IRIDE
ACQUE

**CASE STUDY TESSILE - RIUTILIZZO**

TINTORIA EMILIANA

# Tintoria Emiliana

## Le batterie esauste catalizzano la sostenibilità della moda

# Tintoria Emiliana

Used batteries catalyze fashion sustainability

## PROBLEM

- **High water and salt consumption** The textile dyeing process requires large quantities of water and sodium chloride (NaCl), whose disposal entails high costs and environmental issues related to the salinity of wastewater.
- **Wastewater pollution** Effluents containing chlorides and other chemical compounds are difficult to treat using traditional systems, such as those used at Tintoria Emiliana, and require advanced technologies for effective treatment.
- **Stringent environmental regulations** Compliance with ZDHC standards and rules for the discharge of pollutants poses significant challenges for dyeing facilities, necessitating solutions to reduce hazardous chemicals and improve sustainability.
- **Long investment return periods** The reuse of dyehouse wastewater, without recovering the dyeing salts, results in excessive investment recovery times, making it unsustainable.

## SOLUTION

**The proposed plant consists of two treatment lines:**

→ **SALT RECOVERY LINE FROM DYEHOUSE WASTEWATER** This treatment line includes a microfiltration unit, a ceramic membrane ultrafiltration unit, and a nanofiltration section. Two parallel modules, each with a capacity of 50 m³/day, are planned for installation on this line. The systems will be equipped with a specialized mechanism to regulate the flow rate entering the treatment process.

→ **REJECT TREATMENT LINE** The retentate from the salt recovery line (including backwashes) will be sent to the advanced catalytic oxidation line - EMER. After treatment, the wastewater, now with reduced pollutant impact and fully decolorized, will be directed to the existing biological treatment plant for subsequent discharge into the sewer system.

## ADVANTAGES

+ **RECOVERY OF SALTS**
Allows for the recovery of up to 80% of the NaCl used.

+ **SAVINGS ON OPERATING COSTS**
Thanks to the recovery of 80% of sodium chloride, the company significantly reduces costs associated with the purchase of new salts and the disposal of saline effluents.

+ **REDUCTION OF ENVIRONMENTAL IMPACT AND REUSE**
The reuse of water and salts reduces the discharge of hazardous chemicals, supporting compliance with ZDHC regulations and enhancing the company's environmental sustainability.

+ **REDUCTION IN THE SIZE OF THE BIOLOGICAL PLANT**
Specifically, the client has reduced the use of the existing biological plant by 50%.

+ **ENERGY EFFICIENCY**
The EMER system consumes less energy compared to traditional treatments.

+ **ADAPTABILITY AND SPACE OPTIMIZATION**
The modularity of the system allows for the optimization of available space at the facility, adapting to the client's needs and reducing installation times.

## Process Flow Diagram