actions as illustrated in the following table.



## ENVIRONMENTAL CLAIMS BY IMPACT CATEGORY

BENEFICI	CHE CORRISPONO A	
<p>CLIMATE CHANGE</p> <p><b>approximately 91 tons CO<sub>2</sub></b> eq / year</p>	<p>equal to those emitted by an average displacement car that travels 277,388 km or equal to those absorbed in a year by 610 trees</p>	
<p>ACIDIFICATION</p> <p><b>approximately 531 molc H<sup>+</sup></b> eq / year</p>	<p>equal to those issued by 41 bus trips on the Rome-Milan route</p>	
<p>AQUATIC EUTROFIZATION</p> <p><b>about 5 kg P</b> eq / year</p>	<p>equal to those emitted by 8,733 washing cycles in the washing machine</p>	
<p>FORMATION OF PHOTO-CHEMICAL OZONE</p> <p><b>approximately 378 kg NMVOC</b> eq / year</p>	<p>equal to those emitted by 402 pellet stoves</p>	
<p>WATER RESOURCE CONSUMPTION</p> <p><b>approximately 310 m<sup>3</sup> of water</b> eq / year</p>	<p>equal to the m<sup>3</sup> of water consumed in one day by 1,267 Italian inhabitants</p>	

# Certified leather biodegradable in water and compost



N°DT20/01 - B003

**94,1%**



N°DT20/01 - G003

**91,6%**



# GAIOLE: AN INNOVATIVE PRODUCT WITH THE BIODEGRADABLE LEATHER CERTIFICATION

The circularity of the production process through the reduction of environmental impacts and attention to the end of life of the products have stimulated the search for ecological innovations such as "GAIOLE".

**GAIOLE is the alternative tanning system developed by Tannery LA SCARPA srl which gives life to the line of vegetable leathers** that are biodegradable in waste water and compost offering customers the **guarantee of a safe product for man and for environment**, ready to be transformed into strictly **eco-friendly footwear or leather goods**.

Compliance with the essential requirements for the protection of the natural environment during the production process and the implementation and application of production procedures capable of guaranteeing the traceability of raw materials are the minimum requirements for obtaining specific environmental certifications.

**GAIOLE** has obtained the **Blue Label and Green Label certifications** by passing all the laboratory tests required by the "Biodegradable Leather" protocol:

- Biodegradability test in waste water - UNI EN ISO 20136:2020
- Biodegradability test for composting - UNI EN 13432:2002; UNI EN ISO 14855-1:2013
- Disintegrability test - UNI EN ISO 16929:2021
- Ecotoxicity test - OECD 208:2006; UNI EN 13432:2002

The "Biodegradable Leather" certification system is aimed at operators in the tanning industry including Tanneries and Suppliers of Chemical Products.

"Biodegradable Leather" is a voluntary certification consisting of a Technical Specification referable to the characteristics of the process and of the product, a registered trademark and a certificate that is issued to the Manufacturers of leather and / or leather articles declared compliant with the requirements indicated in the Regulations Technical.

Verification of compliance with the requirements is carried out by TECHA Srl through the Inspection Report issued by the Independent Third Party Certiquality and the experimental results contained in the Test Reports issued by Third Party Laboratories recognized by Techa Srl.





# Biodegradability and Composting of "Gaiole" leather

GAIOLE has obtained the Blue Label and Green Label certifications by passing all the laboratory tests required by the "Biodegradable Leather" protocol:

- Biodegradability test in waste water.
- Biodegradability test for composting.
- Disintegrability test.
- Ecotoxicity test.





## BIODEGRADABILITY IN WASTE WATER

Biodegradability is a process of transforming complex substances or materials into simpler organic substances through the action of microorganisms. The biodegradability certification was obtained through the test which provided for the measurement of the CO<sub>2</sub> released from the sample.

The biodegradability test in liquid medium by aerobic micro-organisms present in the activated sludge of waste treatment plants from the tanning sector, was conducted according to the international standardized protocol.

This test effectively applicable to leather therefore specific for the tanning sector, simulates the ability of the hide / leather to biodegrade in conditions similar to those of biological tanning wastewater treatment plants.

The test is considered positive if the collagen naturally present in the skin and scalp degrades by at least 70% within 50 days. If the value is equal to or greater than 80%, the BLUE LABEL certification is obtained.

