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Nørup, Nynne; Damgaard, Anders; Scheutz, Charlotte; Pihl, K.

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Quality of textile waste: a case study of residual household waste from Odense Municipality, Denmark

Nørup, N.^{a,b*}, Damgaard, A.^a, Scheutz, C.^a & Pihl, K.^b

^a Technical University of Denmark, Department of Environmental Engineering, Miljøvej B113 2800 Lyngby, Denmark, nynor@env.dtu.dk

^b Ulandshjælp fra Folk til Folk – Humana People to People, Nordre Strandvej 119A, 3150 Hellebæk, Denmark, kaj@uff.dk

Corresponding Author: nynor@env.dtu.dk

Abstract

Clothes and other textiles (textiles) have for many years not been considered in general waste management, but in recent years it is acknowledged, that the environmental impact from this waste fraction is potentially very high if not handled properly (MST 2012). Despite the fact that textile waste does not constitute a large amount compared to other waste fractions, the potential contribution to environmental impacts (e.g. global warming) from textile production is very high per weight unit (Palm 2011). This is because the production of textiles is associated with significant environmental costs in terms of energy consumption, water consumption, use of chemicals and nutrients and increased exhaustion of land for cultivation of cotton (WRAP 2012). Therefore, the environmental performance can be improved by ensuring that textiles are collected, reused, recycled and disposed of in the best possible way (Farrant et al. 2010). A study from the Danish EPA indicates that about half of the Danish consumption of textiles is disposed of using the general waste management system and thus end up being incinerated (MST 2014). The knowledge base about the quality of textiles disposed of in the residual waste, is however very limited. The few studies that exist mainly look at the total weight and not at the quality of the textiles disposed of. The quality of the disposed textiles is particularly important when assessing the potential of textiles that could have been reused and thus avoided in the residual waste

In this study, the quality of the textiles found in the residual household waste from the city of Odense, Denmark, was studied. A total of 8194.5 kg of residual household waste from 6 residential areas was collected and manually sorted into 10 waste categories, of which textiles were included in the category 'recyclables'. From the waste collected from each of the 6 areas, sub-samples of about 108 to 332 kg were obtained and further sorted into 11 waste fractions including a textile fraction. The textiles were further sorted into 3 categories based on the type (clothing, household textiles, and other textiles). All waste fractions were weighed. The textiles defined as clothing and household textiles were further sorted by quality.

In general, it was found that textiles made up between 0.5-3.8% of the residual household waste. Of the textile waste, 39-79% were clothing, 8-32% were household textiles and the last 3-33% were categorized as other textiles. The quality assessment of clothing and household textiles from the different areas showed that between 44-82% could potential have been reused, 0-13% could potential have been recycled, and 3-56% was in a condition that was considered waste. For a part of the sorted textiles (1-31%) it was not possible to determine whether the quality of the textiles was good enough to be either reused or recycled. Overall, the study however clearly highlight that

there is a large potential for recovering more textiles from households for reuse and recycling through better waste management and information to the consumers.

Keywords: Textiles, textile waste, sorting quality, environmental impact

References:

Farrant L., Olsen S I & Wangel A (2010) *Environmental benefits from reusing clothes*, 2010, Int J Life Cycle Assess (2010) 15:726–736.

Miljøstyrelsen (MST) (2012) *Danmarks Råstof (In Danish)*, 2012, Miljøstyrelsen, Miljøministeriet, Børsgade 4, 1215 København K, Denmark.

Miljøstyrelsen (MST) (2014) *Mindre affald og mere genanvendelse i tekstilbranchen (In Danish)*, 2014, Miljøstyrelsen, Strandgade 29, 1401 København K, Denmark.

Palm D (2011) *Improved waste management of textiles*, Project 9 Environmentally improved recycling, Rapport B1976, IVL Swedish Environmental Research Institute Ltd, P.O. Box 5302, SE-400 14 Gothenburg, Sweden.

WRAP (2012) *Valuing our clothes, the true cost of how we design, use and dispose clothing in the UK*, WRAP, Project Code: RRC-001. RAP, Banbury, Oxon, United Kingdom.