

RISE TO THE CHALLENGE: YULEX/PATAGONIA

After years of looking for alternatives, the brand has declared a 'world first', with all suits from autumn 2016 neoprene-free.

Patagonia waves goodbye to neoprene

"Neoprene is nasty stuff, but for a long time we had no alternative," is the bold statement from Patagonia on announcing that its wetsuits will be free from the material from autumn 2016.

It continues the journey embarked on seven years ago when its wetsuit team were eyeing a move from neoprene and joined forces with US-based rubber developer Yulex. At the time, Yulex was focused on developing a nascent kind of rubber derived from the guayule plant, and had teamed up with the University of Arizona, benefiting from government grants, to produce a higher-yielding crop and to decrease the harvest cycle time (see *WSA* November/December 2013).

The guayule was showing promise, yielding a rubber that had the same strength and durability as neoprene but had extra flexibility and higher thermal properties. "The objective with Patagonia and a number of other companies is to have local production for their products in many spots around the world; you can't do that with natural rubber because it comes from one geographical area, South East Asia, so it has to be produced and shipped for

consumption," Yulex CEO Jeff Martin told us at the time.

The suits Patagonia launched in late 2012 were made with 60% guayule and 40% neoprene, and the original plan was to develop the material so it was suitable to use at 100%.

However, in the intervening years, Yulex's research and development for optimising guayule has led to a purification process for natural rubber made from the hevea tree (the source of the majority of natural rubbers). Pressure to boost the yield of natural rubber has inflated the use of pesticides, but the Yulex process removes 99.9% of harmful impurities, including proteins, and the company claims it increases its performance characteristics such as strength and elongation. "Yulex Pure is the safest natural alternative to commercial hevea," it says.

For the new wetsuits, which will be launched in March, the Forest Stewardship Council-certified hevea-derived rubber is blended with 15% neoprene-free synthetic rubber for increased ozone and UV resistance. By using the natural rubber, Patagonia estimates it is reducing the CO₂ emissions required to produce traditional neoprene suits by up to 80%.

 Shutterstock.com

Russian dandelions

Alongside some of the world's biggest tyre makers, Yulex is also looking into using latex from the roots of the Russian dandelion and its domestication is under development at its US facility. The overreliance on the South East Asian countries for natural rubber means the crop is susceptible to disease (hevea in Brazil, its native country, is prone to South American leaf blight meaning the country only produces 1% of the world's rubber), as well as price fluctuations. Early results suggest dandelion rubber could be on par with hevea rubber in terms of performance but it is likely to take several years of development before it is commercialised.

"Surfers and wetsuit manufacturers, including Patagonia, have relied on neoprene for years, despite the fact that it's a non-renewable, petroleum-based material with an energy-intensive manufacturing process," said Hub Hubbard, Patagonia's product manager for wetsuits. "Neoprene is nasty stuff, but for a long time we had no alternative. Through our partnership with

Yulex we've invested in a plant-based game-changer and built it into our entire wetsuit line – saying goodbye to neoprene forever."

How the 'nasty' comments will go down with the world's biggest wetsuit makers, Taiwan-based Sheico and Nam Liong, which also supply vast amounts of neoprene and make Patagonia's suits, is unclear, but the 2016 line includes 21 styles featuring new, fast-drying microgrid thermal linings, floating front zip designs and back zips. They are rated for six different temperature levels from 23°C to 0°C and will be available in Australia from March and in North America, Europe and Japan from July.

"The collaboration between our companies has been an example of how sustainable products can be brought to customers without sacrificing performance and cost competitiveness," Mr Martin says.

Patagonia was unable to clarify if it will still pursue the guayule-based suits but, as with a number of its developments, says other brands are welcome to use their findings to help "create a shift towards cleaner and better materials throughout the surf industry". 