

Really Green Jeans

Some estimates suggest that producing one pair of jeans requires more than 2,500 gallons of water, nearly a pound of chemicals and vast amounts of energy. Multiply that by two billion — the number of jeans produced worldwide every year — and you get a snapshot of an industry that contributes a hefty share of wastewater and greenhouse gases to the environment.

An emerging greener chemistry process, called Advanced Denim, can produce a pair of jeans using up to 92 percent less water and up to 30 percent less energy than conventional denim manufacturing methods, according to Miguel Sanchez, a textile engineer at Clariant, a specialty chemical company based in Muttenz (near Basel), Switzerland, that developed Advanced Denim. In addition, it generates up to 87 percent less cotton waste (which is often burned, adding carbon dioxide and other greenhouse gases to the atmosphere) and virtually no wastewater.

Unlike conventional denim production methods, which require up to 15 dyeing vats and an array of potentially harmful chemicals, Advanced Denim uses just one vat and a new generation of eco-advanced, concentrated, liquid sulfur dyes that require only a single, sugar-based reducing agent. All other production steps are eliminated, according to Sanchez.

If just 25 percent of the world's denim jeans were dyed with this technology, Sanchez said, it would save enough water to cover the needs of 1.7 million people every year. That's equivalent to about 2.5 billion gallons of water every year. It also would forestall the release of 8.3 million cubic meters of wastewater, save up to 220 million kilowatt hours of electricity and eliminate the release of a corresponding amount of carbon dioxide emissions into the atmosphere annually.

"Advanced Denim wants to go beyond the technologies that are today considered standard for obtaining denim material," Sanchez said. "We offer new possibilities for enlarging the number of tones and effects currently achievable, make production more simple and efficient, and all this with the minimal use of resources." Sanchez said that Clariant is working with many of the world's leading jeans manufacturers and that there is high interest in adopting Advanced Denim technologies.

For more information, please visit www.clariant.com [1].

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