

References

1. Hibbert R. Textile Innovation: Interactive, contemporary and traditional materials. London: Line Westcombe Park Road, 2004; 24-27.
2. Mitsui M, Yoshida K, Ishii Y, Shirai K, Chonan Y, Okamura H. Hygienic Study on Shoes. Part 1: Effect of Shoe Materials on Wear Comfort and Microclimate Between Shoes and Skin. *J Jpn Res Assoc Text End-uses* 1999; 40(5): 333-341.
3. ISO/TR 18690:2012. Guidance for the selection, use and maintenance of safety and occupational footwear and other personal protective equipment offering foot and leg protection. Technical Committee w ramach ISO (ISO/TC94/SC3) 16.08.2012.
4. Scheffer M. Long term PPE perspective. HSME Magazine Health & Safety Middle East. 2012; 19: 25-33.
5. Garrett LJ, Zhou P. Hot-melt adhesive for non-woven elastic composite bonding WO2002053378A2. 2002.
6. Falkiewicz-Dulik M, Macura AB. Foot-wear hygiene in foot mycosis prophylaxis (in Polish). *Mikrologia Lekarska* 2006; 13(4): 265-271. ISSN 1232-986X.
7. Gulbiniene A, Jankauskaite V, Kondratas A. Investigation of the Water Vapour Transfer Properties of Textile Laminates for Footwear Linings. *FIBRES & TEXTILES in Eastern Europe* 2011; 19, 3(86): 78-81.
8. Brock RJ, Meitner GH. Nonwoven thermoplastic fabric. Patent US 4041203, 1977.
9. Berger RM. Polyethylene terephthalate sheath/thermoplastic polymer core bicomponent fibers, method of making same and products formed therefrom. Patent US 5633082, 1997.
10. Das D, Pradhan AK, Chattopadhyay R, Singh S N. Composite Nonwovens. *Textile Progress*. 2012; 44(1): 1-84, DOI: [10.1080/00405167.2012.670014](https://doi.org/10.1080/00405167.2012.670014).
11. Lang A, Schmalz E. A New Generation in Filter Media. *INDA Filtration* 2004.
12. Irzmańska E, Brochocka A, Majchrzycka K. Textile Composite Materials with Bioactive Melt-Blown Nonwovens for Protective Footwear. *FIBRES & TEXTILES in Eastern Europe* 2012; 20, 6A(95): 119-125.
13. Borreguero AM, Talavera B, Rodriguez JF, Valverde JL, Gonzalez JL, Carmona M. Enhancing the thermal comfort of fabrics for the footwear industry. *Text Res J*. 2013; 83(16): 1754-1763.
14. Bertaux E, Derler S, Rossi R, Zeng X, Koehl L, Ventenat V. Textile, Physiological, and Sensorial Parameters in Sock Comfort. *Text Res J*. 2010; 80(17): 1803-1810.
15. Velani N, Wilson O, Halkon BJ, Harland AR. Measuring the risk of sustaining injury in sport a novel approach to aid the re-design of personal protective equipment. *Appl Ergon*. 2012; 43(5): 883-890.
16. Akbar-Khanzadeh F, Bisesi MS, Rivas RD. Comfort of personal protective equipment. *Appl Ergonom*. 1995; 26(3): 195-198.
17. Mayer A, Korhonen E. Assessment of the protection efficiency and comfort of personal protective equipment in real conditions of use. JOSE 1999; 5(3): 347-360.
18. Irzmańska E, Brochocka A. Influence of the Physical and Chemical Properties of Composite Insoles on the Microclimate in Protective Footwear. *FIBRES & TEXTILES in Eastern Europe* 2014; 22, 5(107): 89-95.
19. Falkiewicz-Dulik M, Przyjemska L. Comfortable insoles (in Polish). *Przegląd Skórzany* 1997; 12: 487-489.
20. Irzmańska E. Microclimate in protective footwear (in Polish). *Przegląd Włókienniczy WOS*, 2011; 2: 35-38.
21. Barton JG, Lees A. Comparison of shoe insole materials by neural network analysis. *Med Biol Eng Comput* 1996; 34(6): 453-9.

22. Council Directive 89/686/EEC of 21 December 1989 on the approximation of the laws of the Member States relating to personal protective equipment, Official Journal of the European Communities, L. 399, 30.12.1989 with later amendments; Regulation (EU) 2016/425 of the European Parliament and of the Council of 9 March 2016 on personal protective equipment and repealing Council Directive 89/686/EEC (Official Journal of the European Union L 81 of 31.3.2016).
23. Bendak A, El-Marsafi SM. Effects of chemical modification on polyester fibres. *J Islam Acad Sci* 1991; 4: 275-284.
24. DeMartino RN, Yoon HN, Buckley A. Improved comfort polyester. Part III. *Text Res J* 1984; 54: 447-458.
25. PN-73/P-04631. Metody badań wyrobów włókienniczych - Wyznaczanie sztywności zginania (eng. Textiles – test methods for nonwovens – Determination of bending lenght).
26. Irzmańska E, Stefko A. Simulation method for assessing the end of service life of gloves used by workers exposed to mineral oils and mechanical factors. *Int J Ind Ergonom.* 2015; 47: 61-71.
27. Krzemińska S, Irzmańska E. Preliminary Evaluation of the Ergonomic Properties of Gloves for Protection Against Mineral Oils Based on Manual Dexterity Tests. *Journal of Testing and Evaluation (J Test Eval)* 2013; 41: 875-882.
28. Irzmańska E. The impact of different types of textile liners used in protective footwear on the subjective sensations of firefighters. *Appl Ergon.* 2015; 47: 34-42.
29. PN-EN ISO 20344:2012. Środki ochrony indywidualnej -- Metody badania obuwia (eng. Personal protective equipment – Test methods for foodwear).
30. European document (recommendation for use) RfU10-087b.
31. PN-EN 1392:2007. Adhesives for leather and footwear materials – solvent – based and dispersion adhesives – testing of bond strength under specified conditions (in Polish).
32. Wollina U, Abdel-Naser MB, Verma S. Skin physiology and textiles – consideration of basic interactions. *Curr Probl Dermatol* 2006; 33: 1–16.
33. Heide M. Spacer fabrics for medical applications. *Klettenwirk-praxis* 1998; 4: 15-20.
34. Heide M. Mattresses and cushions with thermoregulation. Book of Abstracts Medical Textiles 2001; 6.
35. Heide M, Zschenderlein D, Möhring U. Three-dimensional spacer fabrics in medicine. *Proceedings of V International Scientific Conference MedTex*, Łódź 2005; pp. 28–31.
36. Wollina U, Heide M, Müller-Litz W, Obenauf D, Ash J. Functional textiles in prevention of chronic wounds, wound healing and tissue engineering. Textiles and the skin. *Curr Probl Dermatol* 2003; 31: 82–97.
37. Application of the utility model of the Protective footwear insole application no. W.127975 [WIPO ST 10 / C PL127975U] to the Patent Office of the Republic of Poland on 2019-01-21, Applicant: Central Institute of Protection Work - National Research Institute, PSO Maskpol Spółka Akcyjna, Łódź Technical University.