CETTEX

Textile Technical Center

LABORATORY

Accredited since 2001

Analysis – Expertise - Training

TUNAC

Reliability **Reactivity** **Proximity**

Analysis and Tests

CETTEX laboratory conducts analysis, tests and control according to national and international standards (NT, ISO, EN, DIN, ASTM, AATCC...):

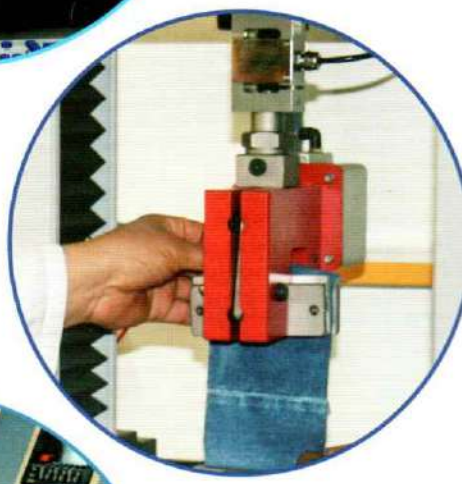
- Physical analysis
- Chemical analysis
- Consumer health and safety analysis.

CETTEX Laboratory analysis cover all types of fibers, threads, fabrics, clothing and accessories, allowing to define their characteristics, their quality and their compliance with defined requirements.

Technical Expertise

Customized technical support services are offered:

- Elaboration of technical specifications
- Technical assistance to institutions in matter of public procurement of textile & clothing
- Compliance control during production and at delivery
- Assistance for the implementation of laboratories in industrial companies
- Expertise and analysis of defects on textiles



Training

The laboratory offers to industrial companies and to public and private organizations, tailored training subjects such as choice of raw textile materials, initiation to testings and analysis, formulization of dyeing recipes, etc.

CETTEX Laboratory, an advanced expertise for the quality of your products

Recognition and accreditation

- TUNAC accreditation according to **ISO/CEI 17025 standard**.
- **Member of the National Committee** of Technical Normalization and Regulation.
- Recognized third -party Laboratory on a national and international level.
- Recognition by international labels: **CELIO, LEVIS, NEXT, HUGO BOSS...**
- High credibility with Ministries and public organisms : Defense, Interior, customs, Tunisair....
- More than **200** institutions and companies trust the CETTEX laboratory.

Competitive advantages

- Developed infrastructure with three laboratories (physical, chemical, toxicological).
- Proven know How with highly-qualified engineers and technicians having more than 15 years of experience.
- Advanced technology.
- More than 100 types of laboratory analysis and tests.
- Tailored support.
- Reactivity, confidentiality, respect of deadlines and proximity.
- A full package offer including other CETTEX services (modeling, quality certification...).
- Preferential price offer to contracted customers.

Physical Analysis

For any compliance with national or international regulations, CETTEX physical laboratory offers an extended list of physical analysis :

- **Construction characteristics of fabrics :** Type of weave, mass per unit area, texture ...
- **Mechanical resistance of fabrics** : Tensile strength, tearing strength, bursting strength, resistance and seam slippage...
- **Ability to use** : pilling, spirality after laundring, dimensional stability, abrasion resistance, impermeability to air and water....
- **Particular tests on certain articles** : accessories and furniture (buttons pullout, zipper testing...).
- Tests on **threads** (Yarn number, tenacity, torsion, RKm...).
- Tests on **fiber** (fiber diameter...).
- Textile behavior in contact **with fire**.

Physical Analysis

Tests& Methods:

Construction of fabrics

Determination of mass per unit length and mass per unit area	ISO 3801/ NF EN 12127
Determination of the number of threads per unit length	ISO 7211-2 / NF EN 1049-2
Knitted fabrics - Determination of number of stitches per unit length and unit area	NF EN 14971
Knitted fabrics - Determination of stitch length and yarn linear density in weft knitted fabrics	NF EN 14970
Methods for the presentation of a weave diagram and plans for drafting, denting and lifting	ISO 7211-1

Mechanical properties

Determination of bursting strength and bursting distension	ISO 13938-1/ISO 13938-2
Determination of maximum force and elongation at maximum force using the strip method	ISO 13934-1 / ISO 13934-2
Determination of tear force using ballistic pendulum method (Elmendorf)	ISO 13937-1 / ISO 13937-2 / ISO 13937-3
Determination of the elasticity of fabrics- part1: Strip tests	EN 14704-1
Determination of maximum force to the pullout of buttons	EN 71-1
Determination of maximum force to seam rupture using the strip method	ISO 13935-1 / ISO 13935-2
Determination of the slippage resistance of yarns at a seam in woven fabrics	ISO 13936-1 / ISO 13936-2 / ISO 13936-3
Determination of tensile strength and elongation at break of rubber or plastics coated fabrics	NF EN ISO 1421

