

CO₂ footprints illustrate the benefit of textile services

Workwear: comparing industrial vs. domestic laundry

Industrial laundering has 33% less greenhouse gas emissions



For textile services, reduction of energy and related emissions of greenhouse gases has been a main focus for many years.

In comparison with competing alternatives, textile services prove to have the least impact on global warming.

A life cycle assessment study carried out by ETSA in 1997 for domestic laundering versus industrial laundering, compared the amount of greenhouse gas emissions produced for washing and drying one kg of clothing. This study was carried out by Öko-Institut / Freiburg and focuses on the actual washing and drying. (It thus does not include the production of the workwear). As seen from the table below, the textile rental service option reduces greenhouse gas emissions by approximately 33%.

1997	Estimated emission of greenhouse gases per kg workwear (g CO ₂ -eqv./kg)
Washing and drying of clothing in the workers home	1.8
Washing and drying of clothing by a textile service company	1.1

Source: Öko-Institut LCA, Home washing and industrial washing of worker garment textiles - comparison and benchmarking. Tender to E.T.S.A.

A later (unpublished) study conducted for ETSA in 2007 by 2.0 LCA Consultants confirmed these results. This 2007 study used a different methodology as it also included an assessment of the production of workwear, however, the same picture can still be found:

2007	Primary energy consumptions per kg workwear (MJ/kg)	Estimated emission of greenhouse gases per kg workwear (g CO ₂ -eqv./kg)
Washing and drying of clothing in the workers home	38	3.3
Washing and drying of clothing by a textile service company	34	2.4

Source: Unpublished ETSA study, available to ETSA members

Again, the results show that approximately 30% of emissions are saved when using a textile service company compared to washing at home.

Questions or comments?

Phone: 0032 2 282 0990

Fax: 0032 2 282 0999

E-mail: etsa@etsa-europe.org



Surgical gowns: less emissions than disposables



*Industrial laundering
of surgical
clothing proves
its environmental
value!*

An ETSA study of surgical gowns followed the total life cycle of both reusable and single use options. This life cycle assessment was completed in 2001 by dk-TEKNIK - now FORCE – in Denmark.

2001	Estimated emission of greenhouse gases per standard gown used (g CO ₂ -eqv.)	
	BEST CASE	WORST CASE
Reuse options:		
Polyester with Fluorocarbon finish	0.2	0.5
Polyester laminate	0.6	1.1
Single use options:		
Laminate of pulp / Polyester and Polyethylene	0.5	1.0
Regular pulp / Polyester with Fluorocarbon finish	0.6	1.1

Source: ETSA Life cycle assessment on surgical gowns

The above table illustrates that reusables produce less harmful greenhouse gas emissions than disposables. Particularly when you consider waste generation, water consumption acidification potential caused by disposable products, the reusable option clearly has less overall environmental impact.

Questions or comments?

Phone: 0032 2 282 0990

Fax: 0032 2 282 0999

E-mail: etsa@etsa-europe.org



Washroom Services

Almost 50% less greenhouse gas emissions from textile roller towels



A vision of the textile service industry is to combine maximum quality with unbeatable environmental performance and sustainable progress through incorporating life-cycle thinking in decision making, which this study aptly demonstrates.

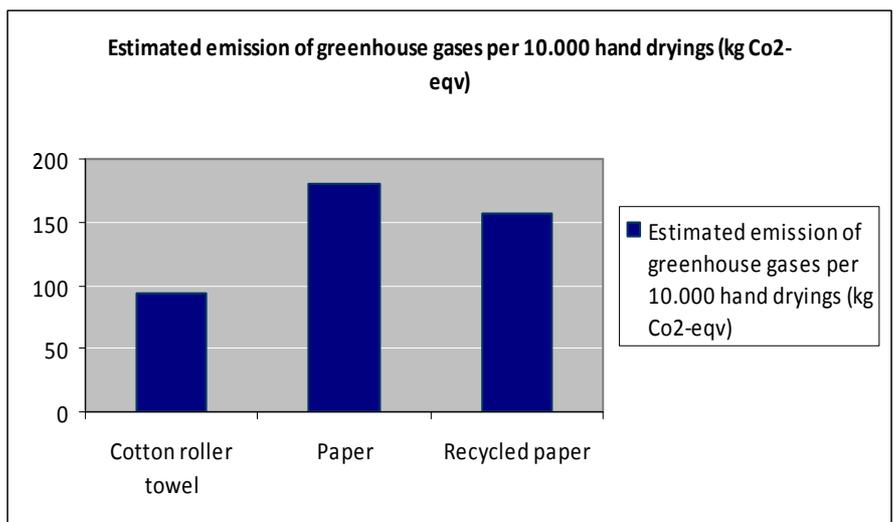
The table and graph below summarises a life cycle assessment carried out in 2006 by Öko-Institut. The study explored the entire life cycle of hand-drying systems from forestry and cotton farming, through towel production and use, up to recycling or final disposal. For example, cotton towels:

- Outperform the paper alternatives in six out of seven environmental aspects (even compared to 50% recycled paper).
- Use up to 63% less energy compared with paper towels.
- Generate up to 79% less waste compared with paper towels.
- Only have ½ the global warming potential to that of paper towels.
- Can be washed and reused about 100 times.
- Contribute only 10% of the wastewater pollution attributed to paper.
- Use limited packaging materials.

2006	Estimated emission of greenhouse gases per 10.000 hand dryings (kg CO ₂ -eqv.)
The cotton towel roll system	93
100% virgin fibre paper towels	180
50% recycled fibre paper towels	156

Source: *Life Cycle Analysis of Hand-Drying Systems: Cotton versus Paper Towels, 2006*

Results clearly show that continuous cotton towel rolls produced almost 50% less greenhouse gas emissions than 100% virgin paper towels and about 1/3 less emissions than 50% recycled paper towels.



Questions or comments?

Phone: 0032 2 282 0990

Fax: 0032 2 282 0999

E-mail: etsa@etsa-europe.org



Continuous effort yields further improvement of environmental performance



In comparison to the competing alternatives, textile services prove to have the least impact on global warming.

The figures below show a comparison of the energy and the emissions of green house gases per kilogram of laundry of a typical laundry operating during the 1970s with a typical laundry operating today.

	Total consumption of heating energy - oil or gas (kWh/kg)	Estimated emission of greenhouse gases from heating energy (kg CO ₂ -eqv./kg)
Typical laundry in the 1970's	3.8 – 5.5	1.1 – 1.6
Typical laundry in 2008	0.9 – 2.8	0.16 – 0.52

Source: ETSA Workwear LCA, 2008

The above figures show a significant reduction of the energy consumption and the associated greenhouse gas emissions, a clear illustration of a continued effort by the textile service industry to reduce its carbon footprint.



Questions or comments?

Phone: 0032 2 282 0990

Fax: 0032 2 282 0999

E-mail: etsa@etsa-europe.org

