EPA/625/R-96/004
September 1996

Manual

Best Management Practices for Pollution Prevention in the Textile Industry

U.S. Environmental Protection Agency
Office of Research and Development
National Risk Management Research Laboratory
Center for Environmental Research Information
Cincinnati, Ohio

Notice

This document has been subjected to the U.S. Environmental Protection Agency's (EPA's) peer and administrative review and has been approved for publication as an EPA document. The contents of this document do not necessarily reflect the views and policies of the EPA, nor does mention of trade names or commercial products constitute endorsement or recommendation for use. This document is intended as advisory guidance only to textile facilities in developing approaches for pollution prevention. Compliance with environmental and occupational safety and health laws is the responsibility of each individual business and is not the focus of this document.

Users are encouraged to duplicate portions of this publication as needed to implement a waste minimization plan.

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FOREWORD

The U.S. Environmental Protection Agency is charged by Congress with protecting the Nation's land, air, and water resources. Under a mandate of national environmental laws, the Agency strives to formulate and implement actions leading to a compatible balance between human activities and the ability of natural systems to support and nurture life. To meet this mandate, EPA's research program is providing data and technical support for solving environmental problems today and building a science knowledge base necessary to manage our ecological resources wisely, understand how pollutants affect our health, and prevent or reduce environmental risks in the future.

The National Risk Management Research Laboratory is the Agency's center for investigation of technological and management approaches for reducing risks from threats to human health and the environment. The focus of the Laboratory's research program is on methods for the prevention and control of pollution to air, land, water and subsurface resources; protection of water quality in public water systems; remediation of contaminated sites and ground water; and prevention and control of indoor air pollution. The goal of this research effort is to catalyze development and implementation of innovative, cost-effective environmental technologies; develop scientific and engineering information needed by EPA to support regulatory and policy implementation of environmental regulations and strategies.

This publication has been produced as part of the Laboratory's strategic long-term research plan, It is published and made available by EPA's Office of Research and Development to assist the user community and to link researchers with their clients.

This manual, *Best Management Practices for Pollution Prevention in the Textile Industry,* funded through the Center for Environmental Research Information, is a pollution prevention guidance manual for processes and waste reduction in the textile industry.

E. Timothy Oppelt, Director
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ABSTRACT

Textiles is one the nation's oldest industries, dating back to be beginning of the American industrial revolution in the 1790s. Despite perceptions of the decline of U.S. textile manufacturing in the face of offshore competition, the industry remains one of the largest, most diverse, and dynamic segments of the U.S. manufacturing sector.

This manual represents a comprehensive history of the U.S. textiles industry, describes wastestreams from diverse industrial processes and products, and provides excellent pollution prevention solutions to guide the environmental responsibility of the industry. The audience for this manual can range from small and medium-size companies in textile-related manufacturing to those involved in regulation, permitting and assistance in environmental management and pollution prevention planning.

This document is divided into eight sections, briefly described below. It has a comprehensive index to assist in selected topic searching.

1. An overview of the textiles industry in the United States, describing production processes and the technological base of the industry, with major waste and pollution issues that exist.
2. A general categorization for wastes generated in the textiles industry.
3. General P2 approaches applicable throughout the textiles industry.
4. Pollution prevention opportunities are identified for specific textile processes or operations, covering raw material handling and usage, yarn formation, slashing and sizing, fabric formation, textile preparation, dyeing, printing, finishing, and cutting and sewing operations.
5. A composite list of the key P2 features offer a comprehensive and effective plan for development and implementation of a successful program.
6. Business considerations of pollution prevention are discussed with incentives and barriers to implementation of a program.
7. A selection of published case studies exemplifying successful implementation of pollution prevention in textile processing
8. A comprehensive listing of references.

This report was submitted in fulfillment of Contract ##68-3-0315 by Eastern Research Group, Inc. under the sponsorship of the U.S. Environmental Protection Agency. This report covers a period from April, 1994, to September, 1996, and work was completed as of September 30, 1996.

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Conversion Factors

To convert . . .	**to . . .**	**multiply by . . .**
cubic feet	cubic meters	2.831685×10^{-2}
degrees Fahrenheit	degrees Celsius	$t_{°C} = (t_{°F} - 32)/1.8$
feet	meters	0.3048
inches	centimeters	2.54
pounds	kilograms	0.45354237
pounds per cubic foot	kilograms per cubic meter	16.0184634
pounds per cubic foot	kiloPascals	6.895
square inches	square inches	6.4516
tons	metric tons	0.90718474
U.S. gallons	liters	3.785

Acknowledgments

This guide was prepared under the direction and coordination of Douglas Williams and Emma Lou George of the U.S. Environmental Protection Agency's (EPA's) Center for Environmental Research Information (CERI), located in Cincinnati, Ohio. Eastern Research Group, Inc. (ERG), of Lexington, Massachusetts, in consultation with Dr. Brent Smith of the College of Textiles, North Carolina State University, prepared the information used in this guide under contract to CERI. Jeff Cantin was ERG's project manager.

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