

The Laboratory of the Centre for Excellence and Quality (CEQ) began to supply specialized technical services in the fashion and wood-furniture sectors within the production system developed in Tuscany around some "historical" focus area, such as Valdinievole and Valdarno for footwear, the area between Empoli and Pisa for the tannery, Florence and Amiata clusters for leather goods, Prato cluster for textiles, Florence and Pistoia area for embroidery and home linen, Quarrata for upholstered furniture. CEQ thus grew up in this area progressively developed on creativity and innovation with the aim to provide a concrete, specialized and flexible answer to the support demand, particularly of SMEs, on topics such as:

- **personnel training and qualification:** operators, but especially qualified experts in industrialization, quality control, marketing, etc.
- **process qualification:** leather and textile finishing, bonding of shoe and leather goods, production of plastic or metal components (e.g. heels, buckles, accessories), etc.
- **quality control of materials and products:** from raw materials such as leathers, yarns and fabrics, to components, such as heels, buckles, metal accessories, zippers, etc.
- **analysis of specific problems,** from heel attachment to colour migration, from corrosion to surface treatments, from eco-tox (harmful or allergenic substances) to environmental issues, from comfort to new markets entry, etc.
- **traceable calibration of measuring instruments** such as thickness meters, scales, dynamometers, etc.
- **development, implementation, maintenance and auditing of management systems** for quality, environment, safety and social accountability

The stable collaboration with a **network of national and international excellence centres** allows offering a comprehensive support also in innovation, through the integration of different skills and technologies in a single qualified and competitive interface.

CEQ activities are managed within the Quality System of Next Technology Tecnotessile srl, which obtained the certification of conformity to ISO 9001: 2015 from



(Cert. No. 50 100 14364)

for the following scope:

- Design and provision of research and development and of technology transfer services
- Design and provision of training services
- Design and provision of consulting services on management systems
- Laboratory chemical, physical, mechanical, electrical and non-destructive testing
- Calibration of measuring and testing equipment



**Centre for  
Excellence and Quality**

*Testing and Calibration Laboratory  
Technological and Training Pole  
Applied research and Technology transfer*

**Monsummano Terme Operating Unit**

Laboratory and Training  
Via L. Lama, 30 – IT-51015 Monsummano Terme (Italy)  
Tel.: +39-0572-954552

e-mail: lab@ceq.it  
Website: www.ceq.it



**Testing and Calibration Laboratory**  
**Applied research and Technology transfer**  
**in Fashion, Wood and Furniture, Textile, Innovating materials and processes**  
**Training, Consulting and Certification support**

in cooperation with



with



is a member of



## Chemical and ecotox analyses

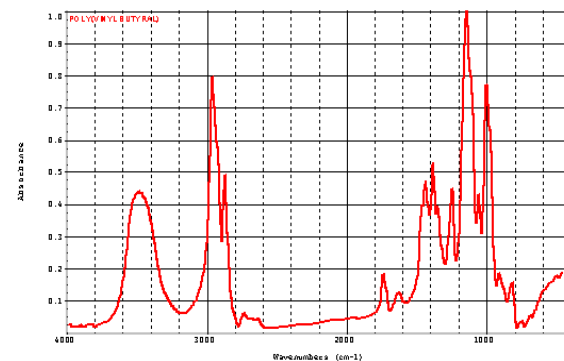
CEQ Laboratory is able to perform analyses of chemical substances in the main materials for fashion products, linens and furnishings, such as leather, fabrics, components in plastic or elastomeric materials, wood-derived panels (chipboards, MDF, etc.) in order to ascertain healthiness, compliance with legal, regulatory or customer requirements, compatibility with industrial processes or their fitness for use.

According to the analysis results products and materials can be classified with respect to the different national and international regulations or to supply specifications, and their compliance assessed to REACH or specific standards.

The internal equipment and the collaboration with a network of different national test and analysis laboratories allow a very broad portfolio

of chemical analyses including:

- UV-VIS spectrophotometry
- FT-IR spectrometry (e.g. for polymer analysis)
- Atomic Absorption Spectrometry (AAS) and Plasma (ICP-MS)
- Gas-Chromatography (GC-MS)
- Liquid Chromatography (HPLC, TLC)
- Differential Scanning Calorimetry (DSC)
- Optical Emission Spectrometry (OES) for metal alloy analysis



## Physical and mechanical testing

CEQ Laboratory is equipped with 6 dynamometers of different capacity (from a few N up to 250 kN) for dynamometric tests (tensile strength, tearing strength, stitch resistance, bonding resistance, heel or trim attachment strength, creep, etc.) on the most varied materials and finished products, such as:

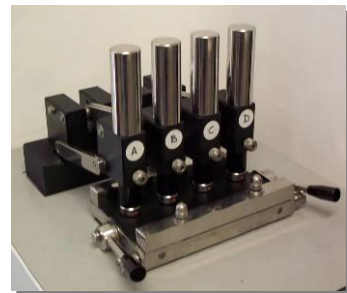
- metallic, plastica and composite materials
- leather
- fabrics and non-woven
- coated fabrics
- wood and wood-derivatives (MDF, chipboards, plywood, ecc.)
- components
- bonded elements
- footwear
- leather goods and luggage
- etc.



## Colour fastness

Colour is a fundamental element of almost any object, and that is particularly true for products in the fashion and wood-furniture sectors, for which sight is undoubtedly the most important and developed sense. Products shall be guaranteed to withstand considerable physical and chemical stresses, such as exposure to light, heat, washing (often with necessarily aggressive chemicals to ensure cleanliness and hygiene) or manufacturing processes; and not only functional characteristics (eg mechanical resistance) shall be preserved, but also product lifelong aesthetic features preservation is now an essential requirement.

Moreover, this is increasingly coming up against the need to adopt environmentally friendly materials and processes, thus making the task of model makers and stylists increasingly difficult. CEQ Laboratory is equipped with adequate equipment to verify colour fastness to the different conditions of use and treatment, such as exposure to light, washing, rubbing, treating with process substances such as solvents or adhesives, and can therefore constitute a valid and trusted ally of style and creativity to assure products which are going to keep "beautiful despite everything"!



## Surface testing

In consumer goods such as garments, footwear, leather goods, furniture, etc. the opportunities for surface aggression, even casual, are necessarily multiple, from rain to drinks, from localized scratches to heat (eg a cup of coffee on a table).

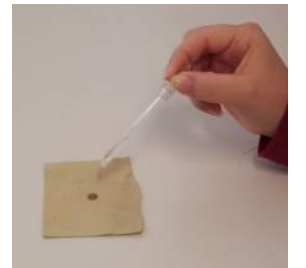
Technological innovation has made it possible to significantly improve the repellence characteristics of materials (just think of special liquid waxes for wood or nanotechnologies for textile fibres or leather), and being able to verify the effectiveness of these solutions today is fundamental to guarantee the required or promised protection level, or to seek even higher performance levels.

CEQ has a wide range of procedures, methods and reference substances available to verify and assess surface performance of the most varied materials and components such as:

- wood and plastic laminates
- fabrics
- leather

and their fitness for use in terms of:

- scratch resistance
- gloss and colour preservation
- hydro- and oil-repellence
- resistance to cold and hot liquids (wine, beer, coffee, alcohol, ketchup, ...)
- etc.



## Environmental and accelerated corrosion testing

Also the evaluation of the corrosion resistance and the accelerated simulation of exposure to environmental conditions (hot, cold, damp, etc.) is of great importance among CEQ test activities. The availability of climatic and humidostatic chambers, cold rooms, salt spray (neutral, saline-acetic and cupric), as well as equipment for the documented evaluation of their effects, are combined with the capability not only to carry out standard tests according to the regulations but also to develop *ad hoc* test specifications based on project needs.

More specific analyses can be performed with scanning electron microscopy (SEM), possibly accompanied by Element Analyzer (EDS), particularly useful, for example, for the detection of surface alterations that would otherwise be difficult to understand.

## Defect and failure analysis

CEQ laboratory is frequently involved in the analysis of defects or phenomena of failure or damage due to use or to specific conditions: the equipment and the skills of our personnel allow to systematically examine documents and findings to formulate hypotheses on the failure causes and on the countermeasures to adopt. The analysis of the causes is almost never easy and predictable, and the availability of different analytical methods, as well as the acquisition of reliable information on the production process and operating conditions, are all necessary ingredients for a useful diagnosis as well as for effective solution planning.



## Comfort analysis

Comfort, both in fashion products (garments, footwear) and in furnishing elements such as armchairs, sofas or mattresses, is an important element for building customer satisfaction, especially in terms of satisfaction over time. The optimization of comfort, for a long time entrusted more to intuition than to physiology, can today be strongly supported by systematic studies and by computerized simulation and experimental verification tools. CEQ laboratory is equipped with specific tools, eg to assess thermophysiological comfort of garments and for the experimental study of seat comfort through static and dynamic devices for measuring body-seat pressure, such as those used for seating optimization in the automotive sector.

