NISTIR 5823

A Survey of Standards for the U.S. Fiber/Textile/Apparel Industry

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April 1996

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A SURVEY of STANDARDS for the U.S. FIBER/TEXTILE/APPAREL INDUSTRY

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ABSTRACT

This report documents a survey of standards relevant to the U.S. Fiber/Textile/Apparel (FTA) industry. The standards are discussed in four main groups—integration standards, test methods, quality standards, and standard reference data and materials. The Appendix of the report lists the titles of all standards found, grouped together by the organization responsible for them. Those organizations are also listed along with contact information for them. The report attempts to bring together useful information concerning FTA standards as a starting point to support the industry in intelligently planning future standards' development efforts.

KEYWORDS

apparel, fiber, integration, quality, specifications, standards, test methods, textile

ACKNOWLEDGMENTS

This work is supported by the government initiative on High Performance Computing and Communications (HPCC), which is primarily being supported through the Systems Integration for Manufacturing Applications (SIMA) initiative. The work is being done by the Manufacturing Systems Integration Division of the Manufacturing Engineering Laboratory of the National Institute of Standards and Technology.

I would like to thank my supervisor, Jeane Ford, for her support of this project, and Howard Moncarz for his editing and other help.

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1 INTRODUCTION

The Fiber/Textile/Apparel (or FTA) industry is one of the largest manufacturing industries in the United States. It employs over one and a half million people, accounting for ten percent of all jobs in the U.S. manufacturing sector. Apparel and textile products shipped each year are worth well over one hundred billion dollars. The success of the FTA industry in the United States is critical to the economic well-being of our country.

However, in the last decade, the FTA industry's domestic markets, which are key, have been seriously eroded by foreign imports. As a result, hundreds of thousands of jobs have been lost over the past ten years and new job opportunities have been missed as well.

The American Textile Partnership (AMTEX), initiated in mid-1992, is a collaboration of industry research consortia and academia working in conjunction with the U.S. Department of Energy (DOE) national laboratories, to provide assistance to the U.S. FTA industry to recover its domestic market share and enhance its global competitiveness. In June 1995, the National Institute of Standards and Technology (NIST) in the U.S. Department of Commerce (DoC) officially joined the AMTEX collaboration. The survey described in this report is the first effort undertaken by NIST in the AMTEX effort. The goal of the survey is to help identify the standards that apply to the entire FTA industry.[1]

1.1 Purpose

The survey is intended to benefit the Demand Activated Manufacturing Architecture (DAMA) Project, one of the key AMTEX projects. The main goal of DAMA is to reduce the long cycle time that it takes for a product to ultimately work its way through the "apparel pipeline"—from fiber production to an apparel product on the retail shelf. The long cycle time costs the industry an estimated $25 billion a year due to stockouts, inventory, and distressed pricing. The goal of DAMA is to greatly reduce that loss by improving the efficiency of information exchange throughout the pipeline and enabling effective action as a result of that information. Understanding what standards apply throughout the pipeline should be useful to that effort.

This paper reports on the results of that survey. It identifies standards related to the FTA industry, identifies and describes the organizations responsible for approving those standards, and directs the reader to the appropriate sources for further information.

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[1] AMTEX identifies the FTA industry by the term "integrated textile complex," and has coined the acronym, "ITC."

1.2 Scope

The survey covers both national and international standards and standards organizations involved with and relating to the fiber, textile, and apparel industries. This includes industry standards, which make up the majority of the standards found, as well as any specifications issued by the government (such as the MIL-series). This report focuses on standards that are currently in effect, although past standards and current work may be mentioned to provide additional background and understanding.

There are many products of the fiber and textile sectors of the FTA industry that do not go through the entire life-cycle apparel pipeline (from fiber to textile to apparel to customer). Standards relating to fiber products that do not end up as textiles, but are rather used for industrial purposes, are included within the scope of this survey. Also included are fiber products such as rope or webbing, which do not eventually become part of a garment. In addition, any products that are fabricated from fiber and textile products are included. However, the main focus of this survey concentrates on standards used in the apparel pipeline.

1.3 Methodology

A general search of standards for the industry was accomplished through database searches as well as the use of other reference material. The sources used are listed in Appendix A. The approach was centered on determining the standards organizations for different sectors of the industry. The standards organizations are listed in Appendix B. After identifying the organizations, lists of their standards were obtained. The listings are transcribed for use in Appendix C. For the purposes of discussing the standards in the text, they were organized into four main groups.

1.4 Reader's Guide

Section 2 provides an overview of the different groups for the standards that were found. Sections 3 through 6 describe each group of standards in greater detail. Section 7 concludes the main text of the paper with a brief summary.

Following the text are five appendices—A, B, C, D, and E. Appendix A contains a list of references that are referred to in the text as well as additional references that are useful for further information. Appendix B identifies standards' organizations relevant to the FTA industry with a brief description of each and contact information. Appendix C lists the titles of the standards found over the course of this survey. The documents are grouped according to the standards organization responsible for each. Appendix D contains a glossary of terms related to the FTA industry. Appendix E is a brief list of acronyms used in the paper, intended for quick reference.

2 OVERVIEW OF FTA STANDARDS

Based on an examination of the types of FTA standards found (determined by looking at titles, content, and usage), standards were divided into four broad types. The standards are divided into integration standards, test methods, quality standards, and standard reference data and materials. Although divided for the purposes of discussion, standards listed in Appendix C are grouped by publishing organization.

The first group contains integration standards. These are standards which allow one system or activity to communicate with another. The types of communications may range from one machine

communicating with another on a shop floor to one company ordering materials or products from a supplier. Integration standards are covered in more detail in Section 3.

The second, and largest, group of standards found contains test methods and procedures. These are methods for testing properties of anything from raw fibers, to yarns, to woven fabrics, or even the machinery used to make textiles. The standards themselves are arranged in the form of an experiment format, with sections on materials, procedures, and observations. Properties determined by this group of tests range from the tensile strength of raw cotton fiber to a fabric's ability to resist fading or running (colorfastness). More detail about test methods can be found in Section 4.

The third group is quality standards. These deal with more functional properties of a finished fabric or apparel product. Quality standards specify how to determine if certain products are suitable for the application intended. The specification might cover the protective ability of a fireproof jacket, or the stitch spacing of a dress. The bulk of these standards are military specifications for combat apparel, but there are many important standards which apply to other areas. Section 5 discusses quality standards in greater detail.

The remaining group of standards consists of standard reference materials (SRM), standard reference data (SRD), and terminology. An SRM is used to rate by direct comparison other data or materials for different applications. An SRD is a collection of numerical information accepted as accurate within a domain. For example, anthropometric data (body measurements of different types of people), is used by companies for apparel sizing (an example of SRD), and standard color or color change charts or samples are used in the apparel industry for direct comparison tests relating to colorfastness (an example of SRM). More detail can be found in Section 6.

Figure 1 (on page 4) shows the grouping used in this discussion. In the figure, the four broad groups of standards are each decomposed further to show the types of standards contained.

3 INTEGRATION STANDARDS

Integration is the process of unifying separate items, that is to make multiple objects (whether they be machines, computers, or entire sectors) act as if they were one unit. This is contingent upon accurate communication of ideas and information between the (different) parties involved. For this to occur, both parties must agree upon and use the same protocol, or "language." There are many accepted standards of communication for the multitudes of different interfaces existing in the FTA industry. These interfaces exist from one end of the FTA life cycle to the other, and the efficiency and effectiveness of the communication across these junctions has a major effect on the efficiency of the industry.

Since the area of integration is so important, special attention is needed here. Time delays between the different phases in the life cycle are due most directly to ineffective communication. These delays (manifested in the need to keep large inventory) are responsible for $25 billion being lost annually. The loss occurs through markdowns, stockouts, and inventory maintenance. The other result of lack of integration is that the FTA industry as a whole cannot respond to demand directly, but rather must anticipate it, a less desirable situation.

This section will discuss integration standards that are in existence now, as well as describe some standards that are under development. Some of the most important work is still underway, so special attention will be given to these up-and-coming protocols. Division of the integration-related standards is done by what type of interface is affected. The three processes discussed are business transactions, automated manufacturing, and product data exchange.

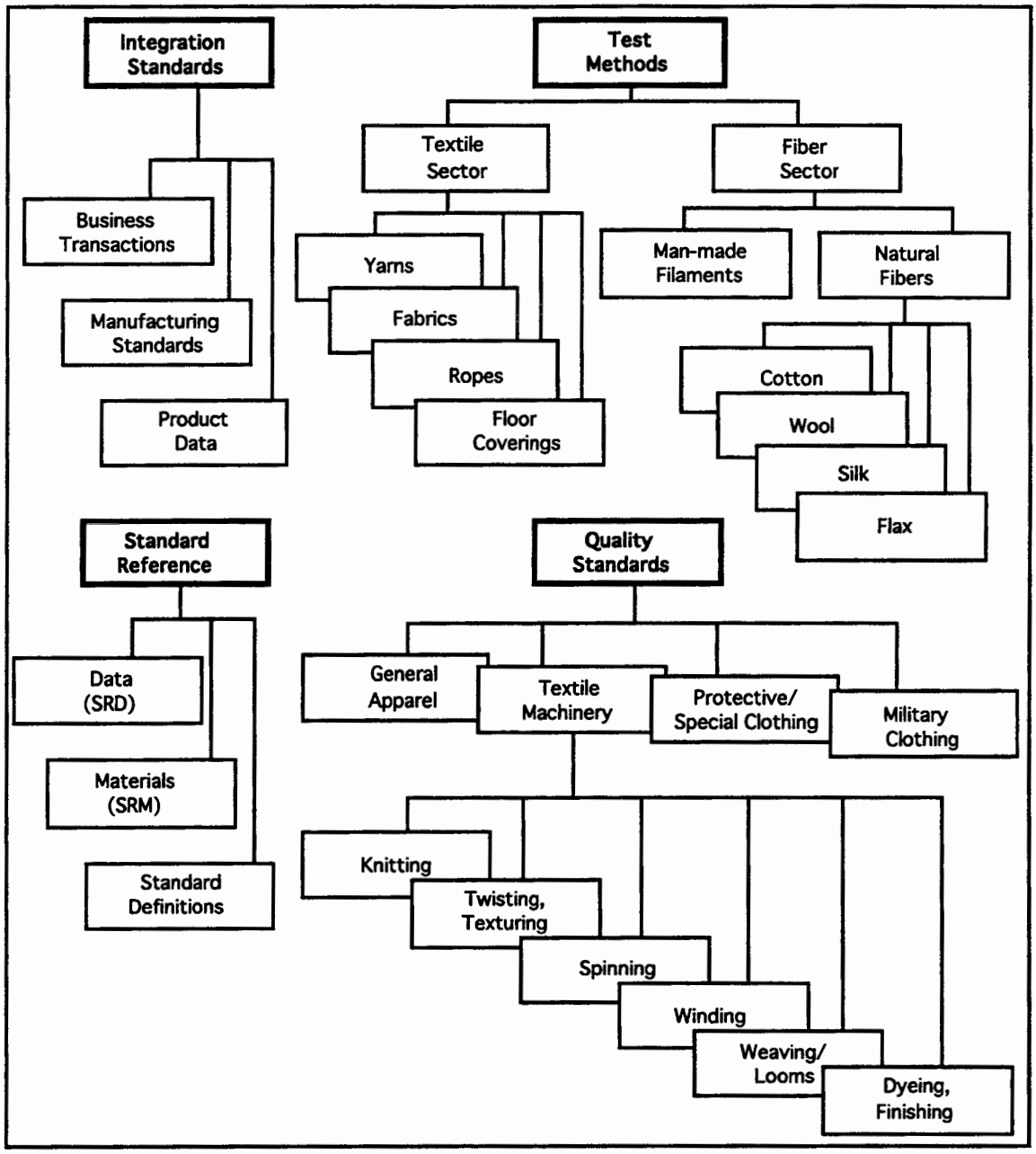

Figure 1: Taxonomy for FTA Standards

3.1 Business/EDI Transactions

Put simply, electronic data interchange (EDI) is the process of conducting business electronically, rather than by paper. Communication occurs between two computers, rather than between two people[2]. This includes many different types of transactions, such as placing orders, transferring funds (payment), and confirming receipt of goods. Although the task of creating electronic protocols to replace all the different (paper) forms used in various kinds of businesses is daunting, the benefits in terms of efficiency, accuracy, and ability to trace make it more than worthwhile.

[2] Shaw, p. 5. 1994.

Because the information is transmitted rather than mailed, EDI is faster than the traditional paper method. Since the "forms" don't have to pass through as many different sets of hands, danger of an order being miswritten, misplaced, or permanently lost is almost completely eliminated. And lastly, electronic transmission allows one to trace the history of a form, a feature not always available with normal mail.

Although EDI began in the 1960s, standards development didn't begin until 1978, when the American National Standards Institute (ANSI) founded the Accredited Standards Committee (ASC) X12[3]. This organization was chartered with the responsibility of creating transaction sets (protocol for a specific business exchange) for electronic commerce. X12 grew over time and has established over two hundred different transaction sets through more than a dozen subcommittees. Although these standards have been very widely used in North America, most industries have found it necessary or desirable to modify the basic transaction sets in different ways to better suit their business.

The international EC/EDI effort is known as the United Nations Electronic Data Interchange for Administration, Commerce, and Transport (UN/EDIFACT or just EDIFACT) standard. UN/EDIFACT came about with the merger of the original EDIFACT with the United Nations Trade Data Interchange (UN/TDI). This standard has often been seen as a competitor to X12, though in fact their methods of organization and design rules are quite similar[4]. By the very nature of EDI only one protocol can be used, unless the two are somehow made compatible. For this reason, ASC X12 announced a deadline for converting to the international standard. This was initially set for 1997, but was later extended to at least 1999, pending a poll of EDI users that will be conducted the same year as the original deadline[5]. As part of the EDIFACT initiative, the International Organization for Standardization's (ISO) Technical Committee (TC) 154 developed some syntax rules, which were first published in 1988[6]. They have since been revised.

In the FTA industry, EDI standards work can be divided into three domains: textile, apparel, and retail. The Fabric and Supplier Linkage Council (FASLINC) was established to adapt X12 standards to the specific needs of textile companies and their suppliers (in the fiber sector). This is accomplished mainly by inserting textile-specific codes into existing transaction sets, but a few new transaction sets were actually developed by FASLINC and approved by ASC X12. FASLINC as an entity was discontinued and its standards and responsibilities were transferred to the Apparel Textile Manufacturers Institute (ATMI).

The Textile Apparel Linkage Council (TALC) and the Sundries and Findings Linkage Council (SAFLINC) promote and develop electronic commerce standards for clothing manufacture. Founded in 1986, TALC is responsible for interactions between fabric suppliers and apparel companies. SAFLINC handles business with the suppliers of non-textile materials needed for garments, such as zippers and buttons. These two organizations were merged to form TALC/SAFLINC, which is now part of the American Apparel Manufacturers Association (AAMA).

There are several EDI standards used in the apparel-retail sector. The Uniform Communication Standards (UCS) began development in the early 1980's for use by the grocery industry, but has

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[3] McCarthy, p. 94. 1995.

[4] Arnoff & Hsing, p. 5. 1995.

[5] Gaffin, p. 31. 1994.
ASC X12. 1995.

[6] ISO 9735:1988 : "Electronic Data Interchange for Administration, Commerce and Transport (EDIFACT) — Application level syntax rules (Amended and reprinted 1990)." Amendment 1 added in 1992.

since been expanded in its scope and application[7]. It consists of about thirty transaction sets, as well as the stated protocol of using the public phone system with a modem speed of 4800 or 9600 baud. The Warehouse Information Network Standard (WINS) consists of seven transaction sets for that aspect of retail. The emerging standards for use by all types of merchandising industries is the Voluntary Interindustry Communication Standard (VICS). VICS is a subset of ANSI X12 pertaining specially to retail. The domains for UCS and VICS overlap. For more information on any of these standards, contact the Uniform Code Council at the address and number listed in Appendix B.

3.2 Manufacturing Automation

Much of the manufacturing of textiles is automated. Monitoring and control of the many different machines present on the shop floor can require a lot of people, in the worst case one per machine. Although most of the machines don't require constant monitoring or input, setting them up or changing a weaving pattern, for example, can take a lot of time. Even shutting down a machine often requires a long process, and can be dangerous if there are personnel in the wrong places on the shop floor. This is important because utility companies commonly offer textile manufacturers significant saving on their electricity if they can shut down power in a short span of time (this reduces the peak load and keeps the power company from switching to less efficient back-up generators).

Integrating the manufacturing process allows an entire shop floor to be run from the convenience (and safety) of one central control booth. This can only take place if all the machines are compatible with the controller and each other. Presently, companies making textile machinery use proprietary methods of storing and communicating information such as speed of a process or error warnings. As a result, these machines can only be integrated with others made by the same company—an inconvenience for textile manufacturers who may already have other equipment. If the makers of textile machinery adopted voluntary standards for shop floor data, CIM for textiles would be much easier to achieve.

One of the major proponents of computer-integrated manufacturing (CIM) for the FTA industry is ATMI. To aid in the development of voluntary standards, ATMI is working on a dictionary of data elements for control and monitoring of textile processes. The rationale is that in order to come up with a universal data set for a certain process, one must first identify all the different variables involved. This is being done in conjunction with ISO TC 72, and will be published in parts as ISO 10782. The first part covers spinning and related processes. At the present time, the dictionary contains over 100 variables that require attention, as well as definitions and a method of organization. It is currently in the draft stage and under committee review.

Also, the Apparel Research Committee (ARC) of AAMA has been developing standards related to CIM (as well as product data, which will be discussed in the next section), for apparel manufacturing. The first AAMA standard published and approved by ANSI is a modified version of Gerber Garment Technology, Inc.'s protocol for automated cutting machines[8]. A second standard of AAMA deals with pattern data interchange (PDI)[9]. The PDI standard also pertains to interfacing computer-aided design (CAD) systems with computer-aided manufacturing (CAM) systems. Work is in progress on a standard for NC stitching machines and a CIM architecture standard[10].

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[7] Uniform Code Council, p. 2. 1994.

[8] ANSI/AAMA-001-1992 : "Standard for Numerically Controlled Cutting Machines."

[9] ANSI/AAMA-292-1993 : "Standard for Pattern Data Interchange - Data Format."

[10] AAMA. 1995.

3.3 Product Data Exchange

Product data includes information from every stage in the life cycle of a product. This extends from initial design through manufacturing, shipping, and even recycling of the product. A standard for product data has as its goal the accommodation of all the computer interfaces a product will encounter, thus integrating the life cycle. The benefits include independence from any particular software tools (such as a certain CAD system); continuity of data (same format of information can follow the product through the different stages of its life); and the ability to communicate a neutral data format between different departments, sectors, and even industries.

The international standard for development of total product data is called STEP (standard for the exchange of product model data). It is being developed in conjunction with ISO by TC 184/SC 4. STEP is being published (in many parts) as ISO 10303. Parts of STEP that have already finished the approval process include standards relating to drafting and design. At the present time, there are over forty more ISO 10303 parts in some stage of planning, development, or approval.

STEP is an open methodology and framework for the development of product data models and specifications. STEP uses a language for modeling information that is known as EXPRESS[11]. Within STEP, Application Protocols (APs) are created that specify the product information requirements within the scope of particular applications. In addition to these APs, a large amount of generic information, applicable to various kinds of products and applications, is used. This saves the AP developers from redundant effort. Each AP contains a number of important elements, including a scope for the AP, application reference model (ARM) which describes the information requirements and constraints in the terminology of that particular domain, application interpreted model (AIM) that is a representation of the ARM in terms of STEP constructs,[12] and methods for testing conformance of an implementation of the standard (conformance testing, abbreviated as CT).

The effort to extend STEP to apparel product data has been undertaken by the Apparel Product Data Exchange Standard (APDES) project at NIST. This project is funded by the Defense Logistics Agency (DLA) which is interested in streamlining the process of contracting uniform design and manufacture through adoption of integration standards; and improving garment fit by replacing the traditional ready-to-wear sizing with a made-to-measure system.

A prototype AP (to be used as a straw man for an official ISO STEP AP and containing all the parts of an STEP AP except for the AIM) for ready-to-wear pattern making has been under development at NIST. The AP covers ready-to-wear pattern making, focusing on the "representation of two-dimensional (flat) patterns generated by the traditional ready-to-wear pattern making and grading method."[13] A prototype AP for made-to-measure pattern making is also under development. The ultimate goal, of course, is to incorporate all information that describes an apparel product in terms of STEP.

Other work related to apparel product data is being done by AAMA/ARC. As mentioned earlier, ARC has published an apparel pattern data interchange standard approved by ANSI. This standard is based largely upon the Drawing Interchange file format (DXF) developed by AutoDesk™, Inc. for their AutoCAD® product[14]. In addition to continuing research, ARC is tasked with promoting

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[11] Schenck. 1994.

[12] Lee & Moncarz, p. vi. 1994.

