

# The Complete Technology Book on Textile Processing with Effluent Treatment

**Author:** NIIR Board

**Format:** Paperback

**ISBN:** 8178330504

**Code:** NI108

**Pages:** 584

**Price:** Rs. 1,000.00 **US\$** 100.00

**Publisher:** Asia Pacific Business Press Inc.

Usually ships within **3** days

Textile manufacturing is a major industry, it is based in the conversion of three types of fibre into yarn, then fabric, then textiles. These are then fabricated into clothes or other artefacts. Cotton remains the most important natural fibre, so is treated in depth. There are many variable processes available at the weaving and fabric forming stages coupled with the complexities of the finishing and colouration processes to the production of wide ranges of products. Certain other fiber properties increase its value and desirability in its intended end use but are not necessary properties essential to make a textile fiber. Such secondary properties include moisture absorption characteristics, fiber resiliency, abrasion resistance, density, luster, chemical resistance, thermal characteristics, and flammability. Some primary properties of textile fibers are: fiber length to width ratio, fiber uniformity, fiber strength and flexibility, fiber extensibility and elasticity, and fiber cohesiveness. Some, mostly larger, firms operate in the organized sector where firms must comply with numerous government labour and tax regulations. Most firms, however, operate in the small scale unorganized sector where regulations are less stringent and more easily evaded. The textile industry occupies a unique place in our country. One of the earliest to come into existence in India, it accounts for 14% of the total Industrial production, contributes to nearly 20% of the total exports. Being the largest foreign exchange earner, it accounts for more than 5 per cent of GDP.

This book majorly deals with characteristics of cotton textile processing, characteristics of effluents, characteristics and treatment of synthetic, textiles processing effluents, processes, volume and characteristics of effluents, treatment, the properties of textile fibres, important properties of fibres, basic aspects of textile fibres etc.

The book covers complete details of textile processing with the standard parameters of effluents treatment which is the burning problem for the textile processors. Needless to say that this book will be of immense use to textile processors, consultants and chemists engaged in water and waste water treatment, research institutions etc.

## Contents

1. Characteristics of Cotton Textile Processing
  - Characteristics of Effluents
  - Sizing (Slashing)
  - Desizing
  - Scouring
  - Bleaching
  - Mercerizing

Dyeing  
Printing  
Final Finishing  
Combined Effluent  
Treatment  
Desizing  
Scouring  
Bleaching  
Mercerizing  
Dyeing  
Printing  
Combined Effluent  
Primary Treatment  
Secondary Treatment  
Tertiary Treatment

2. Characteristics and Treatment of Synthetic  
Textiles Processing Effluents  
Processes, Volume and Characteristics of Effluents  
Treatment

3. Characteristics and Treatment of Woollen Textile  
Processing Effluents  
Processes, Sources and Characteristics of Effluents  
Raw Wool Scouring  
Weaving & Finishing Operations  
Characteristics of Scouring Effluents  
Characteristics of Effluents from Weaving &  
Finishing Operations  
Effects of Effluents  
Treatment of Wool Processing Effluents  
Primary Treatment  
Secondary Treatment  
Tertiary Treatment  
Recovery of Valuable Materials from Woollen  
Processing Effluent

4. Color Removal

5. Recovery and Reuse of waste Water

6. Conservation and Reuse of Water

7. Melt Spinning  
Associated Apparatus  
Spinneret Assembly producing Plug Flow  
Multifilamentary Yarns of Uniform Quality  
Filament Manufacturing Device of Small Height  
Filaments and Fibers Having Discontinuous Cavities  
Spinning Pack Filter  
Polyesters  
Highly Oriented Undrawn Yarn  
Multifunctional Chain Branches  
Transfer System Between Melt Source and Spinning Position  
Enhanced Dyeability and Thermal Stability by  
High Speed Spinning  
Deep-Dyeing Textured Yarn Spun at High Speed  
High Speed Production of Preoriented Yarn  
Vinyl Copolymer to Reduce Pilling

Anti-Pilling Filaments with High Tenacity and low Knot Tenacity  
Low carboxyl Polyester Fibers Using Alkali Metal salt as catalyst  
Antistatic Polyether-Polyester Block Copolymer  
Process for Textured Yarn  
C-Shaped Filaments  
Nylons  
Polycaproamide Reacted with Cyclic Tetracarboxylic Acid Dianhydride  
Polypyrrolidone with Alkylamines for Improved Extrudability  
Nylon 66 Spinning Process  
Magnesium Oxide Incorporated into Polycaprolactam  
Trilobal Filaments  
High Speed Spinning of Polyamides  
Acrylics  
Acrylonitrile/Styrene/Isobutylene Copolymer Needing No After-Stretch  
Extrusion of a Single Phase Melt of Polyacrylonitrile and Water  
Other Polymers  
Polyethylene Oxide Monofilament  
Nylon Modified Phenolic Resin Fiber  
Nonwoven Webs  
Reinforced Matting  
Webs of Continuous Thermoplastic Filaments  
Continuous Production of Tubular Modular Filter Elements  
Bonded, Low Density Matting  
Wet Lay Process  
Coatings and Finishes  
Fiber Finishes  
Stabilized Silicone Oil Coating for Melt Spinning Nozzles

