

Acknowledgments

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References

1. Goswami B.C., Anandjiwala R.D., Hall D.M.: *Textile Sizing*, Marcel Dekker, Inc., New York, Basel, 2004, ISBN: 0-8247-5053-5.
2. Kovačević S., Penava Ž.: *Impact of Sizing on Physico-mechanical Properties of Yarn, Fibres & textiles in Eastern Europe*, Vol. 12, No. 48 (4), 2004, pp. 32-36.
3. Soliman H.A.: *Evaluation of Sizing as Controlling Parameter in the Tendency to Yarn Entangling*, ITB Garn-und Flächenherstellung, Vol. 41 (2), 1995, pp. 42-44.
4. Pleva R., Rieger W.: *Measurement and Optimization of Size Pick-up*, Textile Praxis International, Vol. 47 (3), 1992, pp. 230-232.
5. Sejri N., Harzallah O., Viallier P., Amar S. B., Nasrallah S. B.: *Influence of Pre-wetting on the Characteristics of a Sized Yarn*, Textile Research Journal, Vol. 78, 2008, pp. 326-335.
6. Johnen A.: *Experiences in wet-in-wet sizing*, Melliand International, Vol. 11 (March), 2005, pp. 34-36.
7. Hyrenbach H.: *Partical experience with the prewetting proces in sizing*, Melliand International, Vol. 8 (December), 2002, pp. 251-252.
8. Wunderlich W., Stegmaier T., Hager T., Planck H.: *Einfluss des Vornetzens von Compactgarnen auf das Webverhalten*, Melliand Textilberichte, Vol. 11-12, 2005, pp. 813-817.
9. Wunderlich W., Stegmaier T., Trauter J.: *Fundamentals of pre-wetting staple fibre yarns*, Melliand International, Vol. 8 (March), 2002, pp. 43-45.
10. Rozelle W. N.: *Pre-wet Sizing System Bases on Water Atomization*, Textile World, Vol. 151 (3), 2001, pp. 28-30.
11. Rozelle W. N.: *Pre-wet: New Money Maker in Warp Sizing Operations*, Textile World, Vol. 149 (5), 1999, pp. 73-79.
12. Sherrer A.: *Benninger: SaveSize Pre-Wet Warp Sizing*, Textile World, Vol. 150 (4), 2000, pp. 42-43.
13. Bernstein S., Bernstein R.: *Elements of statistics II: Inferential Statistics*, McGraw-Hill, New York, 1999, ISBN: 0-07-005023-6.

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Technical University of Lodz Faculty of Material Technologies and Textile Design

Department of Physical Chemistry of Polymers

The research activity of the Department is focused on areas related to the chemistry and physical chemistry of polymers. The main directions of scientific activity are as follows:

- investigation of the polyreaction process, in particular matrix polymerisation,
- physico-chemical characteristics of polymers and copolymers,
- study of the relationship between their structure and properties,
- synthesis of multimonomers,
- chemical modification of synthetic and natural polymers in order to obtain products with specific properties,
- copolyesters of chitin a new bioactive materials for medical applications,
- surface modification of textile materials by deposition of polyelectrolyte nanolayers.

The Department has at its disposal the following modern measuring techniques for the physical and chemical analysis of polymers:

- gel permeation chromatography equipment, consisting of a Waters Alliance separation module and multiple detector system: refractive index, UV-VIS, intrinsic viscosity and right angle laser light scattering;
- FTIR spectrometer system 2000 from Perkin-Elmer with data collection and processing software;
- UV-VIS spectrometer Lambda 2 from Perkin-Elmer;
- differential scanning calorimeter DSC7 from Perkin-Elmer;
- thermobalance coupled with an infrared spectrometer from Perkin-Elmer.

Theme cooperation: research of the surface modification of textiles using polyelectrolyte nanolayers (Lebinez Institut für Polymerforschung, Dresden, Germany); chitin derivatives and their applications (National Institute of Agrobiological Sciences + NIAS, Tsukuba, Japan).

The Department's staff conduct classes on a variety of topics at all levels of education at the Faculty of Material Technologies and Textile Design. These classes cover subjects such as chemistry, the physical chemistry of polymers, instrumental methods in the physico-chemical characterisation of polymers, polymer materials, etc.

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