

aim to reduce the landfilled part of municipal waste declared in the Lithuanian State Strategic Waste Management Plan, a great deal more effort to promote the prevention of waste production should be made. The need to reduce the quantities of waste going to landfills must take into account the economic effect of the usage of textile waste as recycled material in the creation of value-added products.



References

- European Commission. Being wise with waste: the EU's approach to waste management Luxembourg: Publications Office of the European Union 2010 16 p. ISBN 978-92-79-14297-0 DOI: 10.2779/93543
- COM (2005) 666 final. Taking sustainable use of resources forward: A Thematic Strategy on the prevention and recycling of waste Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions, Brussels, 2005).
- P6_TA(2007)0030 Waste recycling European Parliament resolution on a Thematic Strategy on the recycling of waste (2006/2175(INI)).
- COM (2011) 13 final. Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the Thematic Strategy on the Prevention and Recycling of Waste, Brussels, 2011.
- Dinesh B, Ankush S, Urvashi M. Recycled fibers: An overview. *International Journal of Fiber and Textile Research* 2014; 4(4): 77-82.
- Wang Y. Fiber and textile waste utilization. *Waste and Biomass Valorization* 2010; 1: 135-143.
- Park S H, Kim S H. Poly (ethylene terephthalate) recycling for high value added textiles. *Fashion and Textiles* 2014; 1(1): 1-17.
- Thilak V, Saravanan D. *Textiles and apparel development using recycled and reclaimed fibers*. Roadmap to sustainable textiles and Clothing Eco-friendly raw materials, technologies, and processing methods, S. S. Muthu (Ed.), Singapore: Springer Singapore, 2014, pp. 139-160.
- Hawley J M. Digging for diamonds: A conceptual framework for understanding reclaimed textile products. *Clothing and Textiles Research Journal* 2006; 24(3): 262-275.
- Chavan RB. Environmental sustainability through textile recycling. *Textile Science & Engineering* 2014; S2:007. DOI: 10.4172/2165-8064.S2-007.
- Muthu SSK, Li Y, Yan J and Ze L. Carbon footprint reduction in the textile process chain: Recycling of textile materials. *Fiber Polym.* 2012; 13(8): 1065-1070.
- Sule AD and Bardhan M K. Recycling of textile waste for environment protection – an overview of some practical cases in the textile industry. *Indian J. Fibre Text.* 2001; 26(1-2): 223-232.
- Roy Choudhury A. K. *Environmental impacts of the textile industry and its assessment through life cycle assessment*. Roadmap to sustainable textiles and clothing: Environmental and social aspects of textiles and clothing supply chain, S. S. Muthu (Ed.), Singapore: Springer Singapore, 2014, pp. 1-39.
- Deo H T. Ecofriendly textile production. *Indian J. Fibre Text.* 2011; 26(1-2): 61-73.
- Palm D. Improved waste management of textiles. *IVL Report B1976*, 2011; 1-26.
- Madsen J, Hartlin B, Perumalpillai S, Selby S and Aumônier S. Mapping of evidence on sustainable development impacts that occur in the life cycles of clothing. Environmental Resources Management (ERM) Ltd. Defra, London, 2007.
- Larney M & van Aardt A M. Case study: Apparel industry waste management: A focus on recycling in South Africa. *Waste Management & Research* 2010; 28(1): 36-43.
- Altun Ş. Prediction of textile waste profile and recycling opportunities in Turkey. *Fibres & Textiles in Eastern Europe* 2012; 20, 5(94): 16-20.
- Jordeva S, Tomovska E, Trajković D and Zafirova K. Current state of pre-consumer apparel waste management in Macedonia. *Fibres & Textiles in Eastern Europe* 2015; 1(109): 13-16.
- Lithuanian waste management law, last amended XII-1720 2015-05-14 (1998). <https://www.e-tar.lt/portal/lt/legalAct/TAR.8D38517814F1> (accessed 13.05.2016).
- Environmental Protection Agency (EPA) <http://gamta.lt/cms/index?lang=en> (accessed 13.05.2016).
- Commission Decision 2000/532/EC. COMMISSION DECISION of 3 May 2000 replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste. Official Journal of the European Communities, 6.9.2000 L 226/3 – L 226/24.
- Commission Regulation (EU) No 849/2010 of 27 September 2010 amending Regulation (EC) No 2150/2002 of the European Parliament and of the Council on waste statistics. Official Journal of the European Union, 28.9.2010 L 253/2 – L 253/39.
- Ökopol GmbH in cooperation with ARGUS GmbH. Review of the European List of Waste Final Report. November 2008, p. 222.

Received 16.05.2016 Reviewed 24.07.2017

Institute of Textile Engineering and Polymer Materials



The Institute of Textile Engineering and Polymer Materials is part of the Faculty of Materials and Environmental Sciences at the University of Bielsko-Biala. The major task of the institute is to conduct research and development in the field of fibers, textiles and polymer composites with regard to manufacturing, modification, characterisation and processing.

The Institute of Textile Engineering and Polymer Materials has a variety of instrumentation necessary for research, development and testing in the textile and fibre field, with the expertise in the following scientific methods:

- FTIR (including mapping),
- Wide Angle X-Ray Scattering,
- Small Angle X-Ray Scattering,
- SEM (Scanning Electron Microscopy),
- Thermal Analysis (DSC, TGA)

Strong impact on research and development on geotextiles and geosynthetics make the Institute of Textile Engineering and Polymer Materials unique among the other textile institutions in Poland.

Contact:

Institute of Textile Engineering and Polymer Materials
University of Bielsko-Biala
Willowa 2, 43-309 Bielsko-Biala,
POLAND
+48 33 8279114,
e-mail: itimp@ath.bielsko.pl
www.itimp.ath.bielsko.pl