LIFEanhidra

30 months
(09/2022 – 02/2025)

3 partners

3 cities
2 EU countries

Total budget
€ 2,103,249.78

Total granted
€ 1,256,812.00

ENVIRONMENTAL, SOCIAL AND INDUSTRIAL APPROACH

Water scarcity is one of the common negative effects of climate change. Many water bodies are at risk of failing to meet the aim of the EU Water Framework Directive to achieve good status. In addition, wastewater discharges continue to be prominent pressures with respect to ecological and chemical status. Across the EU, water shortages and droughts have increased dramatically in recent decades. And the situation is the same, even worst, at worldwide level including those countries where most of the garment manufacturing and finishing is located.

Textile industry is an intensive water consumption industry with 93 billion of m^3/year (4% of the total water consumption in the world). The dyeing and textile finishing are the processes most water consumption, as well as pollution, generate.

In this scenario, Spanish company Jeanologia is currently spearheading the greatest challenge facing the textile industry: to achieve total dehydration and detoxification in denim industry. LIFE ANHIDRA project is playing a crucial role in this challenge to reduce water consumption to just 1 liter and to discharge zero waste.

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Jeanologia
THE SCIENCE OF FINISHING

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LIFEanhidra

UNIQUE AND SUSTAINABLE SYSTEM FOR PRODUCING GARMENTS WITHOUT WATER DISCHARGES

A closed-loop system for re-using water from textile finishing

Project number: 101074372
Call: LIFE-2021-SAP-ENV
Topic: LIFE-2021-SAP-ENV-ENVIRONMENT
Granting authority: European Climate, Infrastructure and Environment Executive Agency
Duration: September 2022 – February 2025

https://www.jeanologia.com/lifeanhidra/

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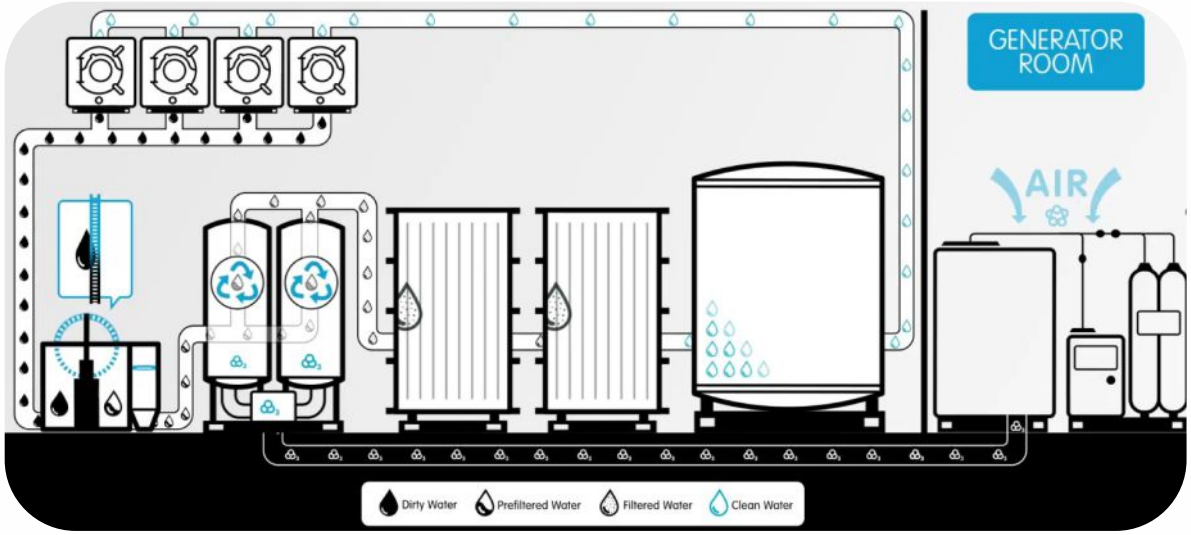
OBJECTIVES

LIFE ANHIDRA proposes the **development and validation of an innovative, efficient, and effective solution to water regeneration and reuse of water in situ in textile finishing process.** The new concept will allow **water reuse in industrial washing machines during 60 operation days**, saving up to 21,000 m^3 during this period, and 123,408 m^3/year in one industrial facility.

- The design and construction of the ANHIDRA technology will be carried out, by an upscaling process.
- Savings in terms of fresh water used, wastewater generated, energy consumptions and other flow wastes generated during the project will continuously be monitored, and a Life Cycle Analysis will be performed.
- **Valorisation of fiber fragments and fiber-like wastes will be explored**, based on a circular economy approach. The textile wastes generated by the system will be collected, conditioned, and characterized, prior to investigate their potential processability for textile-based end applications.
- The project will **contribute to achieve some 2030 Sustainable Development Goals** related with Circular Economy.

EXPECTED RESULTS

- **Water reuse and savings of 21,000 m^3 during 60 operation days**, in industrial washing machines. **In one industrial facility** is expected to reach **savings of 123,408 m^3/year**.
- This new alternative concept of **water reuse at close loop is expected to reduce the water consumption in 92%, and wastewater generation at 98%** from the conventional textile finishing processes, simultaneously **avoiding massive discharges of emerging pollutants**, microfibres and pathogens to the environment.
- **Electric energy consumption is expected to be reduced in 15%**.
- It's expected the **implementation of 36 facilities 3 years after the project and at least 100 systems in the following 5 years** after the project at international locations.
- This fact will derive to **potential savings of up to 12.34 million m^3/year of water (worldwide)**.
- In addition, ANHIDRA technology will recover textile fibres that normally arrive to wastewater treatment plants (WWTPs) together with the water to be treated. **New routes for valorisation of the released fibres** will be defined during the project based on a circular economy approach, to be used in new added-value applications.



THE LIFE ANHIDRA CONCEPT

ANHIDRA is a closed and compact system that, without the need of chemicals and connected in close loop with the industrial process, regenerates water continuously, leaving it in optimal conditions for its reuse in the washing finishing processes. The ANHIDRA technology is modular, compact and automatic, able to work during 60 days with the same water. The demo plant will be connected to a battery of up to 20 washing machines of the laundry process reducing the water discharge in 98%, from 21,000 m^3 to 432 m^3 in a complete cycle of 60 days.

LIFE ANHIDRA, coordinated by Jeanologia (Spain), develops a demonstrator being installed on an industrial scale at the Portuguese textile finishing company Pizarro in collaboration with AITEX (Spain). The demonstrator is based on a pilot closed-loop system that treats water, leaving it in optimal conditions for reuse in garment finishing and washing processes without the need for additional chemicals to treat the incoming water.