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UNI EN ISO 9001:2008

# Tannery is our core business



Direct heir of the experience built up in over 60 years by Figli di Guido Lapi, **FGL International** was set up specifically to **produce auxiliary chemical tanning products with a high added value.**

A passion for new solutions to improve the tannery sector, the unquestionable technical skills of its professionals, the experience built-up in the field, a highly qualified R&D department and dedicated on-site service are what have led leather manufacturers to choose FGL International as their ideal business partner.

FGL International has a flexible production structure composed of qualified professionals designed to operate efficiently on the various international markets.

Management of the departments is fully computerised and complies with UNI EN ISO 9001:2008 standards for which the company has been certified since 1999.

This system controls every aspect of business from administration to marketing, research, production, warehouse inventories and customer assistance while also assuring safety in the workplace.

Flexibility is the key feature based on 2 basic principles:

- 1) The availability of a fully-stocked warehouse**
- 2) The ability to satisfy customer's needs promptly, all over the world**

## ZERO

ECO RETANNING PRODUCTS

0% FORMALDEHYDE & PHENOL

## ZERO

100% SOFTNESS & FULLNESS

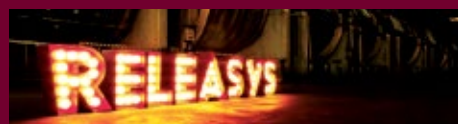
**0% FORMALDEHYDE & PHENOL**

**100% SOFTNESS & FULLNESS**

“FGL INTERNATIONAL is proud to announce that comes with a further step towards the sustainability and ecofriendly levels in the leather products... (p.2)

## RELEASESYS® REVOLUTIONARY LEATHER SYSTEM.

The revolutionary tanning process, designed and produced by FGL International so as to increase the production efficiency of tanneries whilst safeguarding the environment... (p.4)



## PRODUCTS

**FGL International produces a full range of innovative and effective chemical products for tanning, re-tanning and dyeing.**

FGL International's production plants, directly connected with its highly technological R&D labs, have enabled a rationalisation of production processes and flexibility, the key tools for rapidly responding to individual needs. Specialised technicians verify product quality throughout the production process to ensure that the high quality standards provided for are complied with.



**AUXILIARIES**



**DYESTUFFS**



**MINERAL  
TANNING AGENT**



**ENZYMES**



**OILS AND  
FATLIQUORS**



**RESINS**



**SYNTANS**



**VEGETABLE  
TANNINS**



**SURFACTANTS**





# Formaldehyde permanently defeat!

## ZERO ECO RETANNING PRODUCTS. ZERO% FORMALDEHYDE & PHENOL.

Words like “sustainability”, “environmentally friendly”, “prohibited substances”, are now part of tanner’s vocabulary. It’s not just a way of saying but a practical need of our time.

FGL International is on the front line together with the tanners around the world, to help them with the difficult task of producing eco-friendly leather.

After the success of Releasys - the metal free tanning process - and Permasol TFR - which drasti-

cally reduces formaldehyde - FGL International has now launched a new range of products completely free from phenol and formaldehyde for the tanning industry.

“ZERO” has the ambition to enter the market as innovative series of products.

The “ZERO” range includes 7 products that allow any tanner to be able to reproduce any type of leather completely free from formaldehyde and phenols.”



|                        |   |
|------------------------|---|
| <b>ECOSOFT 1001</b>    | Retanning polimer combined with vegetable for with high filling properties                                      |
| <b>ECOSOFT 1002</b>    | Retanning polimer with high molecular for very full leather with very good lightfastness                        |
| <b>POLISOFT 200W</b>   | Retanning softening polimer with outstanding lightfastness  |
| <b>LECOREN LTX</b>     | Softening polimer with good light fastness  |
| <b>PERMASOL KMT</b>    | Softening polimer with very good softening properties and good light fastness                                   |
| <b>IDROSIN HA 11-F</b> | Softening polimer with high filling effect and good lightfastness   |
| <b>ECOSINT 300W</b>    | Retanning polimer in powder form for high filling effect and very tight grain with extremely good lightfastness |







Even the image of the new advertising campaign of retanning ZERO, FGL International chooses the real protagonists, the tanners.



# The innovative eco-friendly process for the production of metal free leather articles

FGL INTERNATIONAL Spa company, leader in the creation of tanning auxiliaries with high added value, revolutionizes tanning world proposing an innovative metal free process, that goes beyond the limits of current technologies applied in terms leather finished products and environmental benefits.

In recent years, tanning industry is having to deal with its production activities, trying to reconcile the production requirements with the increasingly strict environmental regulations, that, on one hand, have limited or banned the use of many chemicals, and on the other hand, have required a more careful management with more qualified and specific skills, which are not always present in the companies. In this scenario the FGL International SPA, which has always assisted tanneries in the technological and productive development, thanks to its consolidated experience in the formulation and identification of products for every type of tanning process, has set a further and more ambitious goal, namely proposing models of processes with a series of integrated activities, that help and support the customer in all explicit and implicit aspects, which are used to realize a “modern” article, that is appreciate by the market and respectful of environmental rules.