[13] Lee & Moncarz, p. iii. 1994.

[14] ANSI/AAMA-001-1992 : "Standard for Pattern Data Interchange - Data Format."

the move towards CIM standards within the apparel community and identifying technologies that will enable the U.S. apparel sector to become more competitive globally[15]. Current product data work includes developing implementation guidelines for the pattern data interchange standard, a standard for grade rule table exchange to support the pattern data exchange standard, and a plotter data exchange standard[16].

The area of integration standards is one that seems to warrant special attention by those in the FTA industry, especially in the apparel sector, where losses to foreign competition are greatest (due to intensive labor requirements). A large portion of the apparel sector is made up of small and medium-sized companies who lack the resources to develop their own standards and protocols. Potential exists for increasing efficiency through integration and automation standards development (and implementation).

4 TEST METHODS

In order for an industry with hundreds of suppliers selling (what is supposed to be) the same product to hundreds (or even thousands) of buyers, standards are needed to insure that products of the same type are uniform (and to rate goods based on their quality). FTA is such an industry, where multitudes of cotton growers and wool farms sell tens of thousands of tons of raw fiber to the fabric manufacturers who, in turn, sell many bolts of colored fabric to the apparel manufacturers. It is absolutely essential that the apparel sewers, who produce the end product, have materials to work with that are of high and consistent quality.

At virtually every step in the transformation of raw fibers to finished apparel, inspections are made and tests are done. Specific physical (and sometimes chemical) properties of the fiber, or textile, or apparel are tested to insure that they meet the requirements of the manufacturer and its buyers. It is important that each company uses the same tests for the same property, so that the results can be interpreted consistently by those working with the manufacturer and their customers. To this end, standards organizations are formed and standard test methods and procedures created and published.

Most test methods consist of three main sections: purpose and scope, procedure, and evaluation method. The purpose and scope describe exactly what property is to be tested by the method and to what type or types of fibers or fabrics or yarns it pertains. The procedure section is at the heart of the test, and explicitly describes what steps to take in order to perform the test. The procedure details what supplies, chemicals, or special equipment to use and how to use them. Lastly, the evaluation section tells the tester what exactly to look for in rating the particular property being observed and very often refers to a control sample or a standard reference system, such as the American Association of Textile Chemists and Colorists (AATCC) Chromatic Transference Scale[17].

Test methods apply to the fiber and textile segments of the industry, but in general not the apparel sector, as the physical properties that can be tested completely objectively have already been taken care of. Evaluation of finished apparel garments are done by means of quality standards and specifications, which are covered in a later section. Test methods relating to the fiber and textile sectors of the FTA industry are described in turn below.

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[15] Moncarz & Lee 1. 1994.

[16] AAMA. 1995.

[17] AATCC Evaluation Procedure 3. "Chromatic Transference Scale." p. 351 of AATCC Technical Manual.

4.1 Fibers

The fiber sector harvests raw natural fibers (or produces raw man-made filaments) and sells these fibers to the textile sector. The most basic properties of these fibers (and filaments) need to be known by both sectors. To this end, many tests are performed and their results recorded. The main properties of interest include length and length distribution, strength and elongation, maturity, and adhesion to other materials, such as steel or rubber. These properties are important because they directly relate to how the fibers will act during the spinning process.

The tests used for fibers and textiles are created and published by two main organizations. They are the American Society for Testing and Materials (ASTM), and ISO TC 38. With respect to leather goods, the American Leather Chemists Association (ALCA) publishes standards, as does ISO. Approximately 90 of ALCA's 140 or so test methods have been adopted by ASTM. These organizations play a key role in the development of standards. Since they are independent of any particular company, their standards are used throughout the sector. Having external standards also saves each grower or distributor from having to develop and adopt its own standards, which wouldn't be universal anyway.

Although some of the test methods apply to all types of fibers, most are specifically targeted at one type each. This is due to the intrinsic differences between man-made and natural fibers, and the further differences between cotton and wool (the natural fibers used most often). So, although the properties being tested are limited in number, the number of test methods are proliferated by the variety of fiber types.

4.2 Textiles

The business of the textile sector is to take raw fibers and filaments and convert them into fabrics which can then be sewn into garments. This process involves three main steps. In the first, the yarn manufacturer prepares the fibers or filaments (through carding, drawing, and roving), spins it into cones of yarn, and then winds the yarn onto spools. During the second stage, the slashing plant chemically treats the yarn, preparing it for the next step. The last, and most involved process is accomplished at the weaving plant. The yarn is woven (or knitted) into fabric first. After that, the fabric is prepared, dyed, and finished. Lastly, the fabric is cut for shipping to the garment sewing plants.

Throughout this process numerous checks are made. After every major step of the fabric manufacturing process, at least a visual inspection is done. Test methods applying to textiles are concerned with a wide range of features. These include strength, flammability, creasing, and dimensional change due to different environmental factors. The property that is most thoroughly tested is colorfastness. The importance of that particular behavior of a textile is shown in that almost half of ISO's 114 standards related to fabrics deal with colorfastness.

There are a few organizations that publish test methods for textiles. At the national level, AATCC and ASTM both make standards. ISO TC 38 publishes standards, including test methods, on the international level. As its name implies, AATCC is most concerned with chemical and biological properties of fabrics and colorfastness, though some physical properties are covered. ASTM tests are very physical in nature, dealing with aspects such as abrasion resistance, moisture, and mass. There are many more tests applying to textiles made by AATCC than by ASTM. ISO tests are dominated by tests for colorfastness, since many of the other textile-related standards are reference information and not test methods.

5 QUALITY STANDARDS

A major part of the body of standards which affect the FTA industry are general quality standards or specifications. Unlike the integration standards and the test methods, quality standards are concrete expectations for a finished product of a certain type. The expectations conveyed through the document vary in content from flammability (such as a fireproof coat) to appearance, and vary in detail from a general durability specification to a military standard for a uniform specifying every design particular.

Quality standards are used for many different products in the FTA industry. In most cases, the standard applies to high-level concepts in a finished product, rather than minute details. For instance, there are not many quality standards applying to raw fibers, since examining most of the properties of those fibers require specific tests. In keeping with the organization philosophy, the quality standards have been sectioned on the basis of their area of application. The major areas of interest are general apparel, special and protective clothing, military specifications, and textile manufacturing machinery.

5.1 General Apparel

The majority of garments which are manufactured are sold to retailers who in turn sell them through stores. The success of the apparel sector, and to a large part the whole FTA industry, is determined by whether people, especially those in the United States, buy the clothes that the garment companies sew. It is of paramount importance that the garments put on the shelf be of consistently high quality, and it is in the interests of the manufacturers to minimize the number or seconds that cannot be sold for full price.

There are many standards used to ensure that garments sold to a customer satisfy minimum quality as defined by those standards. Most manufacturing and also retail companies have their own inspections, but national and international specifications do exist. These are written by ASTM on the national level. ASTM has about fifty performance specifications, each applying to a different type of apparel, such as knitted overcoat fabrics for men and women[18], or swim wear[19] fabrics. In addition, some smaller apparel manufacturers and retailers adopt the inspection criteria of large, established companies such as J.C. Penny, Inc., making such procedures *de facto* standards.

It is important to note that most of these specifications are standards of quality for the fabrics used to sew the garments. They insure that the clothing made will meet some basic standards of durability and, in some cases, fit. ASTM publishes several standards relating to fit, as opposed to the fifty or so fabric-related performance specifications mentioned earlier. The manufacturers and designers of clothing who use these standards still have the ability to make whatever they want, provided the material it is made from meets the specifications they have voluntarily adopted. In the end, it is beneficial for fabric manufacturers to use these quality standards so potential customers in the apparel sector will know that they are not buying shoddy materials.

5.2 Special/Protective Clothing

The area of special and protective clothing is one of the most sensitive to quality. This is for the obvious reason that the consequence of product failure is often injury to the wearer of the garment.

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[18] D 3562 - 92 (ASTM) : "Performance Specification for Men's and Women's Sliver Knitted Overcoat and Jacket Fabrics."

[19] D 3994 - 94 (ASTM) : "Performance Specification for Men's, Women's, and Children's Woven Swimwear Fabrics."

(This is much worse than merely inconveniencing or alienating a customer, the result of general apparel defects.) For this reason, quality standards must be more demanding and much less tolerant of deviations. As a result, the field of protective clothing has a relatively large number of fairly specific quality standards and specifications associated with it.

Standards relating to protective and other special clothing can be differentiated on the basis of what exactly the garment they relate to is intended to do (or in most cases prevent against). Special clothing is needed for use in a variety of hazardous environments; it may protect against electricity, chemicals, fire, or even cold. Because of the large number of fires and firefighters, fire-protective clothing is probably the most common protective clothing, though electrically insulated and chemical-protective clothing are very important in their respective industries.

Specifications for special clothing are published by ISO TC 94 on an international level. The National Fire Protection Association (NFPA) writes national requirements for protective clothing for fighting fires. There are many other standards that relate to protective clothing which are not quality standards, but rather test methods applied to the fabric from which these garments are made. These standards are published primarily by ASTM and ISO.

5.3 Military Specifications and Standards

The U.S. Armed Forces are probably the largest single customer for apparel made in the United States. The Department of Defense (DoD) spends hundreds of millions of dollars every year purchasing uniforms and other textile-based equipment. The consistent quality of garments purchased is highly valued by the military, more so than in the civilian market. In addition to the uniforms looking the same, they must meet strict requirements for durability and reliability, since many of them are ultimately intended for combat. It is also important that the clothing is functional and easy to wear under a wide variety of conditions. To insure the consistency, toughness, and utility of their uniforms, DoD publishes specifications generally referred to as the "MIL-" standards or specifications.

There are over 600 MIL-specifications that detail the requirements of specific apparel and textile-related products and a dozen or so MIL standards that detail the requirements of a category of apparel and textile-related products. These specifications vary greatly in content. On one side of the spectrum, quality standards exist that cover all uses of certain fabrics or textiles in military equipment[20]. At the other extreme, some MIL-specifications are detailed requirements for the making of a certain garment[21]. There are also a substantial number of standards that involve textile products other than apparel. Examples of this would be fabric hoses and life preservers. Since these are still products of the FTA industry as a whole, they have been included within the scope of this survey.

Military specifications follow a specific format. Each has six sections—scope, applicable documents, requirements, quality assurance provisions, packaging, and notes. The scope section specifies exactly what the document applies to, for instance a polyester/cotton broadcloth durable press shirt.[22] The next section lists other documents that the manufacturer must adhere to in making the garment. These include federal and other military specifications and standards, as well as test methods published by private organizations such as AATCC and the American Iron and Steel Institute (AISI)—for steel rings, zippers, and fasteners. The third section details expectations, while the fourth section explains how those requirements are to be verified. The

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[20] MIL-C-429A : "Cloth, Twill, Nylon."

[21] MIL-C-1509H : "Coat, Food Handler's (Steward)."

[22] MIL-44041C(GL) : "Shirt, Man's, Short Sleeve, Polyester Cotton, Army Green 415, Durable Press."

packaging section is self-explanatory. The last part of every MIL-specification contains information of a general or explanatory nature that may be helpful, but is not mandatory.

The current system of military specifications is designed to insure total uniformity. Every detail of the sewing process is dictated. There are typically a dozen or more other documents referenced in each MIL-specification. The reference to each consists only of the name and number of the standard. No indication is given to the manufacturer of where to find the information that pertains directly to the making of the garment. Unless the scope of the item referred to is very narrow, this can make it difficult for the contractor to comply. Companies are left to search a possibly very large document from cover to cover to find what might be a very small section applicable to their product.

At the present time, proposals are being made to use commercial specifications because they are simpler. The format for the new series is known as a commercial item description (CID). The main difference is that the new format will specify what is desired, and allow the contractor to make it in the most efficient method availible. Previously, the MIL-documents gave exact instructions for making the item, which placed sometimes unnecessary demands on the companies contracted to do the job. In addition, some of the specifications will be given in terms of performance, rather than requiring a certain material, giving the maker leeway in choosing the most desirable way to meet the requirements. This will make the process of procuring uniforms faster and more efficient.

5.4 Textile Machinery

The process of making textiles from fibers and filaments is almost completely done by machine. Setting up and loading the equipment is still often done manually, but the actual spinning, weaving, etc. is done automatically. Therefore, the sector depends on these devices consistently working in the proper manner. Standards are used to insure the safety and reliability of textile machinery.

The primary publishers of specifications for textile machinery are ISO TC 72 and ASTM. Most of these documents apply to key pieces of the machines, such as the rings and travelers on ring spinning machines[23], or the cones for yarn winding[24]. There are also a good number of standards which give definitions and terminology relating to different types of textile equipment. These will be discussed in the next section.

6 STANDARD REFERENCE INFORMATION

Standard reference information is necessary in any field where uniformity and consistency is important. This information makes repeatability possible by providing accepted standards that can be used for comparison purposes and computation purposes. For example, AATCC has a standard table for gray-scale color change[25]. This table is intended for use with the test methods they developed. Use of that table insures that the evaluation given to the textile will not depend on the tester, but rather be objective (with respect to the AATCC standard). The test results will also be reproducible.

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[23] ISO 96-1:1992 : "Textile Machinery and Accessories — Rings and Travellers for Ring Spinning and Ring Doubling Frames — Part 1 : T-rings and Their Appropriate Travellers."

[24] ISO 111:1978 : "Textile Machinery and Accessories — Cones for Yarn Winding (Cross Wound) — Half Angle of the Cone 4 Degress 20'."

[25] AATCC Evaluation Procedure 1 : "Gray Scale for Color Change." p. 348 of AATCC Technical Manual.

Standard reference information can be divided into three categories: standard reference data (SRD), standard reference materials (SRM), and terminology. These are described below.

6.1 SRD

Standard reference data (SRD) refers to a collection of scientific or technical measurements, values, or facts that can be represented quantitatively. SRD is accepted as correct within a particular domain of expertise to be used as the basis of further calculations or decisions. A very simple example from the field of engineering is the assignment of the value for the constant π. Π is the ratio of a circle's circumference to its diameter, and its value can only be estimated to a specified level of precision. For the purpose of taking a test, students may be told to use the value of 3.14 for π. Therefore, they should all get the same answer, and their answers should conform with the professor's solutions. Although simple and far removed from the FTA industry, this analogy illustrates both the nature of SRD and its significance.

It is easy to see the importance of these accepted values when the opposite scenario is considered. If there was no accepted value for π, each student would make an independent best guess, or use whatever approximation the student felt appropriate. Some might use 3.14, others might extend it to five or six places, while a handful might just truncate the fraction and go with 3. More ambitious students might use string and ruler to measure the constant directly from a circular object. (Others might forget entirely and just guess 7.) Depending on what is being done with the number, the end results could be drastically different (and in some cases drastically wrong).

In the apparel industry, an important set of standard reference data are the different dimensions that make up size. To achieve a good fit, the apparel manufacturer needs accurate measurements of the human body. This is called anthropometric data. The first standard set of body dimensions was compiled by the National Bureau of Standards (NBS, now NIST) in the 1950's. In 1983, the Department of Commerce withdrew these voluntary standards. ASTM took over responsibility. The D-13.55 Body Measurement for Apparel Sizing sub-committee of ASTM has published standard tables of measurements for ladies[26], infants[27], and women over fifty-five[28]. Sizing standards for children, men, and large women are in different stages of committee review. With the exception of the sizing for women over 55, all of these standard tables are based on the original anthropometric survey conducted by NBS. D-13.55 is currently trying to rally industry support to update the anthropometric survey to reflect the changing population of the country. Internationally, ISO TC 133 has an international standard of anthropometric data[29] and sizing.

From surveys of body measurements, standards for actual sizing of garments are derived. NBS had developed close to twenty voluntary apparel sizing standards which it published in the late 1960s. These covered all the most common types of apparel, from shirts to gloves. Although girls and women were part of the anthropometric survey, there were no voluntary standards relating specifically to women's clothing. The NBS-sizing standards were withdrawn in 1983. On an international level, ISO TC 133 publishes ten standards relating to clothing size for both sexes. A bibliography dealing with apparel sizing was published by NIST in 1994[30].

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[26] ASTM D 5585 - 93. "Standard Table of Body Measurements for Adult Female Misses Figure Type Size 2-20."
[27] ASTM D 4910 - 89. "Standard Table of Body Measurements for Infants, Ages 0 to 18 Months."
[28] ASTM D 5586 - 94. "Standard Tables of Body Measurements for Women Aged 55 and Older (All Figure Types)."
[29] ISO 8559:1989. "Garment Construction and Anthropometric Surveys — Body Dimensions."
[30] Lee 1, 1994.

Although the NBS anthropometric data and sizing recommendations were valuable, some larger manufacturers have done work to improve the fit of their garments for their customer population. Of the companies in the U.S., Sears, Roebuck and Company, Inc. has the distinction of doing the most body size and clothing fit research.[31] With the knowledge they have gained, they publish pages of details on sizing and fitting of garments. Although Sears has placed special emphasis on this in the past, reducing returns and increasing customer satisfaction through improving the way apparel fits remains a goal of all clothing manufacturers.

6.2 SRM

Standard reference materials are physical artifacts that are used for direct comparison with the sample being evaluated. The reference material is accepted as a standard for the property it exemplifies. SRMs are often used when dealing with qualitative aspects of an item, such as color or texture. ("Qualitative aspects," as used here, refers to those properties that are generally not measured by the industry directly due to technology limitations. For example, as technology advances, measurements of texture may be more scientifically conducted than by a comparison with known textures, as it is generally done in the textile industry today.) In order to have some degree of consistency and control over properties, the properties must be converted to a quantitative base. This is done by selecting an arbitrary point of reference which the property of a particular physical artifact exudes. Then samples may be measured relative to the "standard," consequently providing an objective measurement of the "qualitative" property.

Many, if not most, of the pertinent properties of fibers, textiles, and apparel are qualitative. However, many of these properties can be quantified through a certain method of testing. A few can not. As mentioned earlier, a large percentage of the test methods relating to the fiber and textile sectors relate to colorfastness. AATCC has developed scales for evaluating color change (mentioned before), as well as transference[32] and staining[33] reference standards. These SRMs are directly compared with the sample that has been through the test procedure (and also a control sample in tests relating to color change).

Another type of SRM which warrants mention is the model form. Model forms are actual molds of the human body used to check sizing for apparel. NBS made standard model forms for girls', boys', and toddlers' apparel of different sizes. These were developed in conjunction with the anthropometric survey discussed above in Section 6.1. Although these may be used for reference, apparel manufacturers have their own model forms for all types of people and sizes.

6.3 Terminology

The largest number of reference standards developed for the FTA industry relate to vocabulary and definitions. Standard terminology is very important because it facilitates communication. Since some words have multiple meanings, and there are many ways to describe or designate a certain object, discussion can often become obfuscated. Having precise definitions for key items and ideas in a field has always been the responsibility of that area's standards organizations. The FTA industry is no exception.

The task of publishing definitions and vocabulary on an international level has been undertaken by ISO. There are approximately forty-five ISO standards which define terminology for everything

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[31] Hudson, pp. 121-122. 1983.

[32] AATCC Evaluation Procedure 3. "Chromatic Transference Scale." p. 351 of AATCC Technical Manual.

[33] AATCC Evaluation Procedure 2. "Gray Scale for Staining." p. 350 of AATCC Technical Manual.

from stitches[34] to fibers[35]. Some of the standards which fall into this category deal with words, while a slightly smaller number define some physical aspect of a piece of equipment, such as which side is left and which is right[36]. ISO's terminology standards are most heavily concentrated in the area of textile machinery, where there are many different types of machines, each with a plethora of parts that may need definitions to refer to them.

ASTM has written roughly fifteen standards defining terminology for the FTA industry. Over half of these standards deal with textiles (yarns and fabrics) and textile properties, while a smaller number deal with the textile manufacturing and apparel sewing processes. A few of the documents apply to labeling of apparel. There is a terminology specifically for wool[37], but not for the other fibers. This may be because wool requires a lot of processing before it can be spun into yarn. Dealing with plant fibers such as cotton and flax, is simpler. One standard of special interest to the apparel sector defines terminology for apparel sizing[38]. Overall, these documents seem to cover a good portion of the industry.

7 SUMMARY

The primary purpose of this survey was to identify the standards that apply to the U.S. FTA industry. To compete effectively in the global marketplace, the FTA industry must operate as efficiently as possible. By developing and adopting new standards where they are needed, and improving existing standards where possible, many benefits in terms of reduced wait time and elimination of unnecessary effort can be realized by the industry as a whole.

As can be seen by a perusal of the appendix, the number of standards related to the FTA industry is voluminous. The intent of this paper was to bring together in one document a listing of the standards and standards' organizations associated with the FTA industry. That compilation represents a first step to determine where to concentrate resources on further standards' development.

Industry feedback is necessary to draw conclusions concerning the prioritization of future standards' efforts. For example, in what parts of the FTA manufacturing process are the current standards effective? What is it about those standards and the way they are implemented that makes them effective? Where does there seem to be a lack of unity in standards—where different standards are used by different people for the same purpose? The answers to these and other questions can provide insight into where standards are helping and where they are holding back the FTA industry, and how improvement of the standards can make the FTA industry more competitive.