**The result of the test on the test material returned an average degree of relative biodegradation of 94.1% after 56 days.**



## COMPOSTING

Composting is the transformation of the organic substance contained in animal and vegetable residues by microorganisms present in the soil, such as bacteria, fungi or algae. Composting is normally carried out as a process of recycling the organic fraction (food waste) of solid household waste.

The process innovation adopted by the LA SCARPA tannery consists in having passed laboratory tests on biodegradability in industrial composting conditions. The method evaluates the biodegradability of the Gaiole product in conditions of aerobic composting at a controlled temperature. The material is considered biodegradable under the test conditions if more than 90% of the organic carbon is mineralized to CO<sub>2</sub> within six months of the test.

**Gaiole reached an average biodegradability under composting conditions of 91.6% after about 80 days of testing.**

The disintegration test was then performed. This test meets the disintegration requirements if it reaches values above 90% within twelve weeks. Our sample is compliant with 99.6% as the average final degree of disintegration obtained.

The final compost obtained from the disintegration test was analyzed with the **result of the absence of heavy metals** and, proving the compliance with the requirements of Italian and European regulations for fertilizers.

The last step of the laboratory tests was the evaluation of the ecotoxicity of the compost. The test method involves the use of compost obtained from disintegration for the cultivation of plant species (barley and watercress). The test showed **no phytotoxic effects**.

**REAL SUSTAINABLE**

**PRODUCTION CYCLE**

**-75%**

### **SALT**

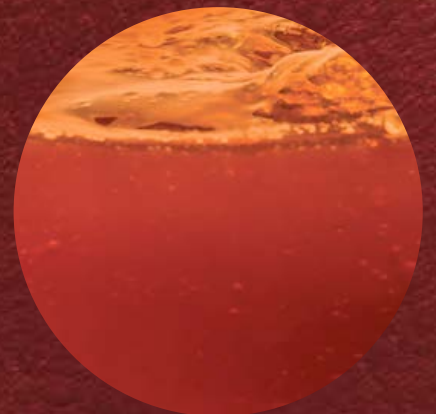
Salt is used for the conservation of raw hides. It is then collected, cleaned and sanitized to allow it to be reinserted into the production cycle. The Benefits: less waste and minimal salt purchases.



**-50%**

### **EXHAUSTED TANNING BATHS**

The used water is recovered, filtered, cleaned and reused according to ancient traditions. Benefits: Reduction of pollutant waste water by 40% - 50%. Reduction of tanning product.





**-30%**

### **HAIR RECOVERY**

The polluting load of this processing is reduced by about 30%. The recovered hair is destined for other processes.



**-30%**

### **LEATHER POWDER**

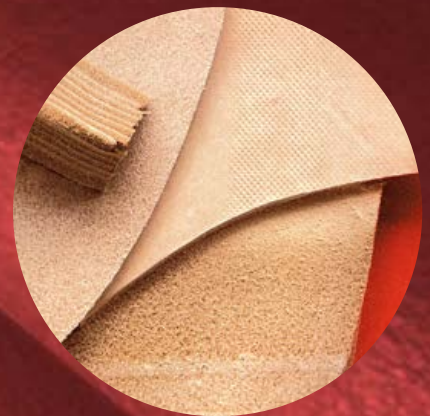
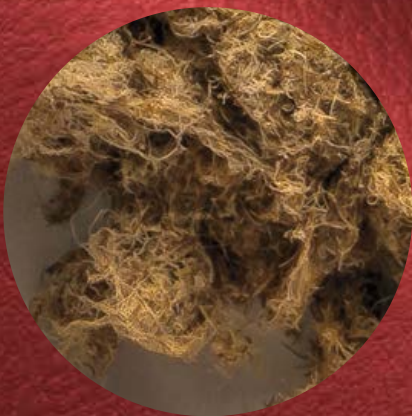
That results from our organic production, is used to enrich organic fertilizers.



**-30%**

### **LEATHER SCRAPS**

Transformed into regenerated leather for footwear and leather goods components.





All materials used for the photographs of Conceria La Scarpa communication are cut-offs recovered as a result of our tanning work. La Scarpa has chosen to reduce waste, optimize consumption and recover all waste materials as much as possible by processing and recycling for a new production cycle.

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