Decarbonizing the textile industry: How Ever Dye is revolutionizing dyeing processes

openaccessgovernment.org/article/decarbonizing-the-textile-industry-how-ever-dye-is-revolutionizing-dyeing-processes/182630

23 September 2024

While the textile industry is continuously evolving and becoming more technologically advanced, it still relies on highly polluting and energy-intensive processes. Victor Durand, Head of Operations at Ever Dye, shares the company's commitment to changing this and decarbonizing the textile industry

The textile industry, especially emerging fast-fashion brands like Shein or Temu, is contributing significantly to water pollution and greenhouse gas emissions. It ranks third among industries emitting supply chain pollutants out of the big eight polluters and is the second largest polluter of clean water. (1) The overconsumption of clothing has resulted in a significant increase in energy- and water-intensive production levels, and this trend is expected to continue.

The main problem: A critical step representing 52% of the whole textile production's GHG emissions

While all textile production is polluting, the most critical step in which pollution occurs is in the wet processes. Wet processes include all the dyeing and finishing that is done to the fabric. According to Euronews, textile dyeing and finishing are currently responsible for 3% of global CO2 emissions and will increase to more than 10% by 2050. (2) The World Bank also estimated that 20% of all industrial wastewater comes from textile dyeing. (3) The coloring of our clothes is the step that has the heaviest impact on our planet.

Decarbonizing the textile industry: Making brands and their supply chain adapt and change

To tackle this issue, regulators around the globe are setting guidelines for better practices:

- In the European Union, the Ecodesign for Sustainable Products, which will be implemented between 2025 and 2026, will force companies to maximize the sustainable aspects of their products.
- In the French market, emerging regulations like the Environmental Eco-Score will be introduced in 2026.
  Also, in France, the Extended Producer Responsibility already requires all parties involved in the production of products to finance or organize the prevention and management of waste at the end of their life.

- On the US market, regulators are encouraging the NY Fashion Act, which, if implemented, would force companies operating in the state of New York to map at least 50% of the supply chain.

To answer the rising demand while respecting new constraints, textile stakeholders need to develop new processes and products. According to the World Resource Institute and the Apparel Impact Institute, the use of dry and no wastewater processes could reduce the industry's GHG emissions by 26%. [4] While brands are the ones under pressure from regulators and customers to change, they don't always have control over their supply chain. On the other hand, dyeing mills cannot take on the weight of the investment to improve manufacturing processes. In order to change, an effective solution for both parties needs to be implemented.

Sustainability in textiles redefined: Decarbonizing the textile industry

Ever Dye is an innovative dyeing process that drastically reduces the textile industry's GHG emissions and wastewater. The startup is developing sustainable pigments and processes that can help the sector drastically reduce its GHG emissions while keeping colors vibrant and meeting industry standards of quality. The revolutionary technology acts like a magnet, creating a strong bond between the dye and the fabric.

Developed with green chemistry principles, the eco-friendly pigments can be used at room temperature and reduce process time, contrary to most current dyes, which require high temperatures and lengthy processes to be effective. This reaction happens thanks to the positively charged pigment, made out of a mineral composite attached to biomass, leaving the highly polluting petrochemistry behind. This method allows dyeing mills to get rid of most of the auxiliary chemicals, like mordant, normally used to fix the dye onto the fabric.

A cost-effective, energy-saving solution that can be implemented without CAPEX in most dyeing mills

Garment production is primarily located in countries with a highly carbonated energy mix (i.e., coal, gas), making the energy needed to heat the dye immensely polluting. The energy required to heat the dye bath, which needs to be around 100°C and even more, makes up a significant portion of the production cost. Switching to more sustainable energy sources requires high capital expenditure (CAPEX), which dyeing mills cannot afford to implement. Additionally, brands are not always willing to absorb the related costs.

Ever Dye's pigments can be implemented in factories and dyeing mills without any high investment, as sustainable pigment can be used in machinery that is already deployed. Thanks to the energy savings obtained through their innovative process, Ever Dye's pigments allow dyeing mills to cut their costs. Furthermore, the company's turnkey solution is, on average, half as long compared to some conventional processes, enabling textile manufacturers to be more efficient.

With all these factors combined, they are set on offering competitive prices at scale to help the industry switch to better manufacturing methods without compromising quality. Beautiful colored garments should not take a toll on the environment!

References

1. World Economic Forum (WEF) and Boston Consulting Group (BCG). 2021. Net-Zero Challenge: The supply chain opportunity. Available at: https://www.weforum.org/reports/net-zero-challenge-the-supply-chain-opportunity.
2. Euronews. (2022, 26 février). Dyeing for fashion: Why the clothes industry is causing 20 % of water pollution. Euronews. https://www.euronews.com/green/2022/02/26/dyeing-for-fashion-why-the-fashion-industry-is-causing-20-of-water-pollution
3. World Bank Group. (2022, 28 mars). How Much Do Our Wardrobes Cost to the Environment? World Bank. https://www.worldbank.org/en/news/feature/2019/09/23/costo-moda-medio-ambiente
4. WRI and Aii (2021). Roadmap to Net Zero: Delivering Science-Based Targets in the Apparel Sector. Available at: https://apparelimpact.org/wpcontent/uploads/2021/11/21_WorkingPaper_RoadmapNetZero_.pdf

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- Environmental Sciences

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- Stakeholder Tags
- SH - Ever Dye

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