

Appendix: Suggested Further Reading

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- Teflon fibers - 106-107

- Tetrafluoroethylene fibers - 106-
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TEXTILE IDENTIFICATION, CONSERVATION, AND PRESERVATION

by

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Textile identification, preservation and conservation methods, as presented in this book, include both simple and complex processes that relate to techniques used in both the arts and sciences. The process of identification and conservation must be exacting to insure that mistakes are not made which would impair the beauty or lasting quality of the textile piece. An in-depth understanding of fibers, assemblages of fibers, and fabrics, plus a study of their reaction to cleaning procedures, is necessary to insure that future generations will have the opportunity to enjoy textile pieces currently being produced as well as those collected from the past.

Because each culture has developed textile artifacts, the world is rich in a diversity of pieces and an abundance of soft goods. Yet some items were made in very limited quantities for extremely specialized end uses. Some have required years of often painful labor for their construction. The primary aim in the writing of this book is to provide identification, cleaning and conservation techniques for all textile fibers and fabrics found today. A review of textile and related research findings through the early 1980s has been included, as the importance of clean, well-cared-for textiles cannot be overlooked in relation to the management of a collection, museum storage, or to the expected life span of actual pieces. However, some textile pieces containing historically important soil or foreign matter, or those that would be altered or changed, should be left untouched. These cases are also discussed.

Because of their increased use in recent years, man-made fibers and fabrics are given detailed coverage in the book. The condensed table of contents given below lists chapter titles and selected subtitles.

1. **TEXTILE FIBER IDENTIFICATION-
PHYSICAL AND CHEMICAL
PROPERTIES**
Textile Fiber Identification
Textile Fiber Properties
 2. **TEXTILE FIBERS FROM NATURAL
SOURCES**
Cellulose
Protein
 3. **MAN-MADE TEXTILE FIBERS**
Man-Made Cellulosic
Man-Made Protein
Synthesized Fibers
High Strength
 4. **TEXTILE FABRIC STRUCTURES**
Basic Weave Structures
Complex Weaves and Structures
Knitted Structures
Lace
Embroidery
Tapestry
Other Fabrication Systems
 5. **TEXTILE FINISHING AND DYE**
General and Functional Finishing
Special Effect Filler Finishes
Coloration
 6. **CLEANING OF TEXTILE FABRICS**
Process of Condition Analysis
Support of Textile
Cleaning Processes
Wet Cleaning Large Textiles
Drying Procedure
 7. **TEXTILE STORAGE**
Storage Conditions
Storage
Mounting Techniques
Conservation
 8. **CONSERVATION OF UNIQUE
TEXTILES**
Quilts
Fans
Hats
Space Suits
 9. **TEXTILE COLLECTIONS**
Collections at Educational Institutions
Museum Collections
- BIBLIOGRAPHY**
- APPENDICES**

CORROSION RESISTANT MATERIALS HANDBOOK

Fourth Edition

Edited by

D.J. De Renzo

The Fourth Edition of the *Corrosion Resistant Materials Handbook* has been completely revised and vastly expanded, based on the latest available technical data. This well-established and successful reference volume, first published in 1966, will provide useful information which will enable the concerned engineer or manager to cut losses due to corrosion by choosing suitable *commercially available* corrosion resistant materials for a particular application.

The great value of this outstanding reference work lies in the extensive cross-indexing of thousands of substances. The more than 160 tables in the book are arranged by types of corrosion resistant materials. The Corrosive Material Index is organized by *corrosive chemicals* and other *corrosive substances*. A separate Trade Name Index and a Company Name and Address Listing are also included.

The various sections in the book cover selected categories of corrosion resistant materials, such as synthetic resins and polymers; rubbers and elastomers; cements, mortars, and asphalts; ferrous alloys; nonferrous metals and alloys; and glass, ceramics, and carbon-graphite. A separate section contains 13 tables which compare the anticorrosive merits of a cross section of commercial engineering and construction materials essential to industry. The tables in the book represent selections from manufacturers' literature made at no cost to, nor influence from, the makers or distributors of these materials.

A condensed table of contents listing chapter titles and selected subtitles is given below. Parenthetic numbers indicate number of tables per topic.

1. SYNTHETIC RESINS
AND POLYMERS (69)
Acrylic Resins
Epoxy Resins
Fiberglass Reinforced Polymer
Laminates
Phenolic Resins
Polycarbonate
Polyethylenes
Polyvinyl Chlorides
 2. RUBBERS AND ELASTOMERS (14)
Acrylic Elastomer
Fluoroelastomer
Silicone Elastomer
+ 11 other rubbers and elastomers
 3. CEMENTS, MORTARS
AND ASPHALT (15)
Epoxy Mortars
Furan Polymer Concrete
Polyester Grout
+ 11 other cements, mortars and
asphalts
 4. FERROUS ALLOYS (11)
Austenitic Stainless Steels
Ferritic Stainless Steels
Iron- and Nickel-Base Alloys
+ 8 other ferrous alloys
 5. NONFERROUS METALS
AND ALLOYS (35)
Aluminum Alloys
Beryllium Copper Alloy
Cobalt-Base Alloys
Copper and Copper Alloys
Lead and Lead Alloys
Nickel and High-Nickel Alloys
Zinc Alloy
Tungsten and Molybdenum
Titanium, Zirconium and Tantalum
+ 26 other nonferrous metals and
alloys
 6. GLASS, CERAMICS, AND
CARBON-GRAPHITE (6)
Ceramic Fiber Products
Ceramic Linings
Foamed Glass Block
+ 3 other products
 7. COMPARATIVE RESISTANCES
OF MATERIALS OF
CONSTRUCTION (13)
- CORROSIVE MATERIAL INDEX
TRADE NAME INDEX
COMPANY NAME AND ADDRESS LISTING

TEXTILE WET PROCESSES
Vol. 1
Preparation of Fibers and Fabrics

by

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Textile wet processing, as it applies to the preparation of fibers and fabrics, is described. This is the first of a three-volume series which will cover the main areas of textile wet processing- preparation, coloration, and finishing.

Basically, textile wet processes should be considered a chemical processing industry. Recognizing and understanding the interactions of many inorganic and organic chemicals with simple and complex polymers is a critical aspect of this innovative and dynamic industry. It is, thus, important that those practicing the art or considering entering the market have a thorough background in the fundamentals of the chemistry involved.

A sequential approach has been taken to the processes described. The scientific basis is explained followed by a description of current practice and associated equipment. Natural as well as synthetic fibers and fabrics are discussed, as are water handling and economy, heat-setting, singeing, desizing, scouring, bleaching, and calculations useful for wet processing.

The book is well illustrated with photographs, schematic diagrams, figures, and tables. A condensed table of contents is listed below.

1. GENERAL CONSIDERATIONS

2. CALCULATIONS USEFUL FOR WET PROCESSES

Percentages, Proportions
Dilution of Solutions
Indirect Proportions
Molarity, Normality
Specific Gravity, Density
Baume (Bel)
Textile Terminology
Peroxide
Available Chlorine
Titrations
Liquid-Solid
pH Measurements
Acids and Bases
General Formulae

3. WATER SOFTENING

Types of Water

Water Hardness

Water Analysis Units

Textile Process Problems

Water Hardness Classification

Water Softening and Clarifying
Softening Methods

4. RECOVERY OF WATER, ENERGY AND CHEMICALS

Recycle Methods

Case Study

Recommended Process Modifications

5. PREPARATION OF POLYESTER/COTTON AND COTTON FABRICS

Releasing Fabrics to Process
Preparation

6. HEAT-SETTING

7. SINGEING

8. DESIZING

Necessity for Desizing

Starch **Desizing**

PVA, CMC

Polyacrylics, Polyester

9. SCOURING

Caustic Soda

Detergents, Chelating Agents

Solvents

Sodium Silicate, Builders

Temperature

Scouring Practice

10. BLEACHING

Sodium Hypochlorite

Hydrogen Peroxide

Chlorite

Irradiation Process

11. PHYSICAL WHITENING AGENTS

Fluorescent Brighteners

Bluing Materials

12. MERCERIZING

Tension, Concentration

Temperature, Time, Washing

13. WOOL WET PROCESSING

Wool Fiber Properties

Wet Finishing

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FABRIC FORMING SYSTEMS

by

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Trevor Rhodes
Levi Strauss & Co.

Mansour Mohamed
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This basic technical text on fabrics and fabric formation highlights both woven and knined fabrics, as well as the major categories of nonconventional fabrics. The main fabric forming systems, and the structures produced, in weaving, knilling, and nonconventional fabric production are detailed.

The book covers the preparation of yarn for weaving and knilling, loom mechanisms, classification of looms, woven fabric design, weft knilling and weft knit structures, warp knilling and warp knit structures. Included also is a brief introduction to nonwoven fabric web formation and different bonding or manufacturing systems such as saturation bonding, print bonding, spunbonding, needle punching and stitch bonding. Tufting and flocking are also discussed.

The book will be particularly suitable for textile managers, students, or professionals of nontextile background seeking an overview of textile manufacturing.

Detailed diagrams illustrate the wrillen text throughout the book. A table of contents listing chapter titles and selected subtitles is given below.

1. YARN PREPARATION

- Winding
- Quill Winding
- Warping
- Slashing or Warp Sizing
- Drawing-In and Tying-In

2. WEAVING AND WOVEN FABRICS

- Woven Fabrics
 - Plain Weaves
 - Rib Weaves
 - Basket Weave
 - Twill Weaves
 - Satin Weaves
 - Drawing-In Draft, Chain & Reed Plans
 - Cover Factor
 - Other *Terms* Related to Single Fabrics
- Weaving
 - Shedding
 - Filling Insertion
 - Beat-Up
 - Warp and Fabric Control
- The Weaving Cycle
- Woven Fabric Production

Secondary Mechanisms (Motions) in a

- Power Loom
- Warp Stop Motions
- Filling Stop Motions
- Warp Protection Motion
- Selvage Motion
- Box Motion
- Automatic Filling Transfer
- Shuttleless Looms
- Rapier Looms
- Projectile (Gripper) Looms
- Fluid Jet Looms
- New Weaving Technologies- Mulptiple Shed Looms
- Filling Accumulation Systems
- Modification of the Selvage

3. KNITTING AND KNIT FABRICS

- Knitting Elements
 - Needles and Knilling Action
 - Sinkers
- Weft Knitting
 - Single Knilling
 - Single Knit Fabrics
 - Double Knilling
 - Double Knit Fabrics
 - Purl Knit Fabrics
- Knit, Tuck and Float Loops
- Weft Knit Design
 - Stitch Notation
 - Weft Knit Fabrics
- Weft Knilled Fabric Production
- Warp Knilling
 - Major Machine Classification
 - Knitting Elements
 - Warp Knilling Action
 - Comparison Between Tricot and Raschel
- Warp Knit Design
 - Point Paper Notation
 - Single Bar Fabric
 - Two Bar Fabrics
- Warp Knit Fabric Production

4. NONCONVENTIONAL FABRICS

- Nonwoven Systems and Fabrics
 - Chemically or Adhesively Bonded Fabrics
 - Mechanically Bonded Fabrics
 - Wet Adhesive Bonding
 - Foam-Flame Bonding

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