



Smit & Zoon has set out to create "a new space" in tanning systems.
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Smit & Zoon promises sustainable tanning solutions

With a long-established background in retannage, fatliquoring and syntans, Smit & Zoon, a seventh-generation, family-owned business based in the Netherlands, has strengthened its portfolio of products over recent years. In 2017 it acquired further wet-end and finishing proficiency with Codyeco, giving access to more fashion-based markets. In its latest technology launch, it has introduced new sustainable leather tanning solutions that it claims can be a gamechanger for the leather industry. World Leather spoke to Smit & Zoon chief executive, Hans van Haarst, about this development.

Sustainability in the leather value chain is of great importance to Smit & Zoon. Previous projects including LIFE Biopol, and initiatives such as the Product Passport and Tannery of the Future (now adopted by the Leather Working Group) are well documented. Other projects that have been in development in the background have had little publicity until now.

Back in 2016, an approach was made to Smit & Zoon by the Eastman Chemical Company with information, intellectual property and products that Eastman believed might have potential in Smit & Zoon's core business area. The technology on offer was to form the basis of the syntan ZLR 100, a retanning agent based on modified aluminosilicate and zeolites that was seen as complementing its existing retanning range. What really appealed was the ability to have a product that could offer a wet-white tannage but with a safer and more sustainable background than the more commonly used modified glutardialdehyde (GDA). "We started developing a tanning system and a tanning technology for that specific segment, trying to develop something that had properties and benefits for the chain, that

maybe could not be achieved with GDA, or even chrome," says Mr van Haarst.

The fundamental science on the interactions between collagen and zeolite was already known, but through working with universities and institutes, further validation was achieved. For the last two years, after working with specific tannery partners, Smit & Zoon is now ready to launch its new zeolite-based products and create "a new space in tanning technology based on zeolite patents and intellectual property". The product will be marketed under a new brand name, Zeology, and the group has set up a new division, Nera, through which it will bring Zeology and future tanning systems to market.

The 'plug-and-play' process is reputed to be easy to use, with no need for extra equipment. It performs as a robust and predictable tanning system, the company says. When asked about justification and specifics for claims that this new technology can turn lower-grade hides into high-quality leather, Mr van Haarst says that the system produces a very flat leather with an extremely tight grain, so much so that looser belly areas are essentially reduced, giving more



useable surface area. Whilst results will differ between tanneries and raw material types, there have been tangible results at all the partner tanneries involved.

The launch is aimed at the upholstery sector, but this does not limit its use in other sectors. Considerable work has been carried out with shoe upper, garment and aviation leathers, along with applications on a wide range of raw material types and origins. Discussing the statement that full-substance hides can be tanned with the new product, knowing that this can be difficult to achieve with other metal-free systems, in particular GDA, Mr van Haarst points out that in the development stages, the penetration of the product was a key factor, specifically penetration time. The system works with auxiliaries in the beamhouse operations to assist and enable the penetration in a manageable timescale. To visually assess the progress of the penetration, with it being a pure white tannage, Smit & Zoon has developed an indicator system. "We have calibrated an indicator system to use in the process against the many, many tests we have done," the chief executive says. "We have measured where the zeolite is in the cross-section of a hide". Other standard procedures such as pH and temperature can also be used to predict the end of the process.

The natural absorbance of zeolite allows for very high exhaustion rates in the retanning and dyeing stages, meaning wastewaters are easier to process and, being chrome-, aldehyde-, and heavy metal-free, the environmental impact of the system is greatly reduced. Added to this, the



In Zeo White, Smit & Zoon believes it has developed a wet-white tannage that is "safer and more sustainable".

shavings from the tanned material biodegrade almost as quickly as raw hide, giving rise to the possibility of waste valorisation; composting could easily be achieved and the residual zeolite would add beneficial nutrient mineralisation, aeration and water-holding capacity.

Through work with industrial partners, it is reported that thousands of hides have now been tanned with zeolite and in many cases have gone to market in end products. Tanners and manufacturers clearly have confidence in the technology. 🌱

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