

proposed can be used in a computer-oriented design procedure for real composite structures subjected to a particular load. Such a procedure can allow to avoid expensive experimental testing, which can be reduced to the final phase of structural design. However, due of a lack of opportunities for verification, this stage of validation is beyond the problem presented and can be discussed within consecutive work.



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# INSTITUTE OF BIOPOLYMERS AND CHEMICAL FIBRES LABORATORY OF METROLOGY

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The **Laboratory** is active in testing fibres, yarns, textiles and medical products. The usability and physico-mechanical properties of textiles and medical products are tested in accordance with European EN, International ISO and Polish PN standards.

### Tests within the accreditation procedure:

- linear density of fibres and yarns, ■ mass per unit area using small samples, ■ elasticity of yarns, ■ breaking force and elongation of fibres, yarns and medical products, ■ loop tenacity of fibres and yarns, ■ bending length and specific flexural rigidity of textile and medical products

### Other tests:

- **for fibres:** ■ diameter of fibres, ■ staple length and its distribution of fibres, ■ linear shrinkage of fibres, ■ elasticity and initial modulus of drawn fibres, ■ crimp index, ■ tenacity
- **for yarn:** ■ yarn twist, ■ contractility of multifilament yarns, ■ tenacity,
- **for textiles:** ■ mass per unit area using small samples, ■ thickness
- **for films:** ■ thickness-mechanical scanning method, ■ mechanical properties under static tension
- **for medical products:** ■ determination of the compressive strength of skull bones, ■ determination of breaking strength and elongation at break, ■ suture retention strength of medical products, ■ perforation strength and dislocation at perforation

### The Laboratory of Metrology carries out analyses for:

- research and development work, ■ consultancy and expertise

### Main equipment:

- Instron tensile testing machines, ■ electrical capacitance tester for the determination of linear density unevenness - Uster type C, ■ lanameter