8. Dry Spinning  
Acrylics and Modacrylics  
Bifilar Acrylic Fibers  
Modacrylics with Improved Coloristic Properties  
Removal or Residual Solvent  
Cellulosics  
Manufacture of Viscose Filaments  
Cellulose spun into Ammonia Atmosphere  
Other Polymers  
Polypyrrolidone  
Halogenated Aromatic Polyesters  
Flame Retardant Melamine  
Protein Fibers  
Associated Apparatus  
Dry Spinning Pack Assembly  
Static Mixing Apparatus

9. Wet Spinning  
Acrylics and Modacrylics  
Reduction of Voids in Wet-Spun Acrylic Fibers  
Acrylic Fibers Free from Delustering

Improved Hot/Wet Properties  
Flame-Retardant Acrylics  
Modacryl Filaments with Permanent Brilliance and  
Transparence  
Cellulose and Starch  
Rayon Fibers Containing Starch  
Continuous Process for Viscose Yarn  
Water-Insensitive Starch Fibers  
Polyamides and Other Nitrogen-containing Polymers  
Production Arylamides with Recovery of Amide Solvent  
Air Gage Arylamide Spinning Process  
Reduced Salt Content in Arylamide Fibers  
Neutralization of Polyamide Spin Dope  
Fibers from Anisotropic Dopes of Aromatic Polymers  
Arylene Oxadiazole/Arylene N-Alkylhdrazide  
Copolymer Fibers  
Aromatic Oxadizole Polymers and Copolymers  
Vinyls  
Recovery and Recycle of Salt Solution in Vinyl Polymer  
Spinning  
Lithium Halides as Solvents for Polyhydroxymethylene  
10. Computers in Textile Manufacturing  
Computer - Aided Design (CAD) systems  
Computer - aided manufacturing  
Computer - aided design  
Computer - aided process planning  
Mechatronics and information engineering  
Computer - Aided Logistic Support (CALS)  
Development of LAN system  
Network controller  
11. The Properties of Textile Fibres  
Important properties of fibres  
Fibre shape and strength of yarns  
Fibre extensibility  
Softness  
Plasticity and thermoplasticity  
Lustre  
Fibre density  
Solubility in various solvents  
Affinity for dyes  
Fibre structure  
The special properties of synthetic fibres  
12. Basic Aspects of Textile Fibres  
Filament and staple  
Yarn  
Fabrics  
Woven fabrics  
Knitted fabrics  
Lace and net fabrics  
Braided fabrics  
Felt fabrics  
Bonded fibre fabrics  
Textile mills

Woven textile fabrics

Cotton

Wool

Silk

Rayon

Acetate

Nylon

Vinyon

Mohair

Linen

Glass fibres

Dacron

Orlon

Vicara

Yarns for weaving

13. Structure and Properties of Textile Fibres

Fibre structure

Properties of synthetic fibres

14. Textile Weaving

Plain Weave

Twill Weaves

Effect and flush

Satin Weaves

Basket and rib weaves

Weave Combinations

Face and back of fibres

Knitted Fabrics

Colouring

Braiding

Lace

Nonwoven fabrics

Bonded Fabrics

Automatic weaving machine

3-D weaving processes

15. Textile Wet Processes

Cotton Textiles

Sizing (Slashing)

Desizing

Scouring

Bleaching

Mercerizing

Dyeing

Printing

Finishing

Synthetic Textiles

Wool Processing

Wool Scouring

Wool fulling

Wool Carbonizing

Water Usage

Data Processing Block

16. Printing Processes

Fixation

Fixation with Vapor of Organic Solvent  
Dyestuffs for Methylene Chloride Fixation Processes  
Improved Fixation of Reactive Dyes on Cellulose Fibers  
Treatments of Cellulosics  
Crosspadding or Overprinting Impregnated Cellulose  
Materials  
Basic Dyes and Simultaneous Crosslinking  
Printing and Simultaneous Finishing  
Other Treatments  
Addition of Lactone for pH Adjustments  
Sodium Hydrosulfite Aftertreatment of Aromatic  
Polyesters  
Improved Pretreatment and Aftertreatment for Optimum  
Handle  
Aftertreatment with Surfactant and Reductonate  
Coloration of Aromatic Polyester or Cellulose Triacetate  
Special effects  
Continuous Process for Two-Color Effect on Blends  
Double-Surface Multicolor Printed Cloth  
Double Face Printing of Polyester Fabrics  
Well - Defined Multicolor Patterns on Porous Substrates  
Polymer - Printed Fabric Having Differential Dyeing  
Characteristic  
Acid Dye Mixture for Differential-Dyeing Nylons  
Spotted Effect on Synthetic Fiber Materials  
Resist Printing Polyesters with Acid Dyes  
Discharge Effects on Prints with Disperse Dyes  
Reserve Effects in Multicolor Printing  
Relief Printing to Simulate Animal Skins  
Camouflage Dyeings and Prints on Synthetics and Blends  
Photographic Techniques  
Continuous Repetitive Patterns on Piled Fabrics  
Impregnation with Leuco Ester of Vat Dyestuff  
Other Processes  
Continuous Process for Optical Brightening and Printing  
Continuous Dyeing and Printing of Piece Goods  
Printing Heavy Pile Fabrics with Powder Preparations  
Improved Alignment of Printed Patterns  
Uniform Heat-Setting of Continuous Synthetic Filament  
Groups  
Voluminous Substrate Rolled Up with Foamed Dye  
Continuous Printing Process by Direct Liquid Film  
Transfer  
Method for Printing and Flocking Simultaneously  
Sprayed Carriers for Continuous Print Fixation  
17. Weaving of Synthetic Yarns And Blends  
Introduction  
Polyester Blended Fabrics  
Sizing  
Pirn Winding  
Weaving  
Weaving of Multifilament Yarns  
Commonly Used Multifilament Fabrics

Warping  
Sizing  
Monofilament Fabrics  
18. Weaving of Certain Commercial Fabrics  
Introduction  
Weaving of Poplin  
Wrap preparation  
Weaving  
Denim  
Dyeing and Sizing Processes  
Tyre Cord Fabric  
Yarn and Fabric Particulars  
Production Flow for Tyre Cord Fabric  
Weaving  
Weaving of Tapes  
Tubular Cloth  
Weaving of Aramide (Kevlar) yarns  
Characteristics of Aramides  
Ranges of Application of Kevlar Fibres  
Basic Requirements  
Warping  
Sizing  
Weaving  
19. Weaving and Fabric Engineering Calculations  
Introduction  
Conversion Tables  
Yarn Numbering System  
SI Units recommended for Textiles  
Folded Yarns  
Average Count  
Weight of a Piece of Cloth  
Heald Calculations  
Reed Calculations  
Take-Up Motion on a Plain Loom  
Loom speed  
Production of Looms  
Efficiency  
Shuttle Movement  
Accelerating force of Sley  
Calculation on shuttleless weaving Machines Example 33  
Fractional Cover and Cover Factor  
Diameter  
Bulk density  
Fractional Cover  
Cloth Setting Rules  
20. Fabric Defects and Value Loss  
Grading of fabrics  
Value loss  
Types of Fabrics Defects  
Common Fabric Defects and their causes  
Bar  
Box Mark  
Broken Pattern

Broken Pick  
Cracks  
Cut weft  
Defective selvages  
Floats Stiches  
Fuzzy  
Hang Pick  
Harness skip or warp skip  
Lashing in or weft trail or jark in weft  
Loose warp ends  
Hanging threads  
Missing Ends/Ends Out (chira)  
Reed Marks  
Shuttle Marks  
Slough-off  
Stains  
Sticker  
Tear Drop  
Temple Mark  
Uneven cloth  
Wrong Denting  
Wrong Drawing  
Control of Fabric Quality at Loom State  
Design Specifications  
First Piece Inspection  
Weaving Defects  
Grey Inspection  
Recording of Loomwise and Weaverwise Fabrics Faults  
Point Rate System  
Directory Section

## About NIIR

**NIIR PROJECT CONSULTANCY SERVICES (NPCS)** is a reliable name in the industrial world for offering integrated technical consultancy services. NPCS is manned by engineers, planners, specialists, financial experts, economic analysts and design specialists with extensive experience in the related industries.

Our various services are: Detailed Project Report, Business Plan for Manufacturing Plant, Start-up Ideas, Business Ideas for Entrepreneurs, Start up Business Opportunities, entrepreneurship projects, Successful Business Plan, Industry Trends, Market Research, Manufacturing Process, Machinery, Raw Materials, project report, Cost and Revenue, Pre-feasibility study for Profitable Manufacturing Business, Project Identification, Project Feasibility and Market Study, Identification of Profitable Industrial Project Opportunities, Business Opportunities, Investment Opportunities for Most Profitable Business in India, Manufacturing Business Ideas, Preparation of Project Profile, Pre-Investment and Pre-Feasibility Study, Market Research Study, Preparation of Techno-Economic Feasibility Report, Identification and Section of Plant, Process, Equipment, General Guidance, Startup Help, Technical and Commercial Counseling for setting up new industrial project and Most Profitable Small Scale Business.

NPCS also publishes various process technology, technical, reference, self employment and startup books, directory, business and industry database, bankable detailed project report, market research report on various industries, small scale industry and profit making business. Besides being used by manufacturers, industrialists and entrepreneurs, our publications are also used by professionals including project engineers, information services bureau, consultants and project consultancy firms as one of the input in their research.