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[34] ISO 4915:1991. "Textiles — Stitch Types — Classification and Terminology." Bilingual Edition.
[35] ISO 8159:1987. "Textiles — Morphology of Fibers and Yarns — Vocabulary." Bilingual Edition.
[36] ISO 92:1976. "Textile Machinery and Accessories — Spinning Machinery — Definition of Side (Left or Right)."
[37] ASTM D 4845 - 89. "Terminology Relating to Wool."
[38] ASTM D 5219-94. "Terminology Relating to Body Dimensions for Apparel Sizing."

APPENDICES

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B FTA STANDARDS ORGANIZATIONS

The following is a list of organizations publishing and/or developing standards and specifications related to the FTA industry. This listing of organizations is intended to save time by bringing them together in one place. In addition to the contact information, a short description and sometimes notes are included beside each listing.

American Apparel Manufacturers Association (AAMA)
2500 Wilson Blvd., Suite 301
Arlington, VA 2201
(703) 524-1864
FAX: (703) 522-6741

Sanctioned by ANSI[40] to create standards for the apparel sector of the FTA Industry. Responsible for TALC/SAFLINC voluntary integration standards.

American Association of Textile Chemists and Colorists (AATCC)
One Davis Drive
P.O. Box 12215
Research Triangle Park, North Carolina 27709
(919) 549-8141
FAX: (919) 549-8933

Responsible for test methods and procedures relating to physical and chemical properties of textiles. Sanctioned by ANSI.

American Leather Chemists Association (ALCA)
Tanners Bldg.
University of Cincinnati-Loc. 14
Cincinnati, Ohio 45221
(513) 556-1197
FAX: (513) 556-2377

Publishes test methods for evaluating raw leather and leather products. Most standards adopted by ASTM.

American National Standards Institute (ANSI)
11 W. 42nd Street, 13th Floor
New York, New York 10036
(212) 642-4900
FAX: (212) 398-0023

Sanctions standards from industry organizations in all fields for use on a national level.

American Society for Testing and Materials (ASTM)
1916 Race Street
Philadelphia, Pennsylvania 19103-1187
(215) 299-5585
FAX: (215) 977-9679

Publishes standards covering many different materials. D-13 Committee responsible for textiles. Uses ALCA standards for leather.

American Textile Manufacturers Institute, Inc. (ATMI)
1801 K Street, NW, Suite 900
Washington, D.C. 20006
(202) 862-0500
FAX: (202) 862-0570

Responsible for FASLINC standards.

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[40] "Sanctioned by ANSI" means that many or most of the standards they publish are approved and adopted by ANSI as U.S. national standards.

International Organization for Standardization (ISO)
1, rue de Varembé
Case postale 56
CH-1211 Genéve 20
Switzerland
+ 41 22 749 01 11
FAX: + 41 22 733 34 30

Standards relating to almost all fields. Members from 100 countries. 182 technical committees (TCs), 630 subcommittees.[41] TCs of interest include 38 - Textiles, 72-Textile Machinery, 94 - Protective Clothing, and 133 - Sizing Systems.

National Fire Protection Association
One Batterymarch Park
P.O. Box 9101
Quincy, Massachusetts 02269-9101
(617) 770-3000
FAX: (617) 770-0700

Responsible for standards and codes relating to fire safety. These include specifications for protective clothing (primarily for fire fighting).

SAE International (SAE)
400 Commonwealth Drive
Warrendale, Pennsylvania 15096-0001
(412) 776-4841
FAX: (412) 776-4026

Publishes specifications for high-performance textiles such as aramid-fiber.

Uniform Code Council
8163 Old Yankee Road, Suite J
Dayton, Ohio 45458
(513) 435-3870

Responsible for UCS and VICS retail EDI standards.

The following organizations are not directly involved in writing standards, but serve other important capacities related to FTA standards.

American Textile Partnership (AMTEX)
Laboratory Program Office
Pacific Northwest Laboratory
P.O. Box 999
Richland, WA 99352
(509) 375-2306

Collaboration of FTA industry and DOE. Develops technologies to address industry needs. Helps industry to optimize product quality and market responsiveness while minimizing costs and environmental impacts.

Industry Program Office
P.O. Box 4670
Wilmington, DE 19807
(302) 999-6733
FAX: (302) 999-6736

AMTEX projects are coordinated through the Laboratory Program office (of DOE) and the Industry Program Office.

National Institute of Standards and Technology (NIST)
Manufacturing Systems Integration Division
Room A127, Bldg. 220
Gaithersburg, Maryland 20899
(301) 975-3508
FAX: (301) 258-9749

Current efforts include the Apparel Product Data Exchange Standard (APDES) project.

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[41] ISO Catalogue 1994. p. 7.

C FTA STANDARDS LISTINGS

The following is a listing of FTA standards obtained from the organizations listed in Appendix B. The listings were obtained when possible from the organizations that issue the standards. The listings have been reformatted so that they will be consistent across the standards organizations. For the most recent information or to purchase any of these standards, contact the appropriate organization directly. Information for contacting any of these organizations can be found in Appendix B: FTA Standards Organizations.

C.1 AAMA Standards

The American Apparel Manufacturers Association is in the process of creating and publishing a number of standards which are important to the integration of apparel manufacturing. The standards which have been generated thus far are the following:

ANSI/AAMA-001-1992	Standard for Numerically Controlled Cutting Machines.
ANSI/AAMA-292-1993	Standard for Pattern Data Interchange - Data Format.

C.2 AATCC Test Methods and Procedures[42]

The standards listed are organized first according to the following categories:

BIOLOGICAL PROPERTIES
COLORFASTNESS
DYEING PROPERTIES
EVALUATION PROCEDURES
IDENTIFICATION AND ANALYSIS
PHYSICAL PROPERTIES

Within each category standards are listed in numerical order, according to their identification number in the left column. All standards are test methods unless otherwise noted.

BIOLOGICAL PROPERTIES

24-1993	Insects, Resistance of Textiles to, p. 75.
28-1994	Insect Pest Deterrents on Textiles, p. 83.
30-1993	Antifungal Activity, Assessment of Textile Materials: Mildew and Rot Resistance of Textiles, p. 85.
100-1993	Antibacterial Finishes of Textile Materials, Assessment of, p. 148.
103-1994	Bacterial Alpha-Amylase Enzymes Used in Desizing, Assay of, p. 154.
147-1993	Antibacterial Activity of Fabrics, Assessment of Textile Materials: Parallel Streak Method, p. 261.
174-1993	Antimicrobial Activity Assessment of Carpets, p. 328.

COLORFASTNESS

2-1989	Colorfastness to Fulling, p. 174.
3-1989	Colorfastness to Bleaching with Chlorine, p. 19.
6-1994	Colorfastness to Acids and Alkalis, p. 21.
8-1989	Colorfastness to Crocking: AATCC Crockmeter Method, p. 23.
8-1989	Colorfastness to Crocking: Rotary Vertical Crockmeter Method, p.23.
9-1989	Colorfastness to Stoving, p. 26.
11-1989	Colorfastness to Carbonizing, p. 28.
15-1994	Colorfastness to Perspiration, p. 30.
16-1993	Colorfastness to Light, p. 33.
16-1993	Colorfastness to Light, p. 241.
23-1994	Colorfastness to Burnt Gas Fumes, p. 72.
61-1994	Colorfastness to Laundering, Home and Commercial; Accelerated, p. 94.
101-1994	Colorfastness to Bleaching with Hydrogen Peroxide, p. 150.
104-1994	Colorfastness to Water Spotting, p. 1565.
106-1991	Colorfastness to Water: Sea, p. 157.
107-1991	Colorfastness to Water; , p. 159.
109-1992	Colorfastness to Ozone in the Atmosphere under Low Humidities, p. 161.
116-1994	Colorfastness to Degumming, p. 192.
117-1994	Colorfastness to Heat: Dry (Excluding Pressing), p. 194.

[42] AATCC Technical Manual. pp. 5-14. 1995. All page numbers in this section refer to this document.

DYEING PROPERTIES

EVALUATION PROCEDURES

IDENTIFICATION AND ANALYSIS

PHYSICAL PROPERTIES

111A-1990	Weather Resistance: Sunshine Arc Lamp Exposure with Wetting, p. 175.
111B-1990	Weather Resistance: Exposure to Natural Light and Weather, p. 171.
111C-1990	Weather Resistance: Sunshine Arc Lamp Exposure without Wetting, p. 175.
111D-1990	Weather Resistance: Exposure to Natural Light and Weather through Glass, p. 165.
115-1989	Electrostatic Clinging of Fabrics: Fabric to Metal Test, p. 188.
118-1992	Oil Repellency: Hydrocarbon Resistance Test, p. 198.
121-1989	Carpet Soiling: Visual Rating Method, p. 206.
122-989	Carpet Soiling: Service Coiling Method, p. 206.
123-1989	Carpet Soiling: Accelerated Soiling Method, p. 208.
124-1992	Appearance of Fabrics after Repeated Home Laundering, p. 210.
127-1989	Water Resistance: Hydrostatic Pressure Test, p. 216.
128-1989	Wrinkle Recover of Fabrics: Appearance Method, p. 217.
128-1989	Wrinkle Recovery of Fabrics: Appearance Method, p. 217.
130-1990	Soil Release: Oily Stain Release Method, p. 221.
134-1991	Electrostatic Propensity of Carpets, p. 230.
135-1992	Dimensional Changes in Automatic Home Laundering of Woven on Kit Fabrics, p. 233.
136-1989	Bond Strength of Bonded and Laminated Fabrics, p. 236.
137-1989	Rug Back Staining of Vinyl Tile, p. 239.
138-1992	Shampooing: Washing of Textile Floor Covering, p. 240.
142-1989	Appearance of Flocked Fabric after Repeated Home Laundering and/or Coin-Op Dry-Cleaning, p. 247.
143-1992	Appearance of Apparel and Other Textile End Products After Repeated Home Laundering; Text, p. 249.
150-1992	Dimensional Changes in Automatic Home Laundering of Garments.
151-1990	Soil Redeposition, Resistance to: Launder-Ometer Method, p. 270.
152-1990	Soil Redeposition, Resistance to: Terg O-Tomoeter Method, p. 272.
158-1990	Dimensional Changes on Dry-cleaning in Perchloroethylene: Machine Method, p. 287.
169-1990	Weather Resistance of Textiles: Xenon Lamp Exposure, p. 165.
171-1989	Carpets: Cleaning of; Hot Water (Steam) Extracting Method, p. 321.
175-1993	Satin Resistance: Pile Floor Coverings, p 334.
178-1992	Barre: Visual Assessment and Grading, p. 345.
1114-1989	Chlorine, Retained, Tensile Loss: Multiple Sample Method, p. 186.
1600-1992	Dimensional Restoration of Knitted and Woven Fabrics after Laundering, p. 292.
l 88C-1992	Retention of Creases in Fabrics after Repeated Home Laundering, p. 119.

C.3 ALCA Standards[43]

This standards listing contains the names and numbers of all ALCA's test methods and definitions. Most of them related to leather in general, and a few specifically apply to leather for footwear purposes. Some of these standards have been adopted and re-published by ASTM. The names of ALCA/ASTM standards are followed by their ASTM document number (in parentheses).

A1	Analysis of Vegetable Tanning Materials - General (ASTM D4899)
A5	Extraction of Raw and Spent Materials
A6	Moisture in Raw and Spent Materials
A10	Preparation of Solution of Liquid Extracts (ASTM D4901)
A11	Preparation of Solution of Solid, Pasty and Powdered Extracts (ASTM 4905)
A12	Cooling of Analytical Solutions (ASTM D4904)
A13	Evaporation and Drying of Analytical Solutions (ASTM 4902)
A20	Total Solids and Water (ASTM D4903)
A21	Soluble Solids and Insolubles
A22	Nontannins and Tannin
A25	Analysis of Tannery Liquors
A30	Sugar in Tanning Materials
A31	Method for Copper and Iron in Tanning Materials
A40	Color Tests with Sheepskin Skiver
A50	Lignosulfonates (Sulfite Cellulose) (ASTM D4900)
A60	Official Certification
B1	Analysis of Vegetable-Tanned Leathers - General
B2	Preparation of Sample for Analysis (ASTM D2813)
B3	Moisture (ASTM D3790)
B4	Hexane Extract of Leather (ASTM D2876)
B5	Nitrogen Content (Kjeldahl) and Hide Substance (ASTM D2868)
B8	Water-Soluble Matter of Vegetable-Tanned Leather (ASTM D2876)
B9	Soluble Non Tannin and Uncombined Tannin
B10	Glucose
B11	Insoluble Ash of Vegetable-Tanned Leather (ASTM D2875)
B12	Combined Tannin and Degree of Tannage
B15	Total Ash in Leather (ASTM D2617)
B16	Magnesium as Epsom Salts
B20	pH of Water (ASTM 2810)
B30	Official Certification
C1	Determination of Chromium in Chrome Tanning Liquors (ASTM D3898)
C5	Determination of Acidity of Chrome Tanning Liquors (ASTM D3813)
C10	Calculation Basicity of Chrome Tanning Liquors (ASTM D3897)
C11	Determination of pH of Chrome Tanning Liquors (ASTM D2815)
D1	Preparation of Composite Sample for Chemical Tests (ASTM D2813)
D5	Mineral Leathers - General
D10	Chromic Oxide in Leather (Perchloric Acid Oxidation) (ASTM 2807)

[43] Methods of Sampling and Analysis. 1994.

D20	Sulfates (Total, Neutral and Combined Acid) (ASTM D1655)
D21	Total Chlorides (D4563)
D30	Sulfate Basicity (ASTM D4654)
D35	Acidity (pH) (ASTM D2810)
E1	Conditioning Leather and Leather Products for Testing (ASTM D1610)
E2	Measuring Area of Leather Test Specimens (ASTM D2346)
E3	Measuring Thickness of Leather Units (ASTM D1814)
E4	Measuring Thickness of Leather Test Specimens (ASTM D1813)
E5	Width of Leather (ASTM D1516)
E10	Tongue Tear Strength (ASTM D1704)
E11	Buckle Tear Strength (ASTM D1813)
E12	Stitch Tear Strength, Single Hole (ASTM D4786)
E13	Stitch Tear Strength, Double Hole (ASTM D1705)
E14	Bursting Strength of Leather by the Ball Method (ASTM D2207)
E15	Tensile Strength of Leather (ASTM D2209)
E16	Breaking Strength of Leather by the Grab Method (ASTM 2208)
E17	Elongation of Leather (ASTM 2211)
E30	Water Absorption (Static) of Leather (ASTM D1815)
E32	Permeability to Water Vapor (ASTM D5052)
E40	Piping
E41	Grain Cracking
E42	Cold-Crack Resistance of Upholstery Leather (ASTM D1912)
E43	Stiffness
E44	Staining
E45	Compressibility of Leather (ASTM 2213)
E46	Crocking (ASTM D5053)
E50	Fire Resistance of Leather
E52	Corrosion Produced by Leather in Contact with Metal (ASTM D1611)
E53	Colorfastness and Transfer of Color in the Washing of Leather (ASTM D2096)
E54	Flex Testing of Finish on Upholstery Leather (ASTM 2097)
E55	Dynamic Water Resistance of Shoe Upper Leather by the Dow Corning Leather Tester (ASTM 2098)
E56	Dynamic Water Resistance of Shoe Upper Leather by the Maeser Water Penetration Tester (ASTM 2099)
E57	Resistance to Wetting of Garment-Type Leathers (Spray Test) (ASTM D1913)
E58	Grain Crack and Extension of Leather by the Mullen Test (ASTM 2210)
E59	Slit Tear Resistance of Leather (ASTM D2212)
E60	Estimating the Thermal Conductivity of Leather with the Cenco-Fitch Apparatus (ASTM D2211)
E61	Resistance of Chrome-Tanned White Shoe Upper Leather to Artificial Perspiration (ASTM D2211)
E62	Apparent Density of Leather (ASTM D2346)
E63	Measuring the Relative Stiffness of Leather by Means of a Torsional Wire Apparatus (ASTM D2821)
E64	Measuring Break Pattern of Leather (Break Scale) (ASTM D2941)
F1	Soak Waters - General
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H6	Commercial Soap and Soap Products
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H10	Specifications for Reagents and Equipment
H15	Specific Gravity of Oils and Liquid Fats (ASTM D5355)
H16	Melting Point
H17	Titer Test (ASTM 5565)
H18	Cloud and Pout Point (ASTM D5551 and D5346)
H20	Moisture and Volatile Matter (ASTM D5556)
H21	Insoluble Impurities (ASTM D5557)
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H23	Sediment in Moellon
H30	Free Fatty Acids (ASTM D5555)
H31	Saponification Value (ASTM D5558)
H32	Iodine Value - Wijs Method (ASTM D5554)
H40	Moisture (ASTM D5348)
H41	Moisture and Volatile Matter (ASTM D5349)
H42	Organically Combined Sulfuric Anhydride Titration Test (ASTM D5350)
H43	Organically Combined Sulfuric Anhydride Extraction-Titration Test (for Sulfated Oils) (ASTM D5351)
H44	Organically Combined Sulfuric Anhydride Ash-Gravimetric Test (in the Presence of True Sulfonates) (ASTM D5352)
H45	Total Desulfated Fatty Matter (for Sulfated Oils) (ASTM D5353)
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H48	Inorganic Salts (H48) (ASTM D5566)
H49	Total Alkalinity and Total Ammonia (ASTM D5564)
H50	Acidity as Free Fatty Acids of Acid Number in the Presence of Dark Colored Oils but in the Absence of Ammonium or Triethanolamine Soaps (Brine Method) (ASTM 5559)
H52	Acidity as Free Fatty Acids or Acid Number in the Presence of Ammonium or Triethanolamine Soaps (ASTM 5562)
H53	Neutral Fatty Matter (ASTM D5560)

J1	Sampling Leather for Physical and Chemical Tests (ASTM D2813)
J2	Sampling Heavy Leather for Physical Tests (ASTM D2813)
J10	Sampling of Vegetable Materials Containing Tannin
J15	Sampling of Vegetable-Tanned Leathers (ASTM D2813)
J25	Sampling of Mineral Tanned Leather for Chemical Tests (ASTM D2813)
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K1	Total Solids and Ash in Leather Finish (ASTM D4906)
K5	Nitrocellulose in Finish on Leather (ASTM D4907)
K10	Flexibility and Adhesion of Finish on Leather
K11	Tackiness of Finish on Leather (ASTM 4908)
K12	Method for Testing Resistance of Colored Leather to Bleeding (ASTM D5552)
L1	The Resistance of Leather to the Growth of Fungi
X1	Standards Definitions of Terms Relating to Leather

C.4 ASTM Textile Standards[44]

The following standards are categorized by the ASTM volume they appear in (either 07.01 or 07.02) and are listed numerically.

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D 76 - 93	Specification for Tensile Testing Machines for Textiles.
D 123 - 93a	Terminology Related to Textiles.
D 204 - 93	Methods of Testing Sewing Threads.
D 276 - 87 (1993)	Test Methods for Identification of Fibers in Textiles.
D 418 - 93	Methods of Testing Pile Yarn Floor Covering Construction.
D 434 - 75	Test Method for Resistance to Slippage of Yarns in Woven Fabrics Using a Standard Seam.
D 461 - 93	Test Methods for Felt.
D 519 - 90	Test Methods for Length of Fiber in Wool Top.
D 541 - 87	Specifications for Single Jute Yarn.
D 578 - 90	Specification for Glass Fiber Strands.
D 579 - 90	Specification for Greige Woven Glass Fabrics.
D 580 - 89a	Specification for Greige Woven Glass Tapes and Webbing.
D 581 - 89	Specification for Glass Fiber Greige Braided Tubular Sleeving.
D 584 - 90	Test Method for Wool Content of Raw Wool - Laboratory Scale.
D 629 - 88	Test Methods for Quantitative Analysis of Textiles.
D 681 - 87 (1993)	Specification for Jute Rove and Plied Yarn for Electrical and Packing Purposes.
D 737-75 (1980)	Test Method for Air Permeability of Textile Fabrics.
D 861 - 89	Practice for Use of the Tex System to Designate Linear Density of Fibers, Yarn Intermediates, and Organic-Base Fibers.
D 885 - 85 (1992)	Methods of Testing Tire Cords, Tire Cords Fabrics, and Industrial Filament Yarns Made from Man-Made, and Organic-Base Fibers.
D 885M - 85	Methods of Testing Tire Cords, Tire Cord Fabrics, and Industrial Filament Yarns Made from Man-Made, and Organic-Base Fibers [Metric].
D 1059 - 87 (1992)	Test Method for Yarn Number Based on Short-Length Specimens.
D 1060 - 85 (1991)	Practice for Core Sampling of Raw Wool in Packages for Determination of Percentage of Clean Wool Present.
D 1113 - 90a	Test Method for Vegetable Matter and Other Alkali-Insoluble Impurities in Scoured Wool.
D 1117 - 80	Methods of Testing Non-woven Fabrics.
D 1230 - 94	Test Method for Flammability of Apparel Textiles.
D 1233 - 88 (1993)	Specification for Twine Made from Bast and Leaf Fibers.
D 1234 - 85 (1990)	Method of Sampling and Testing Staple Length of Grease Wool.
D 1244 - 81 (1991)	Practice for Designation of Yarn Construction.
D 1282 - 89a	Test Method for Resistance to Airflow as an Indication of Average Fiber Diameter of Wool Top, Cam, and Scoured Wool.
D 1283 - 85 (1990)	Test Method for Alkali-Solubility of Wool.
D 1284 - 87	Test Methods for Relaxation and Consolidation Dimensional Changes of Stabilized Knit Wool Fabrics.
D 1294 - 94	Test Method for Tensile Strength and Breaking Tenacity of Wool Fiber Bundles - 1-in. (25.4 mm Length).
D 1334 - 91	Test Method for Wool Content of Raw Wool - Commercial Scale.

