

INVESTIGATION ON APPAREL WASTE MANAGEMENT IN MACEDONIA

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INTRODUCTION

Theoretically 97% of textile waste can be recycled, which would make the textile industry a waste-free process. Still, in reality the process of textile recycling is faced with numerous challenges. The most important challenges are waste availability, consistency of waste supply and the current market and demand for recycled materials. Bearing in mind the heterogeneity of textile waste cooperation with the textile industry, legislation, adequate resources, hard work and time are necessary to develop energy efficient and cost effective technologies. Apparel cuttings waste is new and clean, therefore not requiring any special

EXPERIMENTAL

The research was conducted through a questionnaire distributed to the top management of Macedonian apparel manufacturers. Structured, multiple-choice questions, with a minimum of 5 and a maximum of 7 alternative answers were used. The questionnaire was distributed to 120 apparel manufacturers in Macedonia, during September 2012. In 66% of cases a personal interviewing method was used, while 34% were distributed via e-mail. From the

treatments before recycling, thus decreasing recycling costs. Besides technology, the sole prerequisite for recycling apparel waste is to collect and sort it by colour and fibre content. The aim of this research is to analyse the current state of apparel waste management in Macedonia, as well as the apparel waste structure. In addition the attitudes of top management for preserving the environment were examined. The analysis can serve as a guide for investigation the possibilities for recycling apparel cutting waste, either in the companies that generate it or in purpose-built recycling companies.

120 distributed questionnaires, 86 questionnaires completed by the companies' top management were used in the analysis. In the Štip region, as the largest apparel production centre, 54 (62.8%) of the companies were located, whereas the remainder were from other regions in the country.

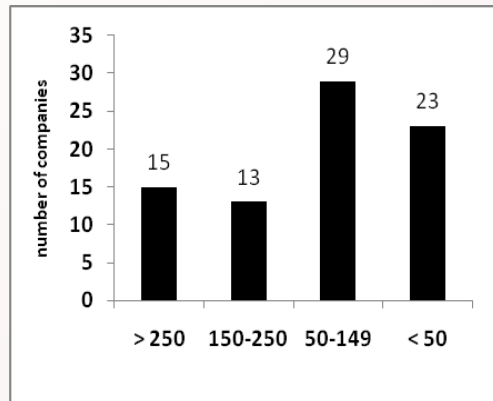


Fig. 1 Size of apparel manufacturers

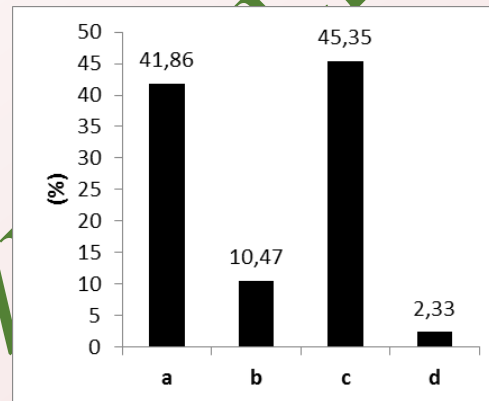


Fig. 2 Materials according to type of fabric, a-woven, b-knitted, c-woven and knitted, d-nonwovens

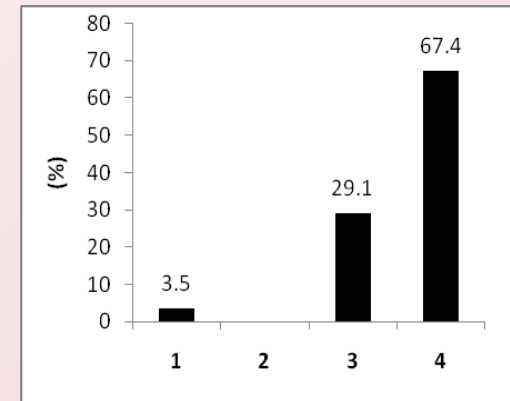


Fig. 3 Preserving the environment is important to our company 1- strongly disagree, 2-disagree, 3-agree, 4-strongly agree

CONCLUSION

The results showed that 65% of the companies were SMEs with up to 150 employees, (figure 1) therefore it is not realistic to expect individual investments in recycling capacities, as the quantity of waste is not sufficient for continuous operations. Principally, apparel manufacturers process woven fabrics approximately 42%, cotton and cotton blend fabrics and fabrics with lycra, (figure 2.) which dictates the structure of generated waste. Recycling woven fabrics is significantly more difficult than knits. Regarding the fibre content, cotton and cotton blends are suitable for recycling. On the other hand, 60% of fabrics contain lycra, which complicates the recycling process. The analysis shows that apparel cuttings waste can be most appropriately reused in insulation textiles. It is important to emphasize that approximately 97% of the top management of apparel companies had positive attitudes towards preserving the environment (figure 3).