Ability to use

Determination of fabric propensity to surface fuzzing and to pilling	ISO 12945-1 / ISO 12945-2 / ISO 12945-3
Woven fabrics - Distortion - Determination of skew and bow	ISO 13015
Determination of the abrasion resistance of fabrics by the Martindale method	ISO 12947-2 / ISO 12947-3 / ISO 12947-4
Determination of flex resistance by the flexometer method	ISO 32100
Method for assessing appearance of apparel and other textile end products after domestic washing and drying	ISO 15487
Determination of spirality after laundering	ISO 16322-2
Assessment of the appearance of fabrics after washing	NF G 07-137
Determination of dimensional change in washing and drying	ISO 5077 / ISO 6330 / ISO 3759
Determination of the permeability of fabrics to air	ISO 9237
Determination of resistance to water penetration - Hydrostatic pressure test	ISO 811 / NF EN 20811

Behavior of textile on fire

Burning behaviour - Measurement of flame spread	NF EN 13772 / NF EN 13773 / 16 CFR part 1610

Tests on fibers and yarns

Determination of linear density (mass per unit length) by the skein method	ISO 2060
Determination of twist in yarns - Direct counting method	ISO 2061 / MI
Determination of single-end breaking force and elongation at break	ISO 2062
Determination of fibers diameter- Projection microscope method	ISO 137
Determination of linear density	NF G 07-316

Specific tests on different articles

Dimension of blankets (for beds)	NF EN 14
Terry towels and terry towel fabrics (determination of absorption time)	BS EN 14697

(*) Tests list is not exhaustive

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Chemical Analysis

CETTEX laboratory offers a large variety of chemical analysis:

- **Composition of textile** (fibers, threads and fabrics).
- **Colour fastness to washing :** perspiration, sea water, dry cleaning, light ...
- **Colorimetric measure :** degree of whiteness, color differences, retroreflection ...

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Chemical Analysis

Tests & Methods:

Testing composition	
Identification of fibres	ISO 11827
Quantitative chemical analysis of fibers (binary/ternary)	ISO 1833
Chemical characteristics	
Determination of pH of aqueous extract	ISO 3071
Colour fastness	
Colour fastness to hot pressing	ISO 105-X11
Colour fastness to rubbing	ISO 105-X12
Colour fastness to domestic and commercial laundering	ISO 105-C06
Colour fastness to washing with soap or soap and soda	ISO 105-C10
Colour fastness to water	ISO 105-E01
Colour fastness to sea water	ISO 105-E02
Colour fastness to chlorinated water (swimming-pool water)	ISO 105-E03
Colour fastness to perspiration	ISO 105-E04
Colour fastness to spotting: Acid	ISO 105-E05
Colour fastness to spotting : Alkali	ISO 105-E06
Colour fastness to spotting: Water	ISO 105-E07
Colour fastness to bleaching: Hypochlorite	ISO 105-N01
Colour fastness to drycleaning using perchloroethylene solvent	ISO 105-D01
Colour fastness to artificial light : Xenon arc fading lamp test	ISO 105-B02
Colour fastness to artificial weathering: Xenon arc fading lamp test	ISO 105-B04
Colour fastness to organic solvents	ISO 105-X05
Assessment of the potential to phenolic yellowing of materials	ISO 105- X18
Detection and assessment of photochromism	ISO 105-B05
Colour fastness to nitrogen oxides	ISO 105-G01
Colorimetric measurements	
Instrumental assessment of relative whiteness	ISO 105-J02
Calculation of colour differences	ISO 105-J03
Determination of retroflection	EN 471 et CIE 54.2

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Consumer Health and Safety Analysis

CETTEX's consumer health and safety laboratory detects **carcinogenic substances, allergenic and heavy metals** transferred to textile and clothing products during processing stages (dyeing, printing and finishing) also present in accessories (metal, leather and plastic) and packaging, which are harmful to **human health** (toxicity, skin irritation, infertility, cancer...)

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Consumer Health and Safety Analysis

Tests& Methods

Azo dyes	
Determination of certain aromatic amines derived from azo colorants	ISO 14362-1
Determination of certain aromatic amines derived from azo colorants 4-aminoazobenzene	ISO 14362-3
Formaldehyde	
Free formaldehyde dosage	ISO 14184-1
Released formaldehyde dosage	ISO 14184-2
Allergen and carcinogenic colorants	
Colorants identification	ISO 16373-1
Determination of extractable colorants including allergenic and carcinogenic colorants (pyridine/water)	ISO 16373-2
Determination of certain carcinogenic colorants (triethylamine/methanol)	ISO 16373-3
Detection of dispersed colorants(allergen and carcinogenic)	DIN 54231
Phthalate	
Determination of phthalate content	ISO 14389
Heavy metals	
Determination of total metals content (microwave digestion)	EN 16711-1
Determination of extractible metals content (perspiration solution)	EN 16711-2
Chlorophenol	
Pentachlorophenol dosage (PCP)	XP G 08-015
Nickel release	
Nickel release	EN 1811 / EN 12472
Cadmium	
Cadmium dosage	EN 1122



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