[44] 1994 Annual Book of ASTM Standards. pp. x-xiv. 1994.

D 1335 - 67 (1972)	Test Method for Tuft Bind of Pile Floor Coverings.
D 1336 - 72 (1977)	Test Method for Distortion of Yarn in Woven Fabrics.
D 1388 - 64 (1975)	Test Methods for Stiffness of Fabrics.
D 1422 - 92	Test Method for Twist in Single Spun Yarns by the Untwist-Retwist Method.
D 1423 - 92	Test Method for Twist in Yarns by the Direct-Counting Method.
D 1424 - 83	Test Method for Tear Resistance of Woven Fabrics by Falling Pendulum (Elmendorf) Apparatus.
D 1425 - 89	Test Method for Unevenness of Textile Strands Using Capacitance Testing Equipment.
D 1440 - 90	Test Method for Length and Length Distribution of Cotton Fibers (Array Method).
D 1441 - 87 (1993)	Practice for Sampling Cotton Fibers for Testing.
D 1442 - 93	Test Method for Maturity of Cotton Fibers (Sodium Hydroxide Swelling and Polarized Light Procedures).
D 1445 - 90	Test Method for Breaking Strength and Elongation of Cotton Fibers (Flat Bundle Method).
D 1447 - 89 (1994)	Test Method for Length and Length Uniformity of Cotton Fibers by Fibrograph Measurement.
D 1448 - 90	Test Method for Micronaire Reading of Cotton Fibers.
D 1464 - 90	Test Method for Differential Dyeing Behavior of Cotton.
D 1518 - 85	Test Method for Thermal Transmittance of Textile Materials.
D 1574 - 87a	Test Method for Extractable Matter in Wool and Other Fibers.
D 1575 - 90	Test Method for Fiber Length of Wool in Scoured Wool and in Card Silver.
D 1576 - 90	Test Method for Moisture in Wool by Oven-Drying.
D 1577 - 90	Test Methods for Linear Density of Textile Fibers.
D 1578 - 93	Test Method for Breaking Load of Skeins.
D 1683 - 90a	Test Method for Failure in Sewn Seams of Woven Fabrics.
D 1684 - 90	Practice for Lighting Cotton Classing Rooms for Color Grading.
D 1770 - 88 (1993)	Test Method for Neps, Vegetable Matter, and Colored Fiber in Wool Top.
D 1774 - 93	Test Method for Elastic Properties of Textile Fibers.
D 1775 - 90	Test Methods for Tension and Elongation of Wide Elastic Fabrics.
D 1776 - 90	Practice for Conditioning Textile for Testing.
D 1777 - 64 (1975)	Method for Measuring Thickness of Textile Materials.
D 1871 - 94	Test Methods for Adhesion of Single-Filament Steel Wire to Rubber.
D 1907 - 89	Test Method for Yarn Number by the Skein Method.
D 1908 - 89	Test Method for Needle-Related Damage Due to Sewing in Woven Fabric.
D 1909 - 86 (1990)	Table of Commercial Moisture Regains for Textile Fibers.
D 2050 - 87 (1992)	Terminology Relating to Zippers.
D 2051 - 86 (1991)	Test Method for Durability of Finish of Zippers to Laundering.
D 2052 - 85 (1990)	Test Method for Colorfastness of Zippers to Dry-cleaning.
D 2053 - 86 (1991)	Test Method for Colorfastness of Zippers to Light.
D 2054 - 86 (1991)	Test Method for Colorfastness of Zipper Tapes to Crocking.
D 2057 - 90	Test Method for Colorfastness of Zipper Tapes to Laundering.
D 2058 - 87 (1992)	Test Method for Durability of Finish of Zippers to Dry-cleaning.
D 2059 - 87 (1992)	Test Method for Resistance of Zippers to Salt Spray (Fog).
D 2060 - 90	Methods for Measuring Zipper Dimensions.
D 2061 - 93	Test Methods for Strength Tests for Zippers.
D 2062 - 87 (1992)	Test Methods for Operability of Zippers.

D 2101 - 94	Test Methods for Tensile Properties of Single Man-Made Textile Fibers Taken from Yarns and Tows.
D 2102 - 90	Test Method for Shrinkage of Textile Fibers.
D 2118 - 84 (1990)	Practice for Assigning a Standards Commercial Moisture Content for Wool and Its Products.
D 2130 - 90	Test Method for Diameter of Wool and Other Animal Fibers by Microprojection.
D 2165 - 90	Test Method for pH of Aqueous Extracts of Wool and Similar Animal Fibers.
D 2229 - 93a	Test Method for Rubber Property - Adhesion to Steel Cord.
D 2252 - 85 (1991)	Specification for Fineness of Types of Alpacea.
D 2253 - 88	Test Method for Color of Raw Cotton Using the Nickerson-Hunter Cotton Colorimeter.
D 2255 - 90	Test Method for Grading Cotton Yarns for Appearance.
D 2256 - 90	Test Method for Tensile Properties of Yarns by the Single Strand Method.
D 2257 - 89	Test Method for Extractable Matter in Textiles.
D 2258 - 94	Practice for Sampling Yarn for Testing.
D 2259 - 91	Test Method for Shrinkage of Yarns in Boiling Water or Dry Heat.
D 2260 - 89	Tables of Conversion Factors and Equivalent Yarn Numbers Measured in Various Numbering Systems.
D 2261 - 83	Test Method for Tearing Strength of Woven Fabrics by the Tongue (Single Rip) Method (Constant-Rate-of-Extension Tensile Testing Machine).
D 2262 - 83	Test Method for Tearing Strength of Woven Fabrics by the Tongue (Single Rip) Method (Constant-Rate-of-Extension Tensile Testing Machine).
D 2401 - 67 (1972)	Test Method for Service Change of Appearance of Pile Floor Coverings.
D 2402 - 90	Test Method for Water Retention of Fibers (Centrifuge Method).
D 2462 - 90	Test Method for Moisture in Wool by Distillation with Toluene.
D 2475 - 88 (1993)	Specification for Wool Felt.
D 2494 - 94	Test Method for Commercial Mass of a Shipment of Yarn or Man-Made Staple Fiber or Tow.
D 2495 - 87 (1993)	Test Method for Moisture in Cotton by Oven-Drying.
D 2497 - 80	Tolerances for Man-Made Organic-Base Filament Single Yarns.
D 2524 - 91	Test Method for Breaking Tenacity of Wool Fibers, Fl;at Bundle Method - 1/8-in. (3.2 mm) Gage Length.
D 2525 - 90	Practice for Sampling Wool for Moisture.
D 2594 - 87	Test Methods for Stretch Properties of Knitted Fabrics Having Low Power.
D 2612 - 93a	Test Method for Fiber Cohesion in Sliver and Top Static Tests.
D 2644 - 81 (1991)	Tolerances for Yarns Spun on the Woolen System.
D 2645 - 85 (1990)	Tolerances for Yarns Spun on the Cotton or Worsted Systems.
D 2646 - 87	Test Methods for Backing Fabrics.
D 2654 - 89a	Test Methods for Moisture in Textiles.
D 2692 - 89	Test Method for Air Wicking of Tire Fabrics, Tire Cord Fabrics, Tire Cord, and Yarns.
D 2720 - 90	Recommended Practice for Calculation of Commercial Weight and Yield of Scoured Wool, Top, and Notch for Various Commercial Compositions.
D 2724 - 87	Test Methods for Bonded, Fused, and Laminated Apparel Fabrics.
D 2812 - 88	Test Method for Non-Lint Content of Cotton.
D 2816 - 91	Test Method for Cashmere Coarse-Hair Content in Cashmere.

D 2817 - 91	Specification for Maximum Cashmere Coarse-Hair Content in Cashmere.
D 2859 - 93a	Test Method for Flammability of Finished Textile Floor Covering Materials.
D 2904 - 91	Practice for Inter-laboratory Testing of a Textile Test Method that Produces Normally Distributed Data.
D 2905 - 91	Practice for Statements on Number of Specimens for Textiles.
D 2906 - 91	Practice for Statements of Precision and Bias for Textiles.
D 2968 - 89	Test Method for Med and Kemp Fiber in Wool and Other Animal Fibers by Micro-projection.
D 2969 - 92	Test Methods for Steel Tire Cords.
D 2970 - 80	Method of Testing Tire Cords, Tire Cord Fabrics, and Industrial Yarns Made from Glass Filaments.
D 2970M - 80	Method of Testing Tire Cords, Tire Cord Fabrics, and Industrial Yarns Made from Glass Filaments [Metric].
D 3025 - 86	Practice for Standardizing Cotton Fiber Test Results by Use of Calibration Cotton Standards.
D 3106 - 89	Test Method for Permanent Deformation of Elastomeric Yarns.
D 3107 - 75 (1980)	Test Method for Stretch Properties of Fabrics Woven from Stretch Yarns.
D 3108 - 89	Test Method for Coefficient of Friction, Yarn to Solid Material.
D 3135 - 87	Specification for Performance of Bonded, Fused, and Laminated Apparel Fabrics.
D 3136 - 94	Terminology for Permanent Care Labels for Consumer Textile and Leather Products Other Than Carpet and Upholstery.
D 3181 - 89	Practice for Conducting Wear Testing on Textile Garments.
D 3217 - 94	Test Methods for Breaking Tenacity of Man-Made Textile Fibers in Loop or Knot Configurations.
D 3218 - 93	Specification for Polyolefin Monofilaments.

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D 3333 - 90a	Practice for Sampling Man-Made Staple Fibers.
D 3374 - 89	Specification for Vinyl-Coated Glass Yarns.
D 3412 - 89	Test Method for Coefficient of Friction, Yarn to Yarn.
D 3477 - 92	Performance Specification for Men's and Boy's Woven Dress Shirt Fabrics.
D 3511 - 82	Test Method for Pilling Resistance and Other Related Surface Changes of Textile Fabrics : Brush Pilling Tester Method.
D 3512 - 82	Test Method for Pilling Resistance and Other Related Surface Changes of Textile Fabrics : Random Tumble Pilling Tester Method.
D 3513 - 90	Test Method for Overlength Fiber Content of Man-Made Staple Fiber.
D 3514 - 81	Test Method for Resistance of Apparel Fabrics to Pilling (Elastomeric Pad Method).
D 3562 - 92	Performance Specification for Men's and Women's Sliver Knitted Overcoat and Jacket Fabrics.
D 3597 - 94	Specification for Woven Upholstery Fabrics - Plain, Tufted, or Flocked.
D 3655 - 93	Performance Specification for Men's and Women's Sliver Knitted Overcoat and Jacket Fabrics.

D 3656 - 89	Specification for Insect Screening and Louver Cloth Woven from Vinyl-Coated Glass Yarns.
D 3657 - 88 (1993)	Specification for Zipper Dimensions.
D 3659 - 80 (1993)	Test Method for Flammability of Apparel Fabrics by Semi-Restraint Method.
D 3660 - 90	Test Method for Staple Length of Man-Made Fibers, Average and Distribution (Fiber Array Method).
D 3661 - 90	Test Method for Staple Length of Man-Made Fibers, Average and Distribution (Single-Fiber Length Machine Method).
D 3690 - 78 (1990)	Performance Specification for Vinyl-Coated and Urethane-Coated Upholstery Fabrics - Indoor.
D 3691 - 78 (1990)	Performance Specification for Woven, Lace, and Knit Household Curtain and Drapery Fabrics.
D 3692 - 89	Practice for Selection of Zippers for Care-Labeled Apparel and Household Furnishings.
D 3693 - 91	Specification for Labeled Length per Holder of Sewing Thread.
D 3773 - 90	Test Methods for Length of Woven Fabric.
D 3774 - 89	Test Methods for Width of Woven Fabric.
D 3775 - 85 (1990)	Test Method for Fabric Count of Woven Fabric.
D 3776 - 85 (1990)	Test Methods for Mass per Unit Area (Weight) of Woven Fabric.
D 3777 - 91	Practice for Writing Specifications for Textile.
D 3778 - 94	Performance Specification for Women's and Girls' Drycleanable Woven Dress Coat Fabrics.
D 3779 - 81 (1990)	Performance Specification for Women's and Girls' Woven Rainwear and All-Purpose Water-Repellent Coat Fabrics.
D 3780 - 94	Performance Specification for Men's and Boy's Woven Dress Suit Fabric and Woven Sportswear Jacket, Slack, and Trouser Fabrics.
D 3781 - 79 (1990)	Performance Specification for Men's and Boy's Knitted Rainwear and All-Purpose, Water-Repellent Coat Fabrics.
D 3782 - 79 (1990)	Performance Specification for Men's and Boy's Knitted Dress Suit Fabrics and knitted Sportswear Jacket, Slack, and Trouser Fabrics.
D 3783 - 94	Performance Specification for Woven Flat Lining Fabrics for Men's and Boy's Apparel.
D 3784 - 93	Performance Specification for Woven Necktie and Scarf Fabrics.
D 3785 - 92	Test Method for Hydraulic Bursting Strength of Knitted Goods and Non-Woven Fabrics - Diaphragm Bursting Strength Tester Method.
D 3786 - 87	Test Method for Bursting Strength of Knitted Goods - Constant-Rate-of-Traverse (CRT) Ball Burst Test.
D 3817 - 89	Test Method for Maturity Index of Cotton Fibers by Fibrograph.
D 3818 - 92	Test Method for Linear Density and Maturity Indices of Cotton Fibers (IIC-Shirley Fineness/Maturity Test).
D 3819 - 94	Performance Specification for Men's and Boys' Woven Pajama Fabrics.
D 3820 - 94	Performance Specification for Men's and Boy's Woven Underwear Fabrics.
D 3821 - 81 (1993)	Performance Specification for Woven Terry Household Kitchen and Bath Towel Fabrics.
D 3822 - 94	Test Method for Tensile Properties of Single Textile Fibers.
D 3823 - 94	Practice for Determining Ticket Numbers for Sewing Threads.
D 3882 - 90	Test Method for Bow and Skewness in Woven and Knitted Fabrics.
D 3883 - 90	Test Method for Yarn Crimp or Yarn Take-up in Woven Fabrics.

D 3884 - 92	Test Method for Abrasion Resistance of Textile Fabrics (Rotary Platform, Double-Head Method).
D 3885 - 92	Test Method for Abrasion Resistance of Textile Fabrics (Flexing and Abrasion Method).
D 3886 - 92	Test Method for Abrasion Resistance of Textile Fabrics (Inflated Diaphragm Method).
D 3887 - 94	Specification for Knitted Fabrics.
D 3888 - 90	Definition of Terms Relating to Open-End Spinning.
D 3936 - 80	Test Method for Delamination of Strength of Secondary Backing of Pile Floor Coverings.
D 3937 - 90	Test Method for Crimp Frequency of Man-Made Staple Fibers.
D 3938 - 93	Guide for Evaluation of Textile Products in Relation to Refurbishing Described on Care labels.
D 3939 - 93	Test Method for Snagging Resistance of fabrics (Mace Test Method).
D 3940 - 83	Test Method for Bursting Strength (Load) and Elongation of Sewn Seams of Knit or Woven Stretch Textile Fabrics.
D 3990 - 93	Terminology Relating to Fabric Defects.
D 3991 - 85 (1991)	Specifications for Fineness of Wool or Mohair and Assignment of Grade.
D 3992 - 85 (1991)	Specifications for Fineness of Wool Top or Mohair Top and Assignment of Grade.
D 3993 - 81 (1990)	Performance Specification for Woven, Thermal, Flocked, Non-woven, and Knitted Household Blanket Fabric.
D 3994 - 94	Performance Specification for Men's, Women's, and Children's Woven Swimwear Fabrics.
D 3995 - 92	Performance Specification for Men's and Women's Knitted Career Apparel Fabrics: Dress and Vocational.
D 3996 - 92	Performance Specification for Men's, Women's, and Children's Knit Swimwear Fabrics.
D 4028 - 84	Specification for Solar Screening Woven from Vinyl-Coated Fiber Glass Yarn.
D 4029 - 90	Specification for Finished Woven Glass Fabrics.
D 4030 - 89	Specification for Glass Fiber Cord and Sewing Thread.
D 4031 - 81 (1987)	Test Method for Bulk Properties of Textured Yarns.
D 4032 - 94	Test Method for Stiffness of Fabric by the Circular Bend Procedure.
D 4033-92	Test Method for Determining Yarn Slippage in Sewn Seams Made from Upholstery Fabrics - Plain, Tufted, or Flocked.
D 4034 - 92	Test Method for Determining Yarn Slippage in Sewn Seam in Woven Upholstery Fabrics - Plain, Tufted, or Flocked.
D 4035 - 92	Performance Specification for Knitted Necktie and Scarf Fabrics.
D 4036 - 81 (1990)	Performance Specification for Woven and Knit Household Pillowcase, Bed Sheet and Crib Sheet Fabrics.
D 4037 - 81 (1990)	Performance Specification for Woven, Knitted, or Flocked, Bedspread Fabrics.
D 4038 - 94	Performance Specification for Women's and Girl's Woven Dress and Blouse Fabrics.
D 4109 - 92	Performance Specification for Men's and Boy's Woven Coverall, Dungaree, Overall, and Shop Coat Fabrics.
D 4110 - 92	Performance Specification for Men's and Boys' Knitted Bathrobe, Dressing Gown, and Pajama Fabrics.
D 4111 - 92	Performance specification for Woven Napery and Tablecloth Fabrics: Household and Institutional.

D 4112 - 92	Performance Specification for Woven Umbrella Fabrics.
D 4113 - 92	Performance Specification for Woven Slipcover Fabrics.
D 4114 - 92a	Performance Specification for Woven Flat Lining Fabrics for Women's and Girls' Apparel.
D 4115 - 92	Performance Specification for Women's and Girls' Knitted and Woven Dress Glove Fabrics.
D 4116 - 92	Performance Specification for Women's and Girls' Knitted and Woven Corset-Girdle-Combination Fabrics.
D 4117 - 92	Performance Specification for Women's and Girls' Woven Robe Negligee, Nightgown, Pajama, Slip, and Lingerie Fabrics.
D 4118 - 92	Performance Specification for Women's Woven Coverall, Dungaree, Overall and Shop Coat Fabrics.
D 4119 - 92	Performance Specification for Men's and Boys' Knitted Dress Shirt Fabrics.
D 4120 - 93	Test Method for Fiber Cohesion in Roving, Sliver, and Top (Dynamic Tests).
D 4151 - 92	Test Method for Flammability of Blankets.
D 4152 - 82 (1993)	Performance Specification for Woven Institutional Dish, Huck, and Terry Bath Towel Fabrics.
D 4153 - 82	Performance Specification for Men's, Women's and Children's Woven Handkerchief Fabrics.
D 4154 - 92	Performance Specification for Men's and Boy's Knitted and Woven Beachwear and Sport Shirt Fabrics.
D 4155 - 92	Performance Specification for Women's and Girls' Woven Sportswear, Shorts, Slacks, and Suiting Fabrics.
D 4156 - 92	Performance Specification for Women's and Girls' Knitted Sportswear Fabrics.
D 4157 - 92	Test Method for Abrasion Resistance of Textile Fabrics (Oscillatory Cylinder Method).
D 4158 - 92	Test Method for Abrasion of Textile Fabrics (Uniform Abrasion Method).
D 4231 - 83 (1989)	Practice for Evaluation of Men's and Boys' Home Launderable Woven Dress Shirts and Sport Shirts.
D 4232 - 92	Performance Specification for Men's and Women's Dress and Vocational Career Apparel Fabrics.
D 4233 - 92	Performance Specification for Women's and girl's Knitted and Woven Brassiere Fabrics.
D 4234 - 92	Performance Specification for Women's and Girls' Knitted Robe, Negligee, Nightgown, Pajama, Slip, and Lingerie Fabrics.
D 4235 - 92	Performance Specification for Women's and Girls' Knitted Blouse and Dress Fabrics.
D 4238 - 90	Test Method for Electrostatic Propensity of Textiles.
D 4268 - 83	Methods of Testing Fiber Ropes.
D 4270 - 90	Guide for Using Existing Practices in Developing Test Methods for Textiles.
D 4271 - 88 (1993)	Practice for Writing Statements on Sampling in Test Methods for Textiles.
D 4272 - 93	Specification for Flame-Resistant Materials Used in Camping Tentage.
D 4389 - 89	Specification for Finished Glass Fabrics Woven from Rovings.
D 4390 - 93	Practice for the Evaluation of the Performance of Terry Bathroom Products for Household Use.
D 4391 - 93a	Terminology Relating to the Burning Behavior of Textiles.

