

Smit & Zoon launches Zeology tanning concept

Four years in the making, Smit & Zoon's new tanning concept Zeology is said to be a gamechanger in the segment, offering not only a new, sustainable leathermaking process, but also expanding the company's portfolio of wet-end and finishing products under the Smit and Codyeco brands with a new subsidiary, Nera. ILM Editor **Isabella Griffiths** talked with CEO Hans van Haarst about the launch.



The Zeology system allows the creation of bright colours with less dyestuffs.

Dutch leather chemical specialist Smit & Zoon has long been a leading name in wet-end and finishing products, which it sells under its Smit and Codyeco brands. This autumn, however, the company is expanding its remit and entering the tanning compound sector with the launch of Zeology, a new tanning concept which the company says can revolutionise the leathermaking process. Developed under Smit & Zoon's new subsidiary Nera (short for 'New era') for the past four years, Zeology is based on the key component Zeolite, a responsibly sourced, natural material, and is said to offer a new sustainable solution as it is chrome-, heavy-metal and aldehyde-free while promising a superior leather performance. The company has collaborated with more than 25 partners on this innovation, including research institutions, external labs and suppliers, and currently a team of 15 is working exclusively on Zeology.

"Zeology is the new standard in tanning and is not comparable to any of the solutions available to date. We see it as a gamechanger in our industry", says Hans van Haarst, CEO of Smit & Zoon. "Zeology provides tanning in a completely new way with advantages throughout the whole value chain. You can make the comparison between a fuel powered versus an electric car: it provides the same transportation, but in essence is completely different", he adds.

As Zeology is a metal-free system, it offers a number of environmental benefits to chrome and glutardialdehyde (GDA) tanning, though van Haarst is keen to stress that it is not about denouncing chrome-tanning, but about offering a sustainable alternative. "We don't want to be negative about existing tanning systems, including chrome. Chrome has been the workhorse of the industry for many years and has brought the industry to where it is now. But it has advantages and disadvantages. Now, entering Zeolite tanning, we see specific advantages, particularly with regards to environmental and health & safety aspects. It is very safe. Zeolite, in a different form, is used in make-up, in detergents, in toothpaste, in detox tablets etc. It is broadly available, and it is a very safe product", he says.

The key advantages of Zeology cover both environmental aspects, as well as leather properties. Due to its cationic character, Zeology tanned leather enables high chemical uptake in the wet-end process, resulting in reduced tanning product usage and reduced COD (chemical oxygen demand) of the



Hans van Haarst

wastewater. The sludge waste from the wastewater treatment plant is metal-free, and shavings and cuttings after the tanning operation are readily biodegradable and compostable. “This is due to the fact that the tanning mechanism is different. With GDA and with chrome, you crosslink the collagen fibres, with the Zeolite tanning system you form a micro-coating around the collagen fibres so when you have the shavings and you put them in certain conditions, such as humidity, temperature, microorganisms, they readily degrade and you make a compost out of it”, explains van Haarst. “Like glass or sand, the material Zeolite contains oxygen, aluminium and silicon, which is fixed in a three-dimensional open lattice structure. The tanning mechanism is not accomplished with metal-ions, and therefore it is uniquely different to conventional metal-tanning agents. So, if you talk about circularity, biodegradability, compostability, topics which are increasingly on the agenda of the leathermaker, this is a huge step forward”, he adds.

According to van Haarst, the tanned leather itself, which is white and therefore called Zeo White, is of reliable, consistent high quality, with tightness and a flat grain with significantly reduced looseness in the bellies and flanks. In addition, it has good lightfastness, heat-resistance and colour brightness as well as good elongation, tear strength and dry shrinkage temperature, along with good heat yellowing and fogging properties.

Zeology tanned substrate can, unlike traditional wet-white, be stored for an extended time and transported and shipped as needed, while being heavily resistant to mould without special treatment. “In fact, the tanned leather can be dried and shipped as a commodity and just wet-back for further processing. This could potentially eliminate the need to ship wet salted or wet-tanned material around the world, reducing transport costs and the environmental footprint”, says van Haarst.

Zeology provides tanning in a completely new way with advantages throughout the whole value chain.

The Zeology system is suitable for both bovine hides (both lime-split and full substance) and ovine skins, and for all leather product segments, including automotive, fashion and footwear, leather goods and upholstery. During the development, scale-up and commercialisation process prior to the official launch, which took place at the start of October, Smit & Zoon has worked in close partnership with around 40 reputable and high-profile tanneries which are active in the automotive, aviation, furniture, footwear upper and leather goods segments, with so far very positive and encouraging results, according to van Haarst, who stresses that the Zeology tanning concept is easy to implement in the existing production process of tanneries. “We are finding that the tanning is pretty straight-forward; we say the system is plug and play; it is very versatile and caters to the complete spectrum of leather articles. It is robust, the environmental benefits proven and the economics valid”, he says.

Selective partners to start with

Zeology will only be available directly through Nera, not through agents or other distribution channels, in order to control market penetration across targeted product segments and in line with current capacity, although this is to be extended “as we see traction and adoption of the system in the marketplace develop” as van Haarst explains: “We are not going to flood the market with Zeology, but instead, we want to work with carefully selected



Zeology tanned leather is white and of consistent high quality.

partners. We want to ensure that the market can fully understand what we have developed, how it works and what the benefits at all stages of the value chain are. Another reason is also that we

need to build up production capacity. We currently have one plant where we can produce Zeology, and we have plans to expand the current plant, as well as add another one in a different location to keep pace with increased demand. It will take between eight months to expand the current facility and between 12 to 18 months to build a new site. Fortunately, this fits quite nicely with our anticipated development cycle”, he says. In terms of client profile, he is also clear: “We have selected customers who we want to make the first step with; these are tanneries which have sustainability high on their agenda and tanners and tannery groups who can take a holistic look, so consider the economics, the leather performance, environmental benefits – maybe even beyond the tannery fence, so in terms of what happens with the cuttings, what can be done with the wastewater and sludge, which now maybe there is less of and it now has a different composition. Compostability, biodegradability – how does this all come into one picture? That’s what we are interested in”, he adds.

Following the official launch of Zeology last month, which was delayed from a planned launch earlier this year due to Covid-19, more events and developments are in the pipeline to support the market entry of the system. In mid-November ‘Model Z’ will be introduced, an animated video to demonstrate how Zeology works, in addition to a new, dedicated website which will serve as a knowledge hub on metal-free tanning with downloadable white papers around biodegradability, health & safety and more. In addition to the website, the company is also introducing the ‘University of Zeology’ which will host seminars, presentations and other content to support the industry in the adoption and use of Zeology tanning. Most important, however, will be the further extension of the Nera portfolio of tanning products based on the same technology platform. “The product that we have right now is the first. It will grow into a platform of products for specific market segments or specific raw materials, so we are currently working on that. We have started work in our new R&D facility at ICLT in Northampton, where we have a private research capability, and we will have a new application lab in Arzignano and in Santa Croce, as well as one in Lyon, so geographically we are in the key leather sectors”, says van Haarst. “This all resonates and fits with our strategy of creating socially and environmentally sustainable leather together”. |