ance values higher than corresponding values of the plain fabrics.
5. When compared with the fabrics woven from solid fibres, the water vapour and air permeabilities of the fabrics woven from hollow fibres were lower because of their greater thickness, lower porosity and closer structure.
6. The water vapour and air permeability results of the fabrics produced from trilobal fibres were higher than corresponding results of the fabrics produced from round fibres because of the compact structure of the yarns spun from these fibres.
7. The twill fabrics showed higher values of water vapour and air permeabilities than the plain fabrics due to their higher porosity.
8. The twill fabrics produced from solid trilobal fibres (T-T) had the lowest value of thermal conductivity and the highest values of relative water vapour and air permeability.

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References

1. Holme I. In Synthetic Fibre Materials. In: Brody H (eds) Longman Scientific and Technical: Essex, 1994, pp. 93-128.
2. Rwei SP. *J. Appl. Polym. Sci.* 2001; 82: 2896-2902.
3. Petrulis D. *J. Appl. Polym. Sci.* 2004; 92: 2017-2022.
4. Oglakcioglu N, Celik P, Ute TB, Marmarali A, Kadoglu H. *Text. Res. J.* 2009; 79: 888-894.
5. Ozdil N, Marmarali A, Kretzschmar SD. *Int. J. Therm. Sci.* 2007; 46: 1318-1322.
6. Stankovic SB, Popovic D, Poparic GB. *Polym. Test.* 2008; 27: 41-48.
7. Tyagi GK, Khrishna G, Bhattacharya S, Kumar P. *Indian J. Fibre Text.* 2009; 34: 137-143.
8. Varshney RK, Kothari VK, Dhamija S. J. *Text. I.* 2010; 101: 495-505.
9. Ismail MI, Ammar ASA, El-Okeily M. *J. Appl. Polym. Sci.* 1985; 30: 2343-2350.
10. Schacher L, Adolphe DC, Drean J-Y. *Int. J. Cloth. Sci. Tech.* 2000; 12: 84-95.
11. Frydrych I, Dziworska G, Bilska J. *Fibres & Textiles in Eastern Europe* 2002; 10: 40-44.
12. Frydrych I, Sybilska W, Wajszczyk M. *Fibres & Textiles in Eastern Europe* 2009; 17: 50-55.
13. Matusiak M. *Fibres & Textiles in Eastern Europe* 2006; 14: 98-102.
14. Vigneswaran C, Chandrasekaran K, Senthilkumar P. *J. Ind. Text.* 2009; 38: 289-307.
15. Oglakcioglu N, Marmarali A. *Fibres & Textiles in Eastern Europe* 2007; 15: 94-96.
16. Ute TB, Oglakcioglu N, Celik P, Marmarali A, Kadoglu H. *J. Text. Apparel* 2008; 18: 191-197.
17. Ozcelik G, Cay A, Kirtay E. *Fibres & Textiles in Eastern Europe* 2007; 15: 55-58.
18. Hes L. Proceedings, Congress Index 87 (Geneva), 1, 198.7
19. Ucar N., Yilmaz T.; *Fibres & Textiles in Eastern Europe* 2004; 12: 34-38.
20. Militky J. Prediction of Textile Fabric Thermal Conductivity, In: *6th International Thermal Manikin and Modelling Meeting Proceedings*, The Hong Kong Polytechnic University, Hong Kong, 2006.
21. Wu HY, Zhang WY, Li J. *Fibres & Textiles in Eastern Europe* 2009; 17: 46-51.
22. Guo J. M.Sc. thesis; Virginia Polytechnic Institute and State University, Virginia, 2003.
23. Huang J, Qian X. *Meas. Sci. Technol.* 2007; 18: 3043-3047.
24. Behera BK, Ishtiaque SM, Chand S. *J. Text. I.* 1997; 88: 255-264.
25. Tzanov T, Betcheva R, Hardalov I. *Int. J. Cloth. Sci. Tech.* 1999; 11: 189-197.
26. Gunesoglu S, Meric B, Gunesoglu C. *Fibres & Textiles in Eastern Europe* 2005; 13: 46-50.
27. Paul HL, Diller KR. *J. Biomech. Eng.* 2003; 125: 639-647.
28. Lin CM, Lou CW, Lin JH. *Text. Res. J.* 2009; 79: 993-1000.
29. Kothari VK. Bhattacharjee D. *J. Text. I.* 2008; 99: 421-432.
30. Matusiak M, Sikorski K. *Fibres & Textiles in Eastern Europe* 2011; 19: 464-53.
31. Tyagi GK, Goyal A, Mahish S, Madhusoodhanan P. *Melliand Int.* 2006; 12: 29-32.
32. Tyagi GK, Sharma D. *Indian J. Fibre Text.* 2005; 30: 363-370.
33. Kayseri G O, Bozdogan F, Hes L. *Tekstil Konfeksiyon* 2010; 3: 208.
34. Ogulata R. T., Mavruz S.; *Fibres & Textiles in Eastern Europe* 2010; 18: 71-75.
35. Mahish SS, Punj SK, Banwari B. *Indian J. Fibre Text.* 2006; 31: 313-319.
36. Karaca E, Ozcelik F. *J. Appl. Polym. Sci.* 2007; 103: 2615-2621.
37. Becerir B, Karaca E, Omeroglu S. *Color. Technol.* 2007; 123: 252-259.
38. Hes L, De Araujo M, Djulay VV. *Text. Res. J.* 1996; 66: 245.
39. Hes L, Dolezal I. *J. Text. Mach. Soc. Jpn.* 1989; 42: T124.
40. Hes L, Dolezal I. A new computer-controlled skin model for fast determination of water vapour and thermal resistance of fabrics. In: *7th Asian Textile Conference*, New Delhi, 2003.
41. Adanur S. *Wellington Sears Handbook of Industrial Textiles*, Technomic Publishing Co. Inc., Pennsylvania, USA, 1995.

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