



# TEXTILEATHER

## Functional textiles and leathers by innovative MLSE process



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## LIFE TEXTILEATHER PROJECT

LIFE TEXTILEATHER project focuses on the implementation of Multiple Laser Surface Technology (MLSE) for the treatment of textiles and leathers in order to provide them with functional properties.

The proposed MLSE technology is a dry, continuous process able to significantly reduce the environmental impact of textile and leather finishing operations, especially in case of water-proofing, fire-retardant and antibacterial properties.

The environmental impact reduction, in terms of greenhouse gas emissions, chemicals and water consumption, as well as energy consumption, apply not only to the finishing process itself, but also to the further waste management process.

### OBJECTIVES

The main objective of LIFE TEXTILEATHER project is to demonstrate, on a semi-industrial scale, the technical, environmental and financial feasibility of the MLSE technology for the treatment of textiles and leather.

By means of MLSE technology, antibacterial, fire-retardant and water-resistant finishings will be available for the manufacture of textile and leather items with functional properties and high added value. Furthermore, the use of MLSE technology will lead to a significant reduction in water, chemicals and power consumption, as well as waste generation, when compared to conventional finishing treatments.

Finally, the durability of treatments will be assessed on the final products in order to demonstrate the feasibility of MLSE treatment.



## EXPECTED RESULTS

From a technical point of view, the following results are expected:

### FIRE/FLAME RETARDANT PROPERTIES:

- Textiles for houseware and upholstery, Class C1
- Leather and textiles for footwear and garment with limited flame spread

### HYDROPHOBIC PROPERTIES

- Hydrophobic and/or oleophobic properties: Leather and textiles for town/casual footwear, water penetration time over 30 min, water absorption after 2h < 30%;
- Leather and textiles for waterproof footwear, water penetration time over 180 min and water absorption after 3h < 25%
- Leather and textiles for footwear, oil repellency, at least class 5
- Textiles for upholstery, oil repellency, at least class 5
- Textiles for houseware, oil repellency, at least class 4

### ANTIMICROBIAL PROPERTIES

- Textile for houseware and upholstery with bacterial activity reduction  $\geq 95\%$
- Leather and textiles for footwear and garment with bacterial activity reduction  $\geq 99\%$

From an environmental point of view, the following results are expected:

- 75% reduction of water consumption in the considered finishing processes, which means a reduction by 2% of total water consumption in textile and leather facilities.
- 10-15% reduction in the total power consumption and by more than 90% in the finishing process.
- About 10% reduction in consumption of chemicals during the whole production process and by more than 90% in the finishing process.

As a consequence, a reduction of the environmental costs of textile and tanning industries is foreseen. Last, higher added value textile and leather products will be obtained, which will provide the European industry with new niche markets.