D 4393 - 94	Test Method for Strap Peel Adhesion of Reinforcing Cords or Fabrics to Rubber Compounds.
D 4465 - 85 (1990)	Performance Specification for Zippers for Denim Dungarees.
D 4466 - 85	Terminology for Multicomponent Textile Fibers.
D 4467 - 94	Practice for Inter-laboratory Testing of a Textile Test Method That Produces Non-Normally Distributed Data.
D 4510 - 93	Test Method for Counting Partial Cleavages in Wool and Other Animal Fibers.
D 4522 - 86 (1993)	Performance Specification for Feather-Filled and Down-Filled Products.
D 4523 - 85 (1993)	Terminology Relating to Feather-Filled and Down-Filled Products.
D 4524 - 86 (1993)	Test Method for Composition of Plumage.
D 4604 - 86	Test Methods for Measurement of Cotton Fibers by High Volume Instruments (HVI) (Motion Control Fiber Information System).
D 4605 - 86	Test Methods for Measurement of Cotton Fibers by High Volume Instruments (HVI) (Special Instrument Laboratory System).
D 4685 - 87	Test Method for Pile Retention of Corduroy Fabrics.
D 4686 - 91	Guide for Identification of Frequency Distributions.
D 4697 - 91	Guide for Maintaining Test Methods in the User's Laboratory.
D 4720 - 87 (1994)	Practice for Evaluation of the Performance of Soft Window Coverings.
D 4721 - 89 (1994)	Practice for Evaluation of the Performance of Machine Washable and Drycleanable Bed Coverings and Accessories.
D 4723 - 90 (1993)	Index and Descriptions of Textile Heat and Flammability Test Methods and Performance Specifications .
D 4724 - 87 (1992)	Test Methods for Degree of Filament Yarn Entanglement by Needle Insertion Methods.
D 4769 - 88 (1994)	Performance Specification for Woven and Warp Knitted Comforter Fabrics.
D 4770 - 88	Test Method for Evaluation of Man-made Fiber Batting Used as Filling in Outerwear Apparel.
D 4771 - 94	Performance Specification for Knitted Upholstery Fabrics for Indoor Furniture.
D 4772 - 88	Test Method for Surface Water Absorption of Terry Fabrics (Water-Flow Test Method).
D 4776 - 88	Test Method for Adhesion of Tire Cords and Other Reinforcing Cords to Rubber Compounds by H-Test Procedure.
D 4777 - 88	Test Method for Adhesion of Tire Cords and Other Reinforcing Cords to Rubber Compounds by Hot U-Test Procedure.
D 4845 - 89	Terminology Relating to Wool.
D 4846 - 88	Test Method for Resistance to Unsnapping of Snap Fasteners.
D 4847 - 88	Performance Specification for Woven Awning and Canopy Fabrics.
D 4848 - 94a	Terminology Relating to Tensile Properties of Textiles.
D 4850 - 91	Terminology Relating to Fabric and Related Terms.
D 4851 - 88	Test Method for Coated and Laminated Fabrics for Architectural Use.
D 4852 - 88 (1994)	Practice for Evaluation of Attached Upholstery Fabrics.
D 4853 - 91	Guide for Reducing Test Variability.
D 4854 - 91	Guide for Estimating the Magnitude of Variability from Expected Sources in Sampling Plans.
D 4855 - 91	Practice for Comparing Test Methods.

D 4909 - 89	Test Method for Color Stability of Vinyl-Coated Glass Textiles to Accelerated Weathering.
D 4910 - 89	Standard Table of Body Measurements for Infants, Ages 0 to 18 Months.
D 4911 - 94	Tolerances for Man-Made Yarns Spun on the Parallel Worsted or Modified Worsted System.
D 4912 - 89	Test Method for Fabric Stability of Vinyl-Coated Glass Yarn Insect Screening and Louver Cloth.
D 4920 - 89	Terminology Relating to Moisture in Textiles.
D 4963 - 89	Test Method for Ignition Loss of Glass Strands and Fabrics.
D 4964 - 94	Test method for Tension and Elongation of Elastic Fabrics (Constant-Rate-of-Expansion Type Tension Testing Machine).
D 4965 - 89b	Terminology of Seam Finishes in Home Sewing.
D 4966 - 89	Test Method for Abrasion Resistance of Textile Fabrics (Martindale Abrasion Tester Method).
D 4970 - 89	Test Method for Pilling Resistance and Other Related Surface Changes of Textile Fabrics (Martindale Pressure Tester Method).
D 4974 - 93	Test Method for Thermal Shrinkage of Yarn and Cord Using the Textile Thermal Shrinkage Oven.
D 4975 - 93	Test Methods for Single-Filament Tire Bead Wire Made from Steel.
D 5034 - 90	Test Method for Breaking Force and Elongation of Textile Fabrics (Grab Test).
D 5035 - 90	Test Method for Breaking Force and Elongation of Textiles Fabrics (Strip Test).
D 5038 - 90	Terminology of Textile Conversation.
D 5103 - 90	Test Method for Length and Length Distribution of Man-Made Staple Fibers (Single-Fiber Test).
D 5104 - 90	Test Method for Shrinkage of Textile Fibers (Single-Fiber Test).
D 5169 - 91	Test Method for Shear Strength (Dynamic Method) of Hook and Loop Touch Fasteners.
D 5170 - 91	Test Method for Peel Strength ("T" Method) of Hook and Loop Touch Fasteners.
D 5171 - 91	Test Method for Impact Resistance of Plastic Sew-Through Flange Buttons.
D 5219 - 94b	Terminology Relating to Body Dimensions for Apparel Sizing.
D 5328 - 92	Test Method for Smoldering Combustion Potential of Cotton-Based Batting.
D 5251 - 92	Practice for the Operation of the Tetrapod Walker Drum Tester.
D 5252 - 92	Practice for the Operation of the Hexapod Drum Tester.
D 5253 - 92	Terminology of Writing Care Instructions and General Refurbishing Procedure for Textile Floor Coverings and Textile Upholstered.
D 5278 - 92	Test Method for Elongation of Narrow Elastic Fabrics (Bean Bag Test Method).
D 5332 - 92	Test Method for Fiber Length and Length Distribution of Cotton and Man-Made Staple Fibers.
D 5344 - 93	Test Method for Extension Force of Partially Oriented Yarn.
D 5362 - 93	Test Method for Snagging Resistance of Fabrics (Bean Bag Test Method).
D 5478 - 93	Performance Specification for Woven and Knitted Shower Curtains for Institutional and Household Use.
D 5417 - 93	Practice for the Operation of the Vettermnan Drum Tester.

D 5426 - 93	Practice for the Visual Inspection and Grading of Fabrics Used for Inflatable Restraints.
D 5427 - 93	Practice for the Accelerated Aging of Inflatable Restraint Fabrics.
D 5428 - 93	Practice for Evaluating the Performance of Inflatable Restraint Modules.
D 5429 - 93a	Practice for the Pre-treatment of Backing Fabrics Used in Textile Conservation Research.
D 5430 - 93	Test Methods for Visually Inspecting and Grading Fabrics.
D 5431 - 93	Performance Specification for Woven and Knitted Sheeting Products for Institutional and Household Use.
D 5432 - 93	Performance Specification for Blanket Products for Institutional and Household Use.
D 5433 - 93	Performance Specification for Towel Products for Institutional and Household Use.
D 5446 - 93	Test Methods for Determining Physical Properties of Fabrics Used in Inflatable Restraints.
D 5489 - 93	Guide for Care Symbols for Permanent Care Labels On Consumer Textile Products.
D 5497 - 94	Terminology Relating to Buttons.
D 5585 - 93	Standard Table of Body Measurements for Adult Female Misses Figure Type Size 2-20.
D 5586 - 94	Standard Tables of Body Measurements for Women Aged 55 and Older (All Figure Types).

C.5 Government/Military Standards and Specifications[45]

Because of its size and diversity of content, the military and federal standards and specifications are organized into two levels of subjects. Standards within each subgroup are listed numerically. This section is broken into the following groups and subgroups:

NOTIONS/TENTS
- Notions & Apparel Findings
- Tents/Tarpaulins/Covers

CLOTHING/INDIVIDUAL EQUIPMENT
- General Information/Applications
- Outerwear, Men's
- Outerwear, Women's
- Food Handler's/Processor's
- Special Pockets Garments
- Surgical Gown/Glove/Mask
- Nonsurgical Medical & Veterinary
- Underwear & Nightwear, Men's
- Underwear & Nightwear, Women's
- Hosiery, Handwear & Clothing Accessories, Men's
- Hosiery, Handwear & Clothing Accessories, Women's
- Children's & Infant's Apparel & Accessories
- Luggage
- Clothing/Individual Equipment

NOTIONS/TENTS

Notions & Apparel Findings

KSC-SPEC-P-0016 REV A	Minimum Requirements for Garment Snap Fastener, Specification for. FSC PACK
DDD-L-20F (1)	Label: for Clothing, Equipage, and Tentage, (General Use). FSC 8315
A-A-119B	Pin, Safety. FSC 8315
MIL-HDBK-150B	Clothing Components for Military Uniforms. FSC 8315
FF-N-180A INT AMD 1	Needles, Except Surgical, Hand. FSC 8315
GGG-N-202C Valid Notice 1	Needle, Sailmaker. FSC 8315
MIL-B-286D	Buttons, Tack; and Tack, Button. FSC 8315
V-B-871F	Button, Sewing Hole, and Button, Staple, (Plastic). FSC 8315
MIL-STD-1394B	Provisions for Evaluating Quality of Cap Crowns. FSC 8405
A-A-1749	Headband, Sweat. FSC 4240
MIL-B-1860E	Buckle, Slide, Plastic. FSC 8315
MIL-B-1963J (1)	Buckles; and Clips, End, Strap (for Belt, Trousers). FSC 8315
MIL-S-3276H	Sewing Kits. FSC 8315
MIL-S-3577G	Sweatband, Headwear, Leather. FSC 8405
MIL-B-14656	Buckle and Catch, Ceremonial, Army. FSC 8315
MIL-L-15040F Valid Notice 1	Label, Garment (Woven, Rayon). FSC 8315
MIL-P-15064G (1)	Pads, Shoulder and Sleeve-Head. FSC 8315
MIL-C-15065J	Coat Fronts. FSC 8315
MIL-L-17507F (1)	Lace, Ornamental. FSC 8315
MIL-E-17568C	Embroidery Materials, Metallic and Synthetic Metallic. FSC 8315

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MIL-F-17619E (1)	Frame, Service Cap (Man's). FSC 8405
MIL-C-17620F	Crown, Service Cap (Man's). FSC 8405
MIL-B-17910D	Buckle, Brass: for Belt, Coat, Man's. FSC 8315
MIL-C-18186D (1)	Crowns, Service Cap. FSC 8405.
MIL-F-20268G	Frame, Cap, Man's. FSC 8405
MIL-B-20269E	Buckles: Insignia and Plain. FSC 8315
MIL-L-20271C Valid Notice 1	Lace, Gold: Ornamental. FSC 8315
MIL-B-20588F	Buckle, Center Bar (Military Police Belt). FSC 8315
MIL-S-22760C	Support Crown, Service Cap; and Support Holder. FSC 8405
MIL-C-23486B	Collar, Coat, Man's: Polyester/Wool, Gabardine, Blue. FSC 8315
MS35901	Notions and Apparel Findings FSC Class 8315. FSC 8315
MIL-B-40006D	Buckle, General Officers' Belt, Gold Plated. FSC 8315
MIL-B-40092D	Braid, Textile, Cord-Edge, Polyester. FSC 8315
MIL-F-43514B	Fastener, Plastic, for Equipage Items. FSC 8465
MIL-S-43993C	Sweatband, Headwear: Artificial Leather. FSC 8405
A-A-52067	Binding, Textile, Cotton, Bias-Cut. FSC 8315
A-A-55066	Needles, Except Surgical, Hand. FSC 8315
A-A-55187	Braid, Textile (Flat). FSC 8315
A-A-55190	Sewing Kit. FSC 8315
MIL-C-82114A	Coat Front: for Coats, Musicians. FSC 8315
MIL-N-87224 Valid Notice 1	Neck Tab, Women's, Shirts. FSC 8445

<u>Tents/Tarpaulins/Covers</u>

K-P-146E INT AMD 1	Tarpaulins, Cotton Duck, FWW/MR. FSC 8340
MIL-P-500H	Plates, Tent, Peak and Ridge. FSC 8340
MIL-P-501P	Pin, Tent, Metal. FSC 8340
MIL-P-549K	Poles, Tent, Upright and Ridge. FSC 8340
MIL-P-608K	Pole Section, Tent: Upright and Adapter, Tent Pole. FSC 8340
MIL-T-1110F	Tent, Assembly, M-1942. FSC 8340
MIL-T-1111G (2)	Tent, Command Post, M-1945, Fire, Water, Weather and Mildew Resistant, Olive Drab, Complete. FSC 8340
MIL-F-1461H	Frame Sections, Tent, Maintenance. FSC 8340
MIL-S-1484E	Shields, Stovepipe, Tent. FSC 8340
MIL-T-1712T	Tent, General Purpose, Medium. FSC 8340
MIL-P-1716H (1)	Pole, Tent, Telescopic, Adjustable 5 Feet to 9 Feet, Magnesium. FSC 8340
MIL-S-1743H	Slips, Tent Line. FSC 8340
MIL-T-1926G	Tent, Mountain, Two-Man, Complete with Pins and Poles. FSC 8340
MIL-T-1956D (1)	Tarpaulins, Waterproof, Special Purpose, 10 Feet Long by 8 Feet Wide. FSC 8340
MIL-P-2383H	Pins, Tent, Wood. FSC 8340
MIL-S-3725E Valid Notice 1	Shelter Half, Tent. FSC 8305
MIL-T-7249B Valid Notice 1	Tarpaulin, Light Weight. FSC 8340
MIL-T-10009H	Tent, Kitchen, Flyproof, M-1948. FSC 8340
MIL-T-10035K	Tent, Hexagonal, Light Weight, M-1950. FSC 8340
MIL-T-10069G (2)	Tent, Maintenance Shelter, Fire, Water, Weather, and Mildew Resistant, Olive Drab. FSC 8340
MIL-T-10168J	Tent, Frame-Type, Insulated, Sectional, with Floor, 16 Feet Wide, M1948, Complete. FSC 8340
MIL-I-10901H Valid Notice 1	Insect Bar: Field Type, Nylon Netting. FSC 7210
MIL-U-11224E (1)	Umbrella, Surveyor's (Six-Rib). FSC 8340

MIL-T-12354F (1)	Tent, Arctic, 10 Man. FSC 8340
MIL-T-1219F	Tent Liner, General Purpose, Medium. FSC 8340
MIL-C-13489D	Cover and End Curtains; Cargo Body (for Military Vehicles). FSC 2540
MIL-T-14038K	Tent, General Purpose, Large. FSC 8340
MIL-T-14056G	Tent Liner, General Purpose, Large, Fire, Water, and Mildew Resistant. FSC 8340
MIL-C-18680C	Fly, Tent: Fire, Water, Weather and Mildew Resistant. FSC 8340
MIL-C-22043	Covers, Coated, Nylon (for Naval Ordnance Equipment). FSC 10GP
MIL-T-40001E	Tent, Observing, Triangulation, Ground Type, Complete with Frame. FSC 8340
MIL-T-40031E	Tent, Observing, Astronomic, Complete with Fly and Frame. FSC 8340
MIL-F-40132G	Frame Sections, Tent, Maintenance, Medium, Light Metal. FSC 8340
MIL-P-40148F	Poles, Tent, Telescopic, Adjustable, Aluminum. FSC 8340
MIL-T-41810K	Tent, General Purpose, Small. FSC 8340
MIL-T-41812H	Tent, Liner Sections, Frame-Type, Maintenance, Medium. FSC 8340
MIL-T-41813F	Tent Sections, Frame Type, Maintenance, Medium. FSC 8340
MIL-T-41830E	Tent, Vehicle Maintenance, Complete with A-Frame. FSC 8340
MIL-S-43176C	Screen, Latrine, Fire, Water, Weather, and Mildew Resistant Treated, O.D. FSC 8340
MIL-T-43182D	Tent, Missile System Equipment Console (HAWK). FSC 8340
MIL-T-43309C Valid Notice 1	Tarpaulin: Cotton Duck for Wind Measuring Set. FSC 8340
MIL-T-43333C	Tent Liner, General Purpose, Small and Arctic, 10 Man. FSC 8340
MIL-T-43389 (1)	Tarpaulin, Cotton Duck, Olive Drab No. 7; 20 Feet by 20 Inches. FSC 8340
MIL-P-43413D	Poles, Tent, Light Metal, Special. FSC 8340
MIL-T-43416C	Tent, Sunshield, Theodolite. FSC 8340
MIL-T-43492C	Tent Sections, Frame Type, Expandable. FSC 8340
MIL-T-43512B (1)	Tents, Missile System Equipment Console, (High-Power Illuminator HAWK). FSC 8340
MIL-F-43695B	Frame Sections, Tent, Frame Type, Expandable. FSC 8340
MIL-T-43764A	Tents, Cable Splicer. FSC 8340
MIL-T-44222A	Tent, Liner Sections; Insulated (Temper). FSC 8340
MIL-T-44243A (1)	Tent Sections, Tent, Extendable, Modular, Personnel (Temper). FSC 8340
MIL-F-44251A	Frame Sections, Tent, Extendable, Modular, Personnel (Temper). FSC 8340
MIL-T-44271A	Tents, Extendable, Modular, Personnel (Temper), Assembly Components. FSC 8340
MIL-F-44397 (1)	Frame, Tent, (SICPS). FSC 8340
MIL-T-44400 (1)	Tent, Fabric Assemblies, Standardized Integrated Command Post System. FSC 8340
MIL-P-44403	Passageway, Complexing Kit. FSC 8340
MIL-C-44404	Command Post, Tent, Standardized Integrated Command Post System. FSC 5410
MIL-C-44413	Cover, Nuclear, Biological, and Chemical Protective (NBC-CP). FSC 8340
MIL-F-44425	Frame Section, Tent, Five Soldier Crew. FSC 8340
MIL-T-44427	Tent, Five Soldier Crew. FSC 8340

MS5123 REV C Valid Notice 1	Cover, Fitted, Vehicular Body - Top. FSC 2540
A-A-55235	Tarpaulin; Cotton Duck, Camouflage Green 483; 20 Feet by 20 Inches. FSC 8340
MIL-S-55507E (2)	Shelter, Electrical Equipment (With or Without Equipment), Packaging of. FSC PACK
MIL-S-55557A Notice 2	Shelter, Electrical Equipment S-330()/TRC-117(V). FSC 5410
MIL-T-82120A (1)	Tarpaulins: Duck, Cotton; Fire, Water, Weather and Mildew Resistant Treated; with Carrying Bag. FSC 8340
MIL-T-82152B	Tarpaulins: Duck, Cotton, Vinyl Resin Coated Both Sides, 14 Feet Long by 6 Feet Wide. FSC 8340
MIL-T-82288B	Tarpaulin: Laminated, Vinyl-Nylon, Flexible. FSC 8340
MIL-T-83788	Tent, Pyramidal, Survival, 3-4 Man, SRU-1/P. FSC 8340
MIL-C-83991A	Cover, Polyethylene, Pallet, Cargo HCU-6/E And HCU-12/E (Use A-A-55437). FSC 3990

CLOTHING/INDIVIDUAL EQUIPMENT

General Information/ Applications

MIL-HDBK-156	Glossary of Military Clothing Fabrication Terms. FSC 8430
MIL-STD-284A	Visual Inspection Guide for Rubber Footwear. FSC 8430
MIL-L-35078M SUPP 1	Loads, Unit: Preparation of Semiperishable Subsistence Items: Clothing, Personal Equipment and Equipage; General Specification for. FSC PACK
MIL-C-44192A	Container, Shipping and Storage, Coat (Hanger Pack). FSC 8115

