

A SOLID WASTE ASSESSMENT OF SELECTED REUSABLE AND DISPOSABLE PRODUCTS

By Jocelyn Mullen
Carl Lehrburger

An extract of a report to:
Textile Rental Services Association of America (TRSA)
1130 E. Beach Blvd., Suite B
P.O. Box 1283
Hallandale, FL 33008-1283
and
Institute of Industrial Launderers (IIL)
1730 M St., N.W., Suite 610
Washington, D.C. 20036

Copies of *A Solid Waste and Laundering Assessment of Selected Reusable and Disposable Products* report may be obtained from the Textile Rental Services Association of America; 305/457-7555.

November 1991. ©1991 by Jocelyn Mullen.

ACKNOWLEDGEMENTS

The authors would like to express their appreciation to Mr. David Dexter of the Institute of Industrial Launderers and Mr. Clifford Weller of the Textile Rental Services Association of America for their valuable guidance and assistance throughout the project.

C. Vaughn Jones contributed valuable work in the area

of uniform laundering analysis, while technical information was researched and compiled by Arnold Mullen. And, finally, the document could not have been created without the graphic art skills of Julie Hodges at Impact Images and the wordprocessing skills of Terry L. Casey and Janette Winkelblech.

CONTENTS

I. EXECUTIVE SUMMARY	
A. Abstract	9
B. Background	9
C. WasteWise	9
D. Selected Reusable Products	10
E. This Study's Approach	10
F. Conclusions	11
II. OVERVIEW: SOLID WASTE AND LAUNDERING ASSESSMENTS	
A. Introduction	13
B. Description of a Solid Waste Assessment	14
C. Defining the Study Boundaries	14
D. Methodology of the Present Assessment	14
1. Solid Waste Assessment	14
E. Key Assumptions	15
F. Review of Other Solid Waste and Laundering Assessments	16
III. BACKGROUND TO THE PRESENT ASSESSMENT	
A. Overview: Reusable Textile Industry	19
B. Overview: Disposables Industry	20
1. Highlights of the Pulp and Paper Industry	20
2. Highlights of the Nonwovens Industry	20
C. Trends in Product Use and Technology	20
1. Reusable Products	20
2. Single-use Products	21
IV. PRODUCT DESCRIPTIONS AND USE PATTERNS	
A. Towels	22
1. Commercial Applications	22
2. Industrial Applications	23
B. Napkins	23
V. POSTCONSUMER WASTE GENERATION, PROCESSING, AND DISPOSAL	
A. Reusable Products	24
1. Solid Waste	25
2. Use of Textiles as Rags	25
3. Wastewater Treatment	26
B. Single-use Products	26
1. Solid Waste	26



- C. Comparison of Reusable and Disposable Products 28
 - 1. Commercial Towels 28
 - 2. Industrial Wipers and Towels 29
 - 3. Napkins 30
- D. Solid Waste Management Trends 30
- E. Replanting 32
- F. Sewage Treatment as a Perspective on Textile Laundering 32

VI. ECONOMIC IMPACTS OF REUSABLE VS. DISPOSABLE PRODUCTS

- A. Reusables 33
 - 1. Costs to the Consumer 33
 - 2. Water Consumption 33
- B. Disposables 34
 - 1. Costs to the Consumer 34
 - 2. Hidden Costs 34
- C. Economic Comparison of Reusables and Disposables 34
 - 1. Commercial Towels 34
 - 2. Industrial Wipers and Towels 35
 - 3. Napkins 35

LIST OF FIGURES

Figure ES-1: Solid waste impacts: Hand towels	11
Figure ES-2: Solid waste impacts: Foodservice towels	11
Figure ES-3: Solid waste impacts: Industrial towels	12
Figure ES-4: Solid waste impacts: Napkins	12
Figure 1: Municipal solid waste generation by weight, 1988	13
Figure 2: Landfill volume of discards in municipal solid waste, 1988	13
Figure 3: Linen supply: Product mix of total sales	20
Figure 4: Industrial Launderer: Total product sales mix	20
Figure 5: Tissue paper market by percentage, based on tons produced	21
Figure 6: Commercial towel market by number of uses	22
Figure 7: Industrial wiper market by number of uses	22
Figure 8: Paper and paperboard products in municipal solid waste	26
Figure 9: U.S. municipal solid waste management, 1988	30