Fibers and Polymers 2004, 5, 4: 316-320.

- Schmidt H, Marcinkowska D and Cieslak M. Testing Water Vapour Permeability Through Porous Membranes. *Fibres and Textiles in Eastern Europe* 2005, 13, 2: 66-68.
- Doba Kadem F and Ergen A. A Research On Comfort Properties of Laminated Fabrics with Different Type of Membranes. *Thermal Comfort Symposium, TESKON* 2015, 8-11 Nisan 2015, İzmir, Turkey.
- Mukhopadhyay A and Kumar Midha V. A Review on Designing the Waterproof Breathable Fabrics Part II: Construction and Suitability of Breathable Fabrics for Different Uses. *Journal of Industrial Textiles* 2008, 38, 1: 17-41.
- Bueno MA, Viallier P, Durand B, Renner M and Lamy B. Instrumental measurement and macroscopical study of sanding and raising. *Textile Research Journal* 1997; 67, 11: 779-787.
- Sabir EC, Maralcan. Effect of Rasing on Properties of 2/1 Z Dimi PES/VIS/EA Woven Fabric, Electronic *Journal of Textile Technologies*, 2010, 4(1): 1-8.
- Özgür E. An Investigation Of The Effect Of Weaving, Fabric Dyeing And Raising On The Fabric Performance Properties By Using Statistical And Taguchi Method. M.Sc. Thesis, Çukurova University Institute Of Natural And Applied Sciences, Department Of Textile Engineering, Turkey, 2013.
- TSE EN ISO 11092. Textiles Physiological effects Measurement of thermal and water-vapour resistance under steady-state conditions (sweating guarded-hotplate test) (ISO 11092:2014)
- 21. TSE 391 EN ISO 9237. Textiles-Determination of permeability of fabrics to air
- 22. TSE 7128 EN ISO 5084. Textiles-Determination of thickness of textiles and textile products
- TS EN ISO 13934-1:2013. Tensile properties of fabrics- Part 1: Determination of maximum force and elongation at maximum force using the strip method.
- TS EN ISO 13937-1. Textiles- Tear properties of fabrics- Part 1: Determination of tear force using ballistic pendulum method (Elmendorf) (ISO 13937-1:2000)
- 25. TSE 251. Determination of Mass Per Unit Length and Mass Per Unit Area of Woven Fabrics
- ASTM D 4032- 94, 2001. Standard Test Method for Stiffness of Fabric by the Circular Bend Procedure, American Society for Testing and Materials, Pennsylvania.
- 27. TS EN ISO 105-C06. Colour fastness to domestic and commercial laundering
- TS EN ISO 105-E04. Colour fastness to perspiration
- 29. TS EN ISO 105-X12. Colour fastness to rubbing
- TS EN ISO 105-E01. Textiles Tests for colour fastness - Part E01: Colour fastness to water, 2013

Institute of Biopolymers and Chemical Fibres Laboratory of Microbiology

ul. M. Skłodowskiej-Curie 19/27, 90-570 Łódź, Poland

Tests within the range of textiles' bioactivity - accredited by the Polish Centre of Accreditation (PCA):



- antibacterial activity of textiles PN-EN ISO 20743:20013
- method of estimating the action of microfungi PN-EN 14119:2005 B2
- determination of antibacterial activity of fibers and textiles PN-EN ISO 20645:2006.
- method for estimating the action of microfungi on military equipment NO-06-A107:2005 pkt. 4.14 i 5.17

Tests not included in the accreditation:

- measurement of antibacterial activity on plastics surfaces ISO 22196:2011
- determination of the action of microorganisms on plastics PN-EN ISO 846:2002

A highly skilled staff with specialized education and long experience operates the Laboratory. We are willing to undertake cooperation within the range of R&D programmes, consultancy and expert opinions, as well as to adjust the tests to the needs of our customers and the specific properties of the materials tested. We provide assessments of the activity of bioactive textile substances, ready-made goods and half products in various forms. If needed, we are willing to extend the range of our tests.

> Head of the Laboratory: Dorota Kaźmierczak Ph.D., phone 42 6380337, 42 6380300 ext. 384, mikrobiologia@ibwch.lodz.pl or ibwch@ibwch.lodz.pl