Outerwear, Men's

BBB-C-0050	Cap, Softball. FSC 8415
MIL-STD-657A	Provision for Evaluating Quality of Service Caps. FSC 8405
MIL-C-8131E (1)	Cap, Utility: Cotton, Sateen, Green. FSC 8405
MIL-STD-901B	Provisions for Evaluating Quality of Caps, Garrison, Men's. FSC 8405
BBB-S-1268B Valid Notice 1	Sweat Shirt. FSC 8415
BBB-S-1269B (2)	Sweat Pants. FSC 8415
MIL-STD-1391D	Provisions for Evaluating Quality of Overcoats, Men's. FSC 8405
MIL-STD-1488G	Provisions for Evaluating Quality of Coats, Men's Dress. FSC 8405
MIL-STD-1492C	Provisions for Evaluating Quality of Men's Shirts. FSC 8405
MIL-STD-1494B	Provisions for Evaluating Quality of Raincoats. FSC 8405
A-A-1626	Shirt, Man's and Women's (Long or Short Sleeve). FSC 8405
A-A-1782	Cap, Civilian, Uniform. FSC 8405
A-A-1783	Shirt, Man's (and Woman's; Long Sleeve). FSC 8415
A-A-1784	Trousers, Man's (and Woman's - Summer Weight). FSC 8415
A-A-1785	Trousers, Man's and Woman's (Winter Weight). FSC 8405
A-A-1786	Shirt, Man's (and Woman's; Short Sleeve). FSC 8415
MIL-C-1911J INT AMD 2	Cap, Camouflage Pattern. FSC 8415
MIL-S-2036J	Scarf, Neckwear, Wool. FSC 8440
MIL-C-2202H	Coveralls, Men's Cotton, Sateen. FSC 8405
MIL-O-2414H	Overcoat, Man's, Enlisted. FSC 8405
MIL-T-2423L	Trousers, Men's (White). FSC 8405
MIL-S-3003K (1)	Poncho, Wet Weather, Heavy Duty. FSC 8405
MIL-S-3007J (1)	Sweater, Man's, Olive Drab. FSC 8405

MIL-C-3095G	Cap, Service, Man's, Air Force. FSC 8405
MIL-C-3261F	Cap, Garrison, Man's Air Force, Blue. FSC 8405
MIL-H-3364D	Helmet, Sun. FSC 8415
MIL-S-3649F Valid Notice 1	Shirt, Man's; Long Sleeve. FSC 8405
MIL-J-7448K	Jacket, Utility L-2B. FSC 8405
MIL-S-10858H	Shirt, Cold Weather, Field, Wool/Nylon, Olive Green 108. FSC 8415
MIL-C-13998H Valid Notice 1	Cap, Service, Wool. FSC 8405
MIL-C-15065J	Coat Fronts. FSC 8315
MIL-C-16472H	Cap, Knit (Watch). FSC 8405
MIL-C-17614F	Cap, Garrison, Man's. FSC 8405
MIL-S-17615E	Strap, Chine (Navy and Coast Guard). FSC 8405
MIL-S-17618H	Shirt, Man's, (Polyester/Cotton, Tropical, Short Sleeve).
MIL-H-19448C Valid Notice 1	Hat, Service: with Chin Strap. FSC 8405
MIL-C-19519G (1)	Coat, Man's: Polyester/Wool, Gabardine; Blue. FSC 8405
MIL-S-19984E	Shirt, Man's: Khaki; with Quarter Length Sleeve. FSC 8405
MIL-C-21083C (1)	Coat, Man's: Service, Officers, USMC. FSC 8405
MIL-S-21088C Valid Notice 1	Coast, Man's: White; Dress (Officer's). FSC 8405
MIL-T-21704F	Trousers, Cold Weather. FSC 8415
MIL-J-21708G	Jacket, Cold Weather. FSC 8415
MIL-C-24918B	Coat, All-Weather, Man's, W/Removable Liner. FSC 8405
MIL-C-24920A	Coat, All-Weather, Man's, with Removable Liner. FSC 8405
MIL-S-24922	Sweater, Man's (Flame Retardant). FSC 8405
MIL-C-24937A	Cap, Combination, Man's, (CG). FSC 8405
MIL-S-24950	Shirt, Man's, Dress White, Long Sleeve (CG). FSC 8405
MIL-H-25754B (1)	Hood, Winter, Knit, Wool. FSC 8415
MIL-C-27438G	Coat, Men's, Service. FSC 8405
MIL-C-27845C Valid Notice 1	Coveralls, Men's CMU-3/P. FSC 8405
MIL-T-28902B	Trousers, Men's: Musicians. FSC 8405
MIL-T-28919 Valid Notice 1	Trousers, Men's: Service, Summer and Winter (Officer's). FSC 8405
MIL-T-28920A Valid Notice 1	Trousers Men's: Dress (Officer's). FSC 8405
MIL-V-28936 Valid Notice 1	Vest, Man's: Dress White (Officer's). FSC 8405
MIL-C-28950A Valid Notice 1	Coat Man's: Dress Blue (Officer's). FSC 8405
MIL-P-28958	Parka and Trousers, Wet Weather: Lightweight. FSC 8405
MIL-J-28978A	Jacket, Man's: Evening Dress (Staff, Noncommissioned Officer's). FSC 8405
MIL-M-28985	Maintenance Kit: Wet Weather Clothing; Parka and Trousers. FSC 8405
MIL-C-29106B	Coat, Man's, Wool, Winter. FSC 8405
MIL-C-29107C	Coat, Man's, Polyester/Wool. FSC 8405
MIL-C-29109B	Coveralls, Anti-Exposure. FSC 8415
MIL-T-29112C	Trunks Swimmers. FSC 8415
MIL-S-29130A	Shorts, Men's, Polyester/Cotton. FSC 8405
MIL-S-29149C	Shirt, Man's, Polyester and Wool, Long Sleeve. FSC 8405
MIL-C-29366B	Cap, Utility: Camouflage. FSC 8405
MIL-J-29370	Jacket, Man's: Lightweight. FSC 8405
MIL-C-29380D	Coat, All-Weather, Men's. FSC 8405
MIL-V-29389	Vest, Man's: Scarlet, Dress (General Officer's). FSC 8405
MIL-B-29407A	Belt, All Weather, Coat, Men's. FSC 8405
MIL-S-2915A	Sweater; Service Wool. FSC 8405
MIL-C-29424A	Coat, Man's: Polyester/Wool, Gabardine. Green (with Belt). FSC 8405
MIL-S-29428A	Scarf: Headover, Wool. FSC 8440

MIL-C-29433	Caps, Garrison: Men's. FSC 8405
MIL-J-29451A	Jacket, Men's: Intermediate Weight, Polyester/Wool. FSC 8405
MIL-T-29542A	Trousers, Men's: Polyester/Wool. FSC 8405
MIL-C-29632	Coat, Man's, Polyester/Wool, Serge, Fusible (Coast Guard). FSC 8405
MIL-J-29634	Jersey, Flight Deck Crewman's (Flame Retardant). FSC 8415
MIL-C-31002	Cap, Garrison, Man's (Coast Guards). FSC 8405
MIL-C-31006 INT AMD 1	Coat, Man's. FSC 8405
MIL-C-38182C	Cover, Service Cap, Man's, Water Repellant. FSC 8405
MIL-P-38184C Valid Notice 1	Parka, Extreme Cold Weather CWU-8/P. FSC 8415
MIL-R-38213B Valid Notice 1	Raincoat, Man's, Lightweight, Blue. FSC 8405
MIL-T-41828H	Trousers, Men's, Polyester/Wool. FSC 8405
MIL-C-41833E	Coverall, Mechanic's, Cold Weather. FSC 8415
MIL-T-41834G	Trousers, Men's, Polyester and Cotton. FSC 8415
MIL-B-43172E	Beret, Man's, Wool. FSC 8405
MIL-L-0043335F INT AMD 1	Liner, Wet Weather Poncho. FSC 8405
MIL-S-43355B Valid Notice 1	Strap Chin; and Suspension Assembly, Chinstrap. FSC 8470
MIL-H-43371B	Hat, Sun, Reversible. FSC 8415
MIL-C-43415C	Cap, Service, Military Police, White. FSC 8405
MIL-C-43419E	Cap, Garrison, Men's Polyester/Wool, Army Green 344. FSC 8405
MIL-C-43455J	Coat, Cold Weather, Field. FSC 8415
MIL-T-43497D (1)	Trousers, Cold Weather, Field, Nylon and Cotton. FSC 8415
MIL-L-43498D	Liner, Cold Weather Trousers, Field. FSC 8415
MIL-R-43518C	Raincoats, Men's, Quarpel. FSC 8405
MIL-L-43536F	Liner, Cold Weather Coat. FSC 8415
MIL-O-4357C	Overcoat, Man's, Army Green 44, with Removable Liner. FSC 8405
MIL-P-0043700D INT AMD 1	Poncho, Wet Weather. FSC 8405
MIL-C-43724C Valid Notice 1	Cap - Hot Weather Olive Green 507. FSC 8415
MIL-P-43907D	Parka and Trousers, Wet Weather. FSC 8405
MIL-J-43924E	Jackets, Cold Weather, (High Temperature Resistant). FSC 8415
MIL-S-43929B Valid Notice 1	Shirt, Utility, (Durable Press). FSC 8405
MIL-T-43932C Valid Notice 1	Trousers, Utility, (Durable Press). FSC 8405
MIL-M-43946A Valid Notice 1	Maintenance Kit: Wet Weather Clothing. FSC 8405
MIL-T-43957D	Trousers, Men's, Dress, Wool and Polyester/Wool. FSC 8405
MIL-S-43959A	Sweat Shirt: Zipper Front. FSC 8415
MIL-S-43960 Valid Notice 1	Sweat Pants: Leg Zipper. FSC 8415
MIL-B-43965A Valid Notice 1	Bag, Wet Weather Clothing: (Parka and Trousers). FSC 8465
MIL-J-43967C	Jersey, Reversible. FSC 8415
MIL-C-44030B	Coat, All-Weather, Man's, Black, with Removable Liner. FSC 8405
MIL-S-44039C	Shirt, Man's, Long Sleeve, Polyester/Cotton, Army Green 415, Durable Press. FSC 8405
MIL-S-44041C	Shirt, Man's, Short Sleeve, Polyester/Cotton, Army Green 415, Durable Press. FSC 8405
MIL-T-44047E	Trousers, Camouflage Pattern, Combat. FSC 8415
MIL-P-44087B INT AMD 1	Parka, Night Camouflage, Desert. FSC 8415
MIL-L-44089A	Liner, Night Camouflage Parka: Desert. FSC 8415
MIL-T-44094B INT AMD 1	Trousers, Night Camouflage, Desert. FSC 8415
MIL-H-44105B	Hats, Sun, Hot Weather. FSC 8415
MIL-C-44211A (1)	Coats, Men's, Tropical and Serge, Polyester/Wool, Army Green 344, Fusible. FSC 8405

MIL-S-44212A	Sweatshirt, Hooded, Physical Fitness Uniform (PFU). FSC 8415
MIL-T-44214A	T-Shirt, Physical Fitness Uniform (PFU). FSC 8415
MIL-S-44215A	Sweatpants, Physical Fitness Uniform (PFU). FSC 8415
MIL-S-44290	Smock, Man's: Hospital Duty Uniform (HDU). FSC 8405
MIL-T-44291	Trousers, Man's: Hospital Duty Uniform (HDU). FSC 8405
A-A-50358B	Coveralls, Disposable, General Purpose. FSC 8415
A-A-50366	Sweater, Man's Modacrylic/Wool. FSC 8405
A-A-50367A	Coat, Man's, All Weather, with Removable Liner. FSC 8405
A-A-50369	Cap, Knit (Watch). FSC 8405
A-A-50526B	Hat, Service: with Chin Strap. FSC 8405
A-A-50527	Trunks, General Purpose. FSC 8415
A-A-50528A	Coat, Shooter's Green. FSC 8415
A-A-52112B	Shirts, Man's. FSC 8405
A-A-52115B	Sweater, Man's, Olive Drab. FSC 8405
A-A-55085	Trousers, Men's, Polyester/Cotton. FSC 8405
A-A-55086	Trousers, Men's, Undress, Polyester/Cotton (CG). FSC 8405
A-A-55091	Shirt, Man's, Polyester and Wool, Long Sleeve. FSC 8405
A-A-55095	Coveralls, Utility. FSC 8405
A-A-55108	Hat, Service (White). FSC 8405
A-A-55110A	Coat, All-Weather, Man's, W/Removable Liner. FSC 8405
A-A-55178	Coveralls, Men's, Cotton, Sateen. FSC 8405
A-A-55180	Cap, Utility, Cotton, Sateen, Green. FSC 8405
A-A-55184	Beret, Man's, Wool. FSC 8405
A-A-55185	Trousers, Men's (White). FSC 8405
A-A-55186	Poncho, Wet Weather, Heavy Duty. FSC 8405
A-A-55219	Trousers, Men's (Enlisted, White). FSC 8405
A-A-55222	Belt, Man's Coat. FSC 8405
A-A-55229	Raincoat, Man's. FSC 8405
A-A-55239	Sweater, Service Wool. FSC 8405
A-A-55294	Cap, Camouflage Pattern. FSC 8415
MIL-C-82114A	Coat Front: for Coats, Musicians. FSC 8315
MIL-T-82139A	Tabard: USMC Band, Embroidered. FSC 8345
MIL-C-82145A Valid Notice 1	Coat, Man's: Special Full Dress Scarlet, U.S. Marine Band, Musicians. FSC 8405
MIL-C-82149A Valid Notice 1	Coat, Man's: Full Dress, Scarlet, U.S. Marine Band, Musician. FSC 8405
MIL-S-82155B	Stripe, Trousers, Dress. FSC 8455
MIL-C-82156B	Coat, Man's; Scarlet, Drum and Bugle Corps, Musician. FSC 8405
MIL-H-82157A	Hat, Rain: Man's, Cotton, Rubber Coated; Olive Green 107. FSC 8405
MIL-T-82161A Valid Notice 1	Trousers, Men's: Evening Dress (Officer's). FSC 8405
MIL-T-82163B	Trousers, Men's: Dress, White and Special Mess, Black. FSC 8405
MIL-C-82168A Valid Notice 1	Coat, Man's, Full Dress, Summer and winter, Scarlet, U.S. Marine Band, Drum Major. FSC 8405
MIL-C-82172B (1)	Coat, Man's: Full Dress, U.S. Marine Band Officer's. FSC 8405
MIL-J-82193B	Jacket, Man's: Evening Dress (Officer's). FSC 8405
MIL-O-82250D	Overcoat, Man's (Officer's Type). FSC 8405
MIL-T-82251E	Trunks, General Purpose. FSC 8415
MIL-J-82293D	Jacket, Utility, Man's, Blue. FSC 8405
MIL-J-83472A Valid Notice 1	Jacket, Cold Weather, Security Police CWU-46/P. FSC 8415
MIL-C-87000B (1)	Coveralls, Men's. FSC 8405

MIL-C-87026A	Coat, Man's, Polyester/Wool, Serge (Coat Guard). FSC 8405
MIL-J-87035C	Jumper, Man's (Blue, Dress). FSC 8405
MIL-J-87037D	Jumper, Man's, White. FSC 8405
MIL-T-87038D	Trousers, Men's (Blue, Enlisted). FSC 8405
MIL-H-87041B	Hat, Service (White). FSC 8405
MIL-S-87046A	Shirt, Utility, Man's, Polyester/Cotton (CG). FSC 8405
MIL-T-87047A	Trousers, Men's Polyester/Wool Serge (CG). FSC 8405
MIL-S-87060B	Shirts, Utility, Men's Chambray. FSC 8405
MIL-T-87062B	Trousers, Utility, Men's Denim. FSC 8405
MIL-T-87067C	Trousers, Men's, (Enlisted, White). FSC 8405
MIL-C-87093B	Coveralls, Flame Resistant (Aramid). FSC 84115
MIL-P-97098	Parka, Wet Weather. FSC 8405
MIL-T-87099	Trousers, Wet Weather. FSC 8405
MIL-C-87110A	Coat, All-Weather: Man's, Blue, with Removable Liner. FSC 8405
MIL-C-87165 Valid Notice 1	Collar, Jacket, Detachable CWU 63/P. FSC 8315
MIL-S-87214B	Shirts, Man's Short and Long Sleeves Polyester/Cotton (Durable Press) and Long Sleeves, Polyester/Wool. FSC 8405
MIL-J-87250	Jacket, Man's; Lightweight with Removable Liner. FSC 8405

Outerwear, Women's

MIL-STD-656C	Provisions for Evaluating Quality of Slacks, Women's. FSC 8410
MIL-STD-657A	Provisions for Evaluating Quality of Service Caps. FSC 8405
MIL-STD-902A	Provisions for Evaluating Quality of Caps, Garrison, Women's. FSC 8410
MIL-STD-984 Chg Notice 1	Size Labeling for Women's Uniform Clothing, Provisions for. FSC 8410
MIL-STD-1608C Notice 1	Provisions for Evaluating Quality of Coats, Women's, Dress. FSC 8410
MIL-STD-1609C	Provisions for Evaluating Quality of Women's Skirts. FSC 8410
A-A-1626	Shirt, Man's and Women's (Long or Short Sleeve). FSC 8405
A-A-1782	Cap, Civilian, Uniform. FSC 8405
A-A-1783	Shirt, Man's (and Woman's; Long Sleeve). FSC 8415
A-A-1784	Trousers, Man's (and Woman's - Summer Weight). FSC 8405
A-A-1785	Trousers, Man's and Woman's (Winter Weight). FSC 8405
A-A-1786	Shirt, Man's (and Woman's; Short Sleeve). FSC 8415
MIL-C-15065J	Coat Fronts. FSC 8315
MIL-H-15505K	Hat, Service, Woman's. FSC 8410
MIL-C-15507L	Cap, Garrison, Woman's (Navy). FSC 8410
MIL-C-15881C	Coat, Woman's: Cotton, Sateen; Green; (Utility). FSC 8410
MIL-S-19665B	Shirt, Woman's: Cotton, Sateen, Green (Utility). FSC 8410
MIL-H-19793C	Havelock, Plastic. FSC 8410
MIL-S-202474A	Slacks, Women's: Cotton, Sateen, Green (Utility). FSC 8410
MIL-O-21086B (1)	Overcoat, Women's: Wool, Serge, Green. FSC 8410
MIL-H-24900A	Hat, Combination, Woman's (Coast Guard). FSC 8410
MIL-R-24919A	Raincoat, Women's, w/Removable Liner(CG). FSC 8410
MIL-C-24921A	Coat, All-Weather, Woman's, with Removable Liner. FSC 8410
MIL-S-24923	Shirt, Utility, Woman's, Polyester/Cotton (CG). FSC 8410
MIL-O-24926A	Overcoat, Woman's, Enlisted. FSC 8410
MIL-S-24948A	Slacks, Women's (with Side Pockets). FSC 8410
MIL-J-24949	Jumper, Woman's, White. FSC 8410
MIL-C-28922 (2)	Coat, Woman's: Summer, Green and White. FSC 8410

MIL-U-28946A Valid Notice 1	Uniform, Women's: White; Dress (Officer's). FSC 8410
MIL-S-29122D	Skirt, Woman's, Blue, Dress. FSC 8410
MIL-C-29123A	Coat, Women's, Summer (Navy). FSC 8410
MIL-C-29124D	Coat, Woman's, Blue, Dress. FSC 8410
MIL-S-29138A (1)	Sweater, Woman's, Acrylic. FSC 8410
MIL-S-29368C	Shirts, Women's: Long and Short Sleeves. FSC 8410
MIL-T-29375A	Tunic: Woman's Maternity. FSC 8410
MIL-S-29376A	Skirt: Woman's Maternity. FSC 8410
MIL-S-29377A	Slacks: Women's Maternity. FSC 8410
MIL-C-29381C	Coat, All-Weather, Women's. FSC 8410
MIL-H-29382	Hood, Woman's: All-Weather Coat, Dress. FSC 8410
MIL-V-29384 Valid Notice 1	Vest, Women's: Scarlet, Dress (General Officer's). FSC 8410
MIL-C-29386A	Cap, Dress: Women's. FSC 8410
MIL-S-29388B (1)	Shirts, Women's: Maternity, Long and Short Sleeves. FSC 8410
MIL-C-29391A	Coat, Women's: Wool Gabardine: Dress Blue Ceremonial. FSC 8410
MIL-C-29393 Valid Notice 1	Coat, Women's: Full Dress, Scarlet, U.S. Marine Band, Musician's. FSC 8410
MIL-S-29394B	Skirts, Women's: Evening Dress, U.S. Marine Band (Musician's). FSC 8410
MIL-S-29395A	Slacks, Women's; Musician's. FSC 8410
MIL-J-29396 Valid Notice 1	Jacket, Women's; Special Full Dress Scarlet, U.S. Marine Band, Musician. FSC 8410
MIL-J-29397 Valid Notice 1	Jacket, Woman's, Full Dress Scarlet, U.S. Marine Band, Musician. FSC 8410
MIL-B-29408A	Belt, All Weather Coat, Women's. FSC 8410
MIL-C-29427A (1)	Coats, Women's. FSC 8410
MIL-S-29429A	Skirts, Women's. FSC 8410
MIL-C-29431	Caps, Garrison: Women's. FSC 8410
MIL-S-29432A	Slacks, Women's. FSC 8410
MIL-C-29453A	Coat, Woman's: Wool/Polyester; Gabardine, Blue. FSC 8410
MIL-C-29454	Caps, Service: Women's, Polyester/Wool, Wool. FSC 8410
MIL-C-29628	Coat, Woman's, Blue, Dress. FSC 8410
MIL-S-29629	Skirt, Woman's (with Welt Pockets). FSC 8410
MIL-S-29630	Slacks, Women's. FSC 8410
MIL-S-29631	Skirt, Woman's, Blue, Dress. FSC 8410
MIL-S-29633A	Shirt, Woman's, Dress, Short and Long Sleeve (Coast Guard). FSC 8410
MIL-D-37031	Dresses, Woman's, Cotton-Polyester, Static Resistant, Pleated Front. FSC 8410
MIL-S-40035C (2)	Shirt, Woman's (Exercise). FSC 8415
MIL-S-41825F	Slacks, Women's. FSC 8410
MIL-H-43162F	Hat, Service, Woman's, Wool or Polyester and Wool. FSC 8410
MIL-S-43505D	Shirt, Woman's, Polyester/Cotton. FSC 8410
MIL-C-43972D	Coat, All-Weather, Woman's, Black with Removable Liner. FSC 8410
MIL-S-44090C	Shirt, Woman's, Short Sleeve, Polyester/Cotton, Army Green 415, Durable Press. FSC 8410
MIL-S-44092B (1)	Slacks, Women's: Classic Design, Polyester/Wool. FSC 8410
MIL-S-44093B	Shirt, Woman's, Long Sleeve, Polyester/Cotton, Army Green 415, Durable Press. FSC 8410
MIL-S-44102B	Skirt, Woman's, Classic Design, Polyester/Wool. FSC 8410
MIL-C-44107C	Cover, Ground Troops-Parachutists Helmet. FSC 8415
MIL-S-44110B	Slacks, Maternity, Utility Work Uniform. FSC 8410

MIL-C-44111B	Coat, Maternity, Utility Work Uniform. FSC 8410
MIL-C-44130C	Cap, Garrison, Women's, Polyester/Wool, AG-344. FSC 8410
MIL-T-44293A	Tunic, Woman's, Hospital Duty Uniform (HDU). FSC 8410
MIL-C-44379 (1)	Coats, Woman's, Classic Design, Polyester/Wool, AG-344. FSC 8410
A-A-50011 Valid Notice 1	Uniform, Woman's: Tunic and Slacks, White, Food Handlers. FSC 8410
A-A-50072A	Hat, Service, Woman's, Drill Instructor. FSC 8410
A-A-50365A	Sweater, Woman's, Acrylic. FSC 8410
A-A-50368A	Coat, Woman's, All-Weather, with Removable Liner. FSC 8410
A-A-50527	Trunks, General Purpose. FSC 8415
A-A-55111A	Coat, All-Weather, Woman's, w/Removable Liner. FSC 8410
A-A-55122	Hood, Rain, Woman's. FSC 8410
A-A-55189	Skirt, Maternity. FSC 8410
A-A-55210	Clacks, Women's, Undress. FSC 8410
A-A-55212	Belt, All-Weather Coat, Women's. FSC 8410
A-A-55218	Shirt, Women's, Dress, White (Short Sleeve). FSC 8410
A-A-55221	Tunic, Maternity. FSC 8410
A-A-55230	Slacks, Woman's Hospital Duty Uniform (HDU). FSC 8410
MIL-C-82104 (1)	Cap, Garrison, Woman's; Cotton, Polyester, Dark Blue; (Utility). FSC 8410
MIL-C-82114A	Coat Front: for Coats, Musicians. FSC 8315
MIL-J-82122B	Jacket, Woman's: Evening Dress (Officer's). FSC 8410
MIL-C-82125A	Cape, Woman's: Evening Dress (Officer's). FSC 8410
MIL-S-82126B Valid Notice 1	Skirts, Women's: Evening Dress. FSC 8410
MIL-H-82142 (1)	Hood, Rain, Woman's: Nylon, Rubber Coated; Green. FSC 8410
MIL-R-82190A (1)	Raincoat, Woman's: Nylon, Rubber Coated; Green. FSC 8410
MIL-H-83012C	Hat, Service, Woman's (Frame and Removable Cover). FSC 8410
MIL-S-83234C	Skirts, Women's, Blue. FSC 8410
MIL-B-83268B Valid Notice 1	Beret, Woman's. FSC 8410
MIL-H-83269A Valid Notice 1	Hood, Rain, Woman's. FSC 8410
MIL-C-83422	Cap, Woman's, Hot Weather. FSC 8410
MIL-S-83482B	Slacks, Women's. FSC 8410
MIL-S-87005D	Skirt, Woman's. Dress (CG). FSC 8410
MIL-S-87006A	Shirt, Woman's. Dress, (Coast Guard). FSC 8410
MIL-S-87012D	Slacks, Women', Dress (CG). FSC 8410
MIL-S-87013D	Slacks, Women's, Undress. FSC 8410
MIL-C-87014B	Cap, Garrison, Woman's (Coast Guard). FSC 8410
MIL-S-87053C	Skirt, Woman's, Belted. FSC 8410
MIL-S-87054C	Slacks, Women's, Belted. FSC 8410
MIL-S-87055B (1)	Shirt, Woman's, Dress, White (Short Sleeve). FSC 8410
MIL-S-87056A	Shirt, Woman's Dress Blue (Long Sleeve). FSC 8410
MIL-J-87056A	Jacket, Utility, Woman's. FSC 8410
MIL-S-87061C	Shirts, Utility, Women's Chambray. FSC 8410
MIL-S-87063B	Slacks, Utility, Women's, Denim. FSC 8410
MIL-S-87073	Shirt, Woman's, Working, Khaki (Long Sleeve). FSC 8410
MIL-C-87076A	Cloth, Coated, Aramid, Aluminized. FSC 8305
MIL-S-87091C	Shirt, Woman's, Open Notch Collar. FSC 8410
MIL-C-87160A	Coat, Woman's, (Pant Suit). FSC 8410
MIL-C-87215	Cap, Garrison, Woman's, Sir Force. FSC 8410
MIL-S-87225A	Shirts, Women's: Short and Long Sleeves, Polyester/Cotton (Durable Press) and Long Sleeves, Polyester/Wool. FSC 8410

MIL-J-87251	Jacket, Woman's: Lightweight with Removable Liner. FSC 8410

Food Handler's/Processor's

A-A-91B	Apron, Food Handlers. FSC 8415
DOD-A-616G Valid Notice 1	Aprons, Food Handlers'. FSC 8415
BBB-F-695 (1)	Frock, Man's (Butcher's, White). FSC 8415
A-A-719	Food Handler's Paper Caps. FSC 8415
MIL-P-1601E	Protectors, Arm, Gasoline Field Range Outfit. FSC 7360
MIL-S-1820G	Smock, Food Inspector's. FSC 8415
MIL-D-3018D Reinst Notice 2	Dress, Food Handler's, Woman's. FSC 8415
MIL-C-15096H	Coat, Food Handler's (Steward). FSC 8415
MIL-C-19479B	Coat, Food Handler's: Cotton and Polyester Twill; White; with Pocket. FSC 8405
MIL-C-29136	Cap, Food Handler's. FSC 8415
MIL-L-44042	Liner, Food Inspector's Smock. FSC 8415
A-A-50380	Coat, Food Handler's (Steward). FSC 8415
A-A-55067	Smock, Food Inspector's, FSC 8415

Special Pockets Garments

MIL-V-44323A (1)	Vest, Tactical Load Bearing. FSC 8415
MIL-V-44362 (1)	Vest, Grenade, Carrier (for 40-mm Grenades). FSC 8415
A-A-55227	Pocket, Ammunition Magazine, Enlisted Men's, M-1923. FSC 8465
A-A-55240	Apron, Construction Worker's. FSC 8415
MIL-V-81523A Valid Notice 2	Vest, Survival Equipment, Type SV-2A. FSC 8415
MIL-V-83271B	Vest, Survival Mesh Set, SRU-21/P. FSC 8415

Surgical Gown/Glove/Mask

DOD-C-48E	Cap, Operating, Surgical, Green. FSC 6532
A-A-30119A	Hood, Operating, Surgical. FSC 6532
A-A-30153	Mask, Surgical. FSC 6515
A-A-30156	Cap, Operating, Surgical (Woman's). FSC 6532
A-A-30188	Mask, Surgical (Sub-Micron). FSC 6515
MIL-M-36168	Mask, Surgical, Nonwoven Fabric, Green, Disposable. FSC 6510
MIL-G-36565A Valid Notice 1	Gowns, Operating, Surgical, Cotton, Vest-Type, Green. FSC 6532
MIL-S-36573B (2)	Smock, Dental Operating. FSC 6532
MIL-F-36972 Valid Notice 1	Gown, Operating, Surgical. FSC 6532
MIL-F-36978 (1)	Footwear Covers, Disposable, Conductive Plastic Film. FSC 8430.
MIL-T-37030 Valid Notice 1	Trousers, Operating, Surgical Men's, Cotton-Polyester, Static Resistant. FSC 6532
MIL-S-37039 Valid Notice 1	Shirts, Operating, Surgical, Man's Cotton-Polyester Static Resistant. FSC 6532
MIL-T-37046 Valid Notice 1	Trousers, Operating, Surgical, Women's, Cotton-Polyester, Static Resistant. FSC 6532
MIL-T-37064 Valid Notice 1	Tunics, Operating, Surgical, Woman's Cotton-Polyester, Static Resistant, Long Sleeves. FSC 6532
MIL-T-37069 Valid Notice 1	Tunics, Operating, Surgical, Woman's Cotton-Polyester, Static Resistant, Short Sleeves. FSC 6532

MIL-S-37129 Valid Notice 1	Shirts, Operating, Surgical, Man's, Cotton, Sleeveless, Style A. FSC 6532
MIL-S-37130 Valid Notice 1	Shirts, Operating, Surgical, Man's, Cotton, Quarter Length Sleeves, Style B. FSC 6532
MIL-T-37131 Valid Notice 1	Trousers, Operating, Surgical, Man's Cotton, Green. FSC 6532
A-A-51070A	Mask, Surgical. FSC 6515
A-A-51264B	Surgical Pack, Gown and Towel. FSC 6532
A-A-51301A	Footwear Covers, Operating Room (Disposable). FSC 6532
A-A-51343	Surgical Pack, Lower Extremity. FSC 6532
A-A-51361A	Surgical Pack, Gown and Towel. FSC 6532
A-A-51373A	Gown Operating, Surgical. FSC 6532
A-A-0053134	Gloves, Surgeons' (Powder-Free, Sterile, Disposable). FSC 6515
A-A-53443	Gown, Operating, Surgical. FSC 6532
A-A-54252	Surgical Pack, Disposable (Arthroscopic). FSC 6530
A-A-54372A	Mask, Surgical (Pleated). FSC 6532
A-A-54407	Gown, Operating, Surgical. FSC 6532
A-A-54433	Cap, Operating, Surgical. FSC 6532
A-A-54435	Mask, Surgical (Non-Woven Fabric, Pouch). FSC 6515
A-A-54553	Mask, Surgical. FSC 6515
A-A-54791	Gloves, Surgeons', Latex Rubber, Pre-Powdered, Disposable, Sterile. FSC 6515
A-A-54807	Gloves, Surgeons', Brown-Milled Rubber, Pre-Powdered, Talc-Free, Disposable, Sterile. FSC 6515
A-A-54870	Caps, Operating, Surgical (Woman's). FSC 6532

Nonsurgical Medical & Veterinary

MIL-S-2021E Reinst Notice 2	Suit, Convalescent (Jack and Trousers). FSC 6532
MIL-C-37186B	Coats, Medical Attendant's, Man's, White, Cotton-Polyester, Durable Press. FSC 6532
MIL-S-37442	Smocks, Physician's, Man's, White, Cotton-Polyester, Durable Press. FSC 6532
MIL-S-0037951	Smock, Medical Assistant's, Man's, White, Cotton-Polyester, Durable Press. FSC 6532
MIL-D-43732F	Dress, Woman's, Hospital Duty Uniform (HDU). FSC 8410
A-A-53562	Glove, Patient Examining and Treatment (Plastic, Large Size, Sterile). FSC 6515
A-A-54373	Robe, Dressing (Striped Seersucker). FSC 6532
A-A-54480	Mask, Face, Asceptic. FSC 6532
A-A-54916	Gown, Hospital Patient. FSC 6532

Underwear & Nightwear, Men's

A-A-153	Drawers, Men's. FSC 8420
MIL-D-2525D	Drawers, Men's: Cotton, Ankle Length. FSC 8420
MIL-U-2526D	Undershirts, Man's: Cotton, Full Length Sleeves. FSC 8420
MIL-D-40099H	Drawers, Men's Boxer Style. FSC 8415
MIL-U-43262D	Undershirts, Cold Weather, Men's. FSC 8415
MIL-S-43357E	Shirt, Sleeping, Heat Retentive and Moisture Resistant, Nylon/Acetate, Tricot Knit. FSC 8415
MIL-D-43357E	Drawers, Men's, Brief Type. FSC 8420
MIL-U-44096A (1)	Undershirt, Man's (Quarter-Sleeve). FSC 8420
MIL-U-44164A	Undershirt, Cold Weather, Polypropylene. FSC 8415

A-A-50003B	Drawers, Men's (Brief-Type). FSC 8420
A-A-50013D	Undershirt, Man's (Quarter-Sleeve). FSC 8420
A-A-50353	Undershirt, Man's (Polyester/Cotton) Quarter Sleeve (Use A-A-50013). FSC 8420

Underwear & Nightwear, Women's

MS35839	Underwear and Nightwear, Women's FSC Class 8425. FSC 8425.

Hosiery, Handwear & Clothing Accessories, Men's

MIL-S-48L	Socks, Men's, Cushion Sole, Stretch Type. FSC 8440
A-A-114	Socks, Cotton. FSC 8440
MIL-S-405H	Socks, Men's, Winter (Wool and Cotton). FSC 8440
MIL-L-714G	Leggings, Men's. FSC 8440
MIL-STD-1612B	Provisions for Evaluating Quality of Gloves, Cloth, Dress. FSC 8440
MIL-STD-1613B	Provisions for Evaluating Quality of Gloves, Leather, Dress. FSC 84GP
A-A-1624	Necktie (Striped). FSC 8440
A-A-1787	Necktie. FSC 8440
MIL-G-3866G	Gloves, Cloth, Cotton, Knitted, Lightweight. FSC 8415
MIL-S-5365F Valid Notice 1	Scarf, Neckwear, Sage Green, Flying, Tubular, N-18 (Scarf, Sage Green, Flying, tubular, Type N-18). FSC 8440
MIL-S-10926G	Suspenders, Trousers, M-1950. FSC 8440
MIL-S-11922E Valid Notice 1	Scarf, Branch of Service, BIB Type. FSC 8455
MIL-S-14210G	Socks, Men's, Nylon and Cotton, Knee Length, Stretch Type. FSC 8440
MIL-M-16149G	Mitten, Welders. FSC 8415
MIL-C-19677C	Clasp, Necktie: Metal; Gold Colored. FSC 8455
MIL-C-19688B	Cummerbund, Man's: Black. FSC 8440
MIL-G-21893C	Gloves, Cloth, Nylon, Knitted (Dress, Men's). FSC 8440
MIL-P-22295C Valid Notice 1	Protector Trousers, Pistol Holster, FSC 8465
MIL-G-24909A	Gloves, Men's and Women's. FSC 8440
A-A-30052B	Socks, Men's. FSC 8440
MS35807	Hosiery, Handwear, and Clothing Accessories: Men's FSC Class 8440. FSC 8440
MIL-N-41804E	Neckties, Men's, Four-in-Hand. FSC 8440.
MIL-G-41817E	Gloves, Men's, Cloth, Dress, White. FSC 8440
MIL-B-43515A Valid Notice 1	Belt, Man's, Waist, Blue 334 (Army Band Uniform). FSC 8405
MIL-N-43741B	Handkerchief, Ham's, Cotton, Knitted. FSC 8440
MIL-S-43823A Valid Notice 1	Socks, Men's, Nylon, Cushion Sole, Stretch Type, OG 106. FSC 8440
MIL-G-44108A	Gloves, Combat Vehicle Crewman's, Summer. FSC 8415
A-A-50015B	Socks, Ribbed Knit, Stretch Type. FSC 8440
A-A-50016A	Gloves, Men's: Cloth, Leather Palm, Knitted Wristlet, Size Medium. FSC 8415
A-A-50021A	Gloves, Men's Cloth, Leather Palm with Gauntlet. FSC 8415
A-A-50356B	Handkerchief, Men's or Women's. FSC 8440
A-A-50386	Gloves, Men's and Women's. FSC 8440
A-A-52055	Gloves, Men's and Women's, Leather, Light Duty. FSC 8415
A-A-52203	Suspenders, Trousers (Flying Suit). FSC 8440
A-A-55079	Socks: Men's, Cushion Sole, Stretch Type. FSC 8440

A-A-55083	Scarf, Neckwear, Sage Green, Flying, Tubular N-1B (Scarf, Sage Green, Flying Tubular, Type N-18). FSC 8440
A-A-55107	Socks: Men's, Nylon, Cushion Sole, Stretch Type. FSC 8440
A-A-55199	Necktie. FSC 8440
A-A-55203	Suspenders, Trousers (Flying Suit). FSC 8440
A-A-55226	Scarf, Neckwear, Wool. FSC 8440
A-A-55236	Gloves, Men's, Cloth, Dress, White. FSC 8440
A-A-55246A	Gaiter, Neck. FSC 8440
MIL-C-82167 Valid Notice 1	Gloves, Leather: Gauntlet; Drummer's. FSC 8440
MIL-N-87042C	Neckerchief (Acetate Black). FSC 8440

Hosiery, Handwear & Clothing Accessories, Women's

MIL-G-1007H	Gloves, Women's. FSC 8445
MIL-STD-1611A Valid Notice 1	Provisions for Evaluating Quality of Hoods and Havelocks, Woman's. FSC 8410
A-A-1787	Necktie. FSC 8440
MIL-S-10679E Valid Notice 1	Scarf, Neckwear: Woman's. FSC 8445
MIL-S-17868B (1)	Scarf, Neckwear: Wool, Women's. FSC 8445
MIL-N-19857C Reinst Notice 2	Neckties: Women's, Polyester/Wool. FSC 8445
MIL-G-24909A	Gloves, Men's and Women's. FSC 8440
MIL-N-29113B	Necktie Woman's (Bow, Black). FSC 8445
MIL-A-29131B	Anklets, Woman's, Acrylic and Nylon, Ribbed, Stretch Type. FSC 8445
MIL-N-29387A	Necktie, Women's: General Officer. FSC 8445
MIL-S-43317C	Scarf, Neckwear, Woman's. Acrylic. FSC 8445
MIL-G-43958 Valid Notice 1	Gloves, Cloth, Black, Lined, Girl's Jr. R.O.T.C.. FSC 8445
MIL-H-43981D	Handbag, Women's, Synthetic, Black (Use A-A-55113). FSC 8445
MIL-N-44106B	Necktab, Woman's Shirt. FSC 8445
A-A-50386	Gloves, Men's and Women's. FSC 8440
A-A-52055	Gloves, Men's and Women's, Leather, Light Duty. FSC 8415
A-A-55073	Necktie, Woman's (Coast Guard). FSC 8445
A-A-55113	Handbag, Women's: Synthetic, Black. FSC 8445
A-A-55225	Scarf, Neckwear, Women's Acrylic. FSC 8445
A-A-55226	Scarf, Neckwear, Wool. FSC 8440
MIL-C-82111A	Cover, Purse: Women's (Officer's). FSC 8410
MIL-O-82112A	Ornamentation: for Uniform, Woman's, Evening Dress, Officer's. FSC 8455
MIL-C-82121B	Cummerbund, Woman's: Evening and Mess Dress (Officer's). FSC 8445.
MIL-G-83150A Valid Notice 1	Gloves, Cloth, Nylon Knitted (Women's, Dress). FSC 8445
MIL-N-87007B	Necktie, Woman's (CG). FSC 8445

Children's & Infant's Apparel & Accessories

A-A-54036	Undershirt, Infant's. FSC 6532

Luggage

KK-S-151C	Satchels, Physician's. FSC 6532
A-A-584B Valid Notice 1	Case, General Utility (Artificial Leather). FSC 8460
KK-B-650A INT AMD 2	Briefcase (Leather). FSC 8460
MIL-B-829M	Bag, Duffel. FSC 8465

A-A-1519A	Case, Dispatch (Artificial Leather). FSC 8460
MIL-B-2378H	Bag, Barracks. FSC 8465
A-A-2523B	Case, Dispatch, Molded Plastic. FSC 8460
A-A-2724	Portfolio, Plastic. FSC 7510
MIL-T-10798L	Trunk Locker, Barracks. FSC 8460
MIL-T-16381B	Trunk, Locker, Barracks; and Tray. FSC 8460
MS35860	Luggage FSC Class 8460. FSC 8460
MIL-S-37180 Valid Notice 1	Satchel, Physician's, Boston Style, Three Compartments. FSC 6532
MIL-K-41835D	Kit Bag, Flyer's. FSC 8460
A-A-50083	Bag, Plastic, Folded Garment. FSC 8105
A-A-55062A	Suitcase, Flyers. FSC 8460
A-A-55179	Bag, Money. FSC 8460
A-A-55192	Case, Map. FSC 8460
A-A-55205	Bag, Personal Effects. FSC 8465
MIL-C-81808	Chest, Collapsible. FSC 8460
MIL-K-83782A Valid Notice 1	Kit Bag, Flyer's. FSC 8460
MIL-S-83791A	Suitcase, Flyer's Clothing. B-4B. FSC 8460
MIL-B-87018A	Bag, Money. FSC 8460

Individual Equipment

MIL-F-411D	Fasteners, Belt; Clips, End Strap with Hook; and Keepers, Slide. FSC 8465
MIL-B-833G	Belt, Trousers, Cotton Webbing, with Clip. FSC 8440
MIL-C-1002J	Case, Field, First Aid Dressing, Leather (Military Police). FSC 8465
A-A-1040A	Key Chain, Reel (Door Key and Drill Chuck Keys). FSC 5340
MIL-B-1107G	Belt, Individual Equipment, M-1936. FSC 8465
NAF 1197 REV 2	Tube Pilot's Relief. FSC 1680
MIL-B-1462F	Belt, General Officer's. FSC 8440
MIL-P-1474J	Pitons, Mountain. FSC 8465
MIL-C-1476G	Creepers, Ice. FSC 8465
MIL-S-1478F	Snap Link, Mountain Piton. FSC 8465
MIL-B-1718H	Belt, Military Police, 1-3/4 Inch Wide, Man's. FSC 8465
MIL-S-1812C	Shelf, Cargo Support, Packboard, Pressed Steel. FSC 8465
MIL-P-1814E Valid Notice 1	Pad, Shoulder, Packboard. FSC 8465
MIL-C-1933G	Carrier, Policeman's Club: and Grommet. FSC 8465
MIL-B-2883D	Boatswain's Pipe. FSC 8465
MIL-C-3880E	Club, Policeman's. FSC 8465
AN8018 Rev A Valid Notice 1	Horn, Flyer's Relief Tube. FSC 4730
AN8019 Rev 1 Valid Notice 1	Tee and Flyer's Relief Tube. FSC 4730
MIL-S-10055D	Strap, Packboard: Quick Release. FSC 8465
MIL-P-10941D Valid Notice 1	Packboard, Plywood. FSC 8465
MIL-H-13102D	Holder, Cartridge, Belt, Cal. .38, Leather, Black, 6-Round. FSC 8465
MIL-B-17693e (1)	Belts, Coats, Man's: Polyester/Wool. FSC 8405
MIL-C-17774A Valid Notice 1	Cover, Bayonet; Scabbard; Cotton Duck, White (with Leather Tip). FSC 8465
MIL-C-17841B (2)	Carrier, Club, Policeman's: Cotton Webbing; White. FSC 8465
MIL-P-17863C (1)	Pocket, Ammunition Magazine: Military Police. FSC 8465
MIL-C-17864C	Carrier, Pistol Holster: Cotton Duck, White (MP). FSC 8465
MIL-B-18184B Valid Notice 1	Belt, Coat, Man's, Webbing, Cotton, White. FSC 8440
MIL-S-19206D	Sword and Scabbard (Noncommissioned Officers). FSC 8465

MIL-C-19734C	Carrier: Sword Scabbard. FSC 8465
MIL-C-20006F	Clothes Stop. FSC 8465
MIL-C-20267C Valid Notice 1	Carrier, Club, Policeman's: Cotton Webbing, Olive Drab (with Double Hook). FSC 8465
MIL-K-20277H	Knife, Combat: and Sheath. FSC 1095
MIL-S-21042C	Sling, Flagstaff: Leather, White; with Brass Socket. FSC 8345
MIL-B-21154C	Belts, Military Police: Cotton Webbing; White. FSC 8465
MIL-H-21155D	Hardware: for Belt, Military Police. FSC 8465
MIL-B-21880D	Belt, Military Police (White). FSC 8465
MS22025 Valid Notice 1	Bracket, Flyers Relief Tube, Vertical. FSC 1680
MIL-S-28921A	Sword and Scabbard: (Officer's) with Case. FSC 8465
MIL-S-28933B	Sling, Sword, Shoulder: Nylon Webbing, White. FSC 8465
MIL-B-29378 (1)	Belt, Man's: Ceremonial, Officers. FSC 8440
MIL-C-36828A Valid Notice 1	Case, Spectacle, Envelope Type, Soft Fabric Lining. FSC 6540
MIL-S-40022E	Shoulder Strap, Side Arm, Military Police, Leather, Black. FSC 8465
MIL-S-40046D Valid Notice 1	Sling, Flagstaff. FSC 8345
MIL-C-4012E (2)	Canteen, Water, Insulated, Corrosion-Resisting Steel, without Cup and Cover. FSC 8465
MIL-C-40126F	Cup, Water Canteen (for Insulated Canteen). FSC 8465
MIL-40131C	Cover, Water Canteen, Insulated, Cotton Duck. FSC 8465
MIL-F-40165C Reinst Notice 2	Field Pack, Canvas, Combat, M-1961. FSC 8465
MIL-S-43013C Valid Notice 1	Sling, Universal, Individual Load Carrying. FSC 8465
MIL-C-43103D	Canteen, Water, Plastic, with Screw Cap. FSC 8465
MIL-S-43279D	Slings, Bag and Carrying: Communications Equipment. FSC 8465
MIL-P-43304C	Pack and Harness Assembly, Parachutist's Weapons and Individual Equipment. FSC 8465
MIL-S-43306B	Sling, Bag and Case Carrying, ST-33. FSC 8465
MIL-P-43312C	Pocket, Ammunition Magazine. FSC 8465
MIL-R-43323E	Rifle Butt Pocket and Strap Assembly. FSC 8465
MIL-S-43489D	Sling, Bag and Case Carrying: ST-35. FSC 8465
MIL-C-43603B (1)	Canteen, Water, Collapsible, 2-Quart Capacity. FSC 8465
MIL-F-43673 Valid Notice 1	Frame, Rucksack, Steel. FSC 8465
MIL-C-43689C	Cover, Water Canteen, 2-Quart, Collapsible (with Pile Lining). FSC 8465
MIL-L-43720C (1)	Liner, Field Pack. FSC 8465
MIL-C-43742B	Cover, Water Canteen, LC-2. FSC 8465
MIL-P-43756	Packboard, Metal. FSC 8465
MIL-M-43757A	Modification Kit, Packboard, Radio Carrying. FSC 8465
MIL-C-43761C	Cup, Water Canteen, w/Wire Handle, Corrosion-Resisting Steel. FSC 8465
MIL-R-43826C	Belt, Individual Equipment. FSC 8465
MIL-S-43828A INT AMD 2	Strap, Webbing, Cargo Tie Down, Lightweight Pack Frame, M-1972. FSC 8465
MIL-S-43829B INT AMD 1	Suspenders, Individual Equipment Belt, LC-1. FSC 8465
MIL-C-43830B INT AMD 1	Cover, Field Pack, Camouflage, LC-1. FSC 8465
MIL-C-43831B INT AMD 1	Carrier, Intrenching Tool, Hand, Folding, Lightweight, Plastic, LC-1. FSC 8465
MIL-F-43832C (1)	Field Pack, Combat, Nylon, Large, LC-1. FSC 8465
MIL-F-43833D	Field Pack, Combat, Nylon, Medium, LC-2. FSC 8465
MIL-F-43834E	Frame, Field Pack, (Riveted), and Shelf, Cargo Support (Lightweight), LC-1. FSC 8465
MIL-S-43835E	Straps, Pack Frame and Field Pack, Ground Troops. FSC 8465

MIL-F-43997A	Field Pack, Training. FSC 8465
MIL-C-44083A	Carrier, AN/PRC-68 or AN/PRC-68A, Radio Set. FSC 8465
MIL-W-44126A	Water, Drinking, Emergency, Flexibly Packaged. FSC 8960
MIL-P-44153A	Pocket, Ammunition Magazine, 9 mm. FSC 8465
MIL-C-44216A	Canteen, Water, Collapsible, 5-Quart Capacity. FSC 8465
MIL-C-44217A	Cap, Water Canteen, 5-Quart, Collapsible. FSC 8465
MIL-C-44218	Carrier and Canteen/Collapsible, 5-Quart Capacity. FSC 8465
MIL-C-44219	Carrier, Canteen, Collapsible, 5-Quart Capacity. FSC 8465
MIL-S-44220A	Sleeping Bag, Cold Weather Aircraft Survival Kit (Vacuum Packed). FSC 8465
MIL-S-44221A	Stand, Canteen Cup. FSC 8465
MIL-A-44264	Adapter Kit, M-1 Cap; for Canteen, Water, Insulated. FSC 8465
MIL-B-44306B	Bag, Stuff, Sleeping System. FSC 8465
MIL-C-44307B	Cover, Bivy, Extreme and Intermediate Cold Weather Sleeping Systems. FSC 8465
MIL-H-44308A	Hood and Socks, Extreme Cold Weather Sleeping System (ECWSS). FSC 8465
MIL-S-44309B	Sleeping Bags, for Sleeping systems. FSC 8465
MIL-F-44324A	Field Pack, Large, with Internal Frame: and Pack, Patrol, Combat. FSC 8465
MIL-C-44347	Carrier, Water Canteen, Cold Weather, CRS. FSC 8465
MIL-C-44348	Canteen, Water, Cold Weather, CRS. FSC 8465
MIL-C-44349	Cup, Water Canteen, Cold Weather, CRS. FSC 8465
MIL-S-44377	Snowshoe, Trail, Magnesium, Snow and Ice Traversing Equipment (SITE). FSC 8465
MIL-H-48671	Holster, Hip, M12. FSC 1005
A-A-50098A	Stopper, Hexagon, Irregular. FSC 8465
A-A-50106A	Stopper, Wired, Wedged. FSC 8465
A-A-50112A	Piton, Mountain, Angle. FSC 8465
A-A-50116A	Axe, Ice. FSC 5110
A-A-50117A	Crampons, Hinged. FSC 8465
A-A-50118A	Straps, Crampon. FSC 8465
A-A-50119A	Anchor, Snow, Wired. FSC 8465
A-A-50121A	Protector, Crampon. FSC 8465
A-A-50125B	Descender, Figure-8. FSC 8465
A-A-50127A	Ascenders, Cam Action. FSC 8465
A-A-50374	Bag, Fireman's, Utility. FSC 8460
A-A-50748 Valid Notice 1	Holster, Hip, Pistol, Semi-Automatic 9 mm. FSC 1095
MIL-C-51278D (1)	Cap, Water Canteen, Field, 1 Quart and 2 Quart Canteens. FSC 8465
A-A-52113	Handcuffs and Leg Irons. FSC 8465
A-A-55058	Club, Policeman's. FSC 8465
A-A-55059	Carrier, Policeman's Club, with Grommet. FSC 8465
A-A-55064	Lanyard, Individual Equipment Carrying. FSC 8465
A-A-55070	Bag, Wet Weather Clothing: (Parka and Trousers). FSC 8465
A-A-55077	Bag, Duffel. FSC 8465
A-A-55084	Pocket, Ammunition Magazine. FSC 8465
A-A-55092	Bag, Clothing, Waterproof. FSC 8465
A-A-55105	Bag, Barracks. FSC 8465
A-A-55106	Whistle, Ball, Plastic. FSC 8465
A-A-55114	Bag, Laundry. FSC 8465
A-A-55120	Lanyard, Individual Equipment Carrying. FSC 8465
A-A-55124	Creepers, Ice. FSC 846
A-A-55173	Belt, Military Police, 1-3/4 Inch Wide, Man's. FSC 8465

A-A-55176	Bag, Laundry, Nylon. FSC 8465
A-A-55177	Suspenders, Individual Equipment Belt, LC-2. FSC 8465
A-A-55182	Cover, Personnel Identification Tag. FSC 8465
A-A-55191	Shoulder Strap, Side Arm, Military Police, Leather, Black. FSC 8465
A-A-55193	Holder, Cartridge, Belt, Cal .38, Leather, Black, 6-Round. FSC 8465
A-A-55194	Protector, Trousers, Pistol Holster. FSC 8465
A-A-55197	Belt, Man's, Waist, Blue 334 (Army Band Uniform). FSC 8405
A-A-55207	Belt, All-Weather, Coat, Men's. FSC 8405
A-A-55231	Case, Handcuffs, Leather, Black. FSC 8465
A-A-55238	Case, Field, First Aid Dressing, Leather (Military Police). FSC 8465
A-A-55245	Necklace, Personnel, Identification Tag. FSC 8465
MIL-B-63992A Valid Notice 1	Bandoleer, 200 Round Magazine (M249 Machine Gun). FSC 1305
MIL-C-82141A	Cover, Music Carrying Pouch: Embroidered. FSC 7720
MIL-B-83475 Valid Notice 1	Belt, Security Police, 2-1/4-Inch-Wide. FSC 8465
MIL-B-83665B	Bag, Pilot Relief (Male). FSC 8105

C.6 ISO Standards[46]

The ISO standards have been organized as follows:

- PROCESSES OF THE TEXTILE INDUSTRY
- TEXTILE FIBRES
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  - Physical Properties
  - Methods
- NATURAL FIBRES
  - Reference
  - Wool
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- SYNTHETIC FIBRES
- TEXTILES IN GENERAL
  - Reference
  - Colorfastness
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- YARNS
  - Reference
  - Physical Properties
- TEXTILE FABRICS
  - Reference
  - Physical Properties
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  - Appearance
- ROPES
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- TEXTILE FLOOR COVERINGS
  - Reference
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- TEXTILE MACHINERY
  - Spinning Machines, Reference
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  - Weaving Machines, Specifications
  - Knitting Machines
  - Dyeing and Finishing Equipment
- LEATHER
- CLOTHING
  - Sizing
  - Protective Clothes
- STEP

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[46] ISO Catalogue 1994. pp. 85, 210-222. 1994.

PROCESSES OF THE TEXTILE INDUSTRY

ISO 4921:1993	Knitting—basic concepts—Vocabulary. Bilingual Edition. TC 38/SC 20.

TEXTILE FIBERS

Reference

ISO 8159:1987	Textiles—Morphology of Fibres and Yarns—Vocabulary. Bilingual Edition. TC 38.

Physical Properties

ISO 1973:1976	Textiles—Determination of Linear Density of Fibres—Gravimetric Method. TC 38/SC 6.
ISO 6741-1 to 4:1989	Textiles—Fibres and Yarns—Determination of Commercial Mass of Consignments (4 parts). TC 38. Part 1: Mass Determination and Calculations. Part 2: Methods for Obtaining Laboratory Samples. Part 3: Specimen Cleaning Procedures. Part 4 : Values Used for the Commercial Allowances and the Commercial Moisture Regains.
ISO 6989:1981	Textile Fibres—Determination of length and length distribution of staple fibres (by measurement of single fibres). TC 38/SC 6.

Methods

ISO 1130:1975	Textile fibres—Some Methods of Sampling for Testing. TC 38/SC 6.
ISO 1833:1977	Textile—Binary Fibre Mixtures—Quantitative Chemical Analysis. TC 38. Amendment 1:1980 to ISO 1833:1977
ISO 5088:1976	Textiles—Ternary Fibre Mixtures—Quantitative Analysis. TC 38/SC 6.
ISO 5090:1977	Textiles—Methods for the Removal of Non-Fibrous Matter Prior to Quantitative Analysis of Fibre Mixtures. TC 38.

NATURAL FIBERS

Reference

ISO 6938:1984	Textiles—Natural Fibres—Generic Names and Definitions. TC 38.

Wool

ISO 137:1975	Wool—Determination of Fibre Diameter—Projection Microscope Method. TC 38/SC 6.
ISO 920:1976	Wool—Determination of Fibre Length (Barbe and Hauter) Using a Comb Sorter. TC 38/SC 6.
ISO 1136:1976	Wool—Determination of Mean Diameter of Fibres—Air Permeability Method. TC 38/SC 6.
ISO 2646:1974	Wool—Measurement of the Length of Fibres Processed on the Worsted System, Using a Fibre Diagram Machine. TC 38/SC 6.
ISO 2647:1973	Wool—Determination of Percentage of Medullated Fibres by the Projection Microscope. TC 38/SC 6.

ISO 2648:1974	Wool—Determination of Fibre Length Distribution Parameters—Electronic Method. TC 38/SC 6.
ISO 2913:1975	Wool—Colorimetric Determination of Cystine Plus Cystine in Hydrolysates. TC 38.
ISO 2915:1975	Wool—Determination of Cysteric Acid Content of Wool Hydrolysates by Paper Electrophoresis and Colorimetry. TC 38.
ISO 2916:1975	Wool—Determination of Alkalai Content. TC 38.
ISO 3072:1975	Wool—Determination of Solubility in Alkalai. TC 38.
ISO 3073:1975	Wool—Determination of Acid Content. TC 38.
ISO 3074:1975	Wool—Determination of Dichloromethane-Soluble Matter in Combed Sliver. TC 38.

Cotton

ISO 2403:1972	Textiles—Cotton Fibres—Determination of Micronaire Value. TC 38/SC 6.
ISO 3060:1974	Textiles—Cotton Fibres—Determination of Breaking Tenacity of Flat Bundles. TC 38/SC 6.
ISO 4911:1980	Textiles—Cotton Fibres—Equipment and Artificial Lighting for Cotton Classing Rooms. TC 38/SC 6.
ISO 4912:1981	Textiles—Cotton Fibres—Evaluation of Maturity—Microscopic Method. TC 38/SC 6.
ISO 4913:1981	Textiles—Cotton Fibres—Determination of Length (Span Length) and Uniformity Index. TC 38/SC 6.
ISO 8115:1986	Cotton Bales—Dimensions and Density. TC 72/SC 1.
ISO 10306:1993	Textiles—Cotton Fibres—Evaluation of Maturity by the Air Flow Method. TC 38/SC 6.

Flax

ISO 2370:1980	Textiles—Determination of Fineness of Flax Fibres—Permeametric Methods. TC 38/SC 6.

SYNTHETIC FIBRES

ISO 2076:1989	Textiles—Man-Made Fibres—Generic Names. TC 38.
ISO 5079:1977	Textiles—Man-Made Fibres—Determination of Breaking Strength and Elongation of Individual Fibres. TC 38/SC 6.

TEXTILES IN GENERAL

Reference

ISO 139:1973	Textiles—Standards Atmospheres for Conditioning and Testing. TC 38.
ISO 1144:1973	Textiles—Universal System for Designating Linear Density (Tex Systems). TC 38.
ISO 2947:1973	Textiles—Integrated Conversion Table for Replacing Traditional Yarn Numbers by Rounded Values in the Tex System. TC 38.
ISO 3758:1991	Textiles—Care Labeling Code Using Symbols. TC 38/SC 11.
ISO 4880:1994	Burning Behavior of Textiles and Textiles Products—Vocabulary. Bilingual Edition. TC 38/SC 19. Amendment 1:1992 to ISO 4880:1984. Amendment 2:1993 to ISO 4880:1984.

ISO 4915:1991	Textiles—Stitch Types—Classification and Terminology. Bilingual Edition. TC 38.
ISO 4916:1991	Textiles—Seam Types—Classification and Terminology. Bilingual Edition. TC 38.
ISO 5089:1977	Textiles—Preparation of Laboratory Test Samples and Text Specimens for Chemical Testing. TC 38.
ISO 6330:1984	Textiles—Domestic Washing and Drying Procedures for Textiles Testing. TC 38/SC 2.
ISO 6348:1990	Textiles—Determination of Mass—Vocabulary. TC 38.
ISO 7769:1990	Textiles—Method for Assessing the Appearance of Creases in Durable Press Products After Domestic Washing and Drying. (Revision of ISO 7769:1985). TC 38/SC 2.
ISO 7770:1990	Textiles—Method for Assessing the Appearance of Seams in Durable Press Products After Domestic Washing and Drying. TC 38/SC 2.
ISO/TR 7248:1985	Fire Data—Collection and Presentation System

Colorfastness

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ISO 8122:1988	Textile Machinery—Knitting Machines—Number of Needles for Circular Knitting Machines of Large Nominal Diameter. TC 72/SC 3.
ISO 8188:1986	Textile Machinery and Accessories—Pitches of Knitting Machine Needles. Bilingual Edition. TC 72/SC 3.
ISO 8640-1 to 2:1990	Textile Machinery and Accessories—Flat Warp Knitting Machines—Vocabulary (2 parts). TC 72/SC 3. Trilingual Edition Part 1: Driving Mechanisms, