



Embroidered Hat

What's the impact:

Dyeing with Twine vs. current industry processes

A life cycle analysis (LCA) assesses the environmental impacts and attributes associated with all the life cycle stages of a commercial product.

This LCA compares Twine's TS-1800 digital thread and yarn dyeing machine with current industry processes - from the moment the raw materials are excavated, up until the polyester thread is dyed.

This LCA was made in collaboration with Made2Flow, with a 3rd party validation by Quantis.



	Functional Unit	Benchmark
Thread	White 100% polyester threads	100% polyester threads
	243 Denier	243 Denier
Machine location	Guangdong province, China	Guangdong province, China
Dyeing color	Navy, Pantone 19-4030	Navy, Pantone 19-4030
Quantity	3.24 kg per head	5.76 kg per head
Boundary	Cradle - Dyed Thread	Cradle - Dyed Thread

Assumptions

The TS-1800 has a capacity to support 30 embroidery heads.

Results

Avoided



- 110.45 kg of CO²
- Benchmark: 140.23 kg
- Savings: 21.24%
- Greenhouse gases absorb and emit infrared radiation in the Earth's wavelength range
- Measured in CO² equivalent, it includes gases such as carbon dioxide, nitrous oxide & methane



229 km driven by car



- 5.25 m³ of water
- Benchmark: 8.31 m³
- Savings: 36.83%
- All water used in the direct process or sub-processes (such as energy generation)



875 days of drinking water



- 516.234 MJ of energy
- Benchmark: 448.60 MJ
- Savings: -15.07%
- The use of energy across all processes and sub-processes includes electricity and heat sources. It's measured in Megajoule (MJ)



-51 hours of watching Netflix



- 0.79 m² of land use
- Benchmark: 1.61 m²
- Savings: 50.80%
- The environmental impacts of occupying, Reshaping, and managing land for human purposes. It is measured in square meters (m²)



13.11 paper sheets of a size A4

About Twine

Twine's technology & solution presents a waterless, sustainable thread and yarn dyeing system, which can reduce time to market, and streamline inventory management while enabling an unlimited color palette.

With our zero water use technology, Twine's TS-1800 presents a sustainable thread and yarn dyeing system that addresses the serious water pollution and environmental issues that have been a part of the dyeing industry for decades.

Be Fast. Be Creative. Be Sustainable.