

# MILD TECHNOLOGIES WITH LOW ENVIRONMENTAL IMPACT FOR THE TEXTILE SECTOR

**Innovations and Benefits** - Set up of textile processes with improved environmental and energy sustainability through the use of mild technologies:

- the use of supercritical fluid processes for the dyeing and/or functionalization of synthetic and natural textile fibers, allows to reduce the use of water, to avoid chemicals, to recover residual dye with advantages related to the lower cost of the raw materials, reduced purification problems, rational management of water resources;
- the identification of separation layouts by means of membrane technologies allows the development of waste treatment processes containing size/finishing agents and/or dyes with possible recovery of the chemical species contained therein and/or the definition of eco-sustainable purification processes;
- set up of eco-sustainable processes for the extraction and concentration of natural dyes starting from raw or secondary agri-food materials

**Use** - SFE dyeing and / or functionalization of fabrics and / or yarns of natural or synthetic origin through disperse dyes (reactive and non-reactive). Textile waste treatment.

**Applications and ongoing Activities** -

- Commissioned research for the treatment of de-sizing baths and search for natural alternatives to the main sizing preparations applied to yarns.
- Establishment of project partnerships for the launch of regional, national and European financing proposals on innovation issues in the textile sector.
- Commissioned Research activity for the dyeing of wool with dyes deriving from *Isatis tinctoria* L.
- Exploratory research for traditional and supercritical dyeing of lotus fabric with reactive and direct and disperse dyes.