In this scenario, FGL International SPA proposes an innovative process for the treatment of hides, that combines the benefits of the two current types of tanning, the chrome and the vegetable ones, that have so far been directed to two very different types of products.

The developed project has led to the identification of a process called RELEASYS®, which ensures to obtain metal free hides with considerable advantages also on the environmental impact. The process has been applied to hides with different origin and nature (bovine, ovine, pig skin, buffalo, etc.) for articles intended for the majority of utilizations such as footwear, clothing, furniture, car interior, accessories, achieving:

- analytical results that confirm the absence of metals, compliance with the requirements of eco-labels such as SG Mark,
- compliance with the chemical and physical parameters required by technical reference regulations of the articles according to product application,
- application performances required to realize items overcoming the limits of the current types of tanning when required items are linked to ecological and health features,
- product and organoleptic properties required by the market, included those linked to fashion trends or to particular sectors with innovative technological performances, giving better feedbacks compared to physical-dynamic values and ensuring a greater resistance to light and heat with a clear minor yellowing/ageing of light and white colours,
- articles' innovative behaviour at the end of life in terms of biodegradability with advantages on the social costs of disposal,
- possible uses of leather scraps as fertilizers auxiliaries,
- reduction in the amount of waste as leather scraps, with benefit on the disposal cost (amount and costs of disposal).

To better understand the benefits of RELEASYS® process is useful bring back to mind what are the features of the main traditional processes, that provide product

techniques based on the chrome and the vegetable tanning or on the wet-white system, each one with its own features and limits:

- The vegetable tanning gives stiffness, poor flexibility and softness, while providing other benefits from the ecological point of view, but is limited to certain articles and applications.
- The chrome tanning gives product and performance properties required by articles intended for specific uses such as clothing, furniture and footwear, but at the same time does not always allow to be within the legislative limits set by regulations, that impose restrictions on the launch on the market of certain substances, or to rules or voluntary eco-label.
- The wet-white system, without the use of chrome-based tanning salts, does not always turn out without metal tanning, therefore it is not suitable and not definable metal-free.

## FEATURES OF RELEASYS® PROCESS

Thanks to the RELEASYS® process, it is introduced the innovative proposal to create hides with a new process, that manages to combine the benefits of the two current types of tanning (the chrome and the vegetable ones), that have so far been always characteristic for two completely different fields.

With the development of the RELEASYS® metal-free process, it is possible to realize articles with those performance features obtained through the chrome tanning (softness, flexibility, lightness, silky and mellow touch), but with environmental benefits of vegetable tanning. The carried out process is based on an organic tanning, retanning, fatliquoring and dyeing with metal-free products.

## ACHIEVABLE BENEFITS

The development of RELEASYS® process highlighted several capabilities, especially the ability to realize products otherwise unattainable, such as:

- white metal-free hides resistant to light and heat (requirements reported by customers, who normally make vegetable tanning production, but can not make white without yellowing),
- metal-free hides for sports shoes.

Checking made on the finished hide led to report the following benefits:

- reduction of chemicals' use: patterns of prescription adopted for RELEASYS® process highlighted a reduction of about 10% of chemical products, used as a general average over all stages, all types of products and different types of hide; if we consider the only stage of dyeing, there is a reduction of up to 30% as the dyes show, on the RELEASYS® substrate we are going to dye, a **brighter colours** with an increase of the penetration in section.

- **reduction of environmental impact** coming from the development of the new process: the new Metal Free process is based on the use of products with low environmental impact, from which results a lower pollution of



process water in terms of absence of chrome and heavy metals, with the reduction of sulphates (derived from basic chrome sulphate and other retanning products) of 15% and of COD (reduction of 10%) and of disposal (solid waste compatible with their use in agriculture as auxiliaries in fertilizers, according to the provisions of Legislative Decree 217, 29/04/2006) in terms of nitrogen, carbon.

- **better area yield** of about 5% and consequently, under the same finished surface of hides, a reduced consumption of the used products.
- reduction of work stages with simplified processes, with a result of reduction on times of retanning and dyeing stages, which are reduced up to 50%.
- articles made with RELEASYS® process highlighted product features even higher than those obtainable with the chrome tanning, in terms of **tensile strenght, elongation at break, resistance to grain cracking**, besides resistance to heat and light.
- Increase of security in terms of health protection, as the technology developed through this project has highlighted that articles satisfy the provisions of SG mark.

## CONCLUSIONS

RELEASYS® process, according to its features that can give to articles with the technical and analytical results shown so far, has found considerable interest in all application contexts (furniture, clothing, footwear, leather goods and technical articles in general), among them also the automotive sector and, in this context, it has been successfully presented at the Detroit Auto Show (SAE) in 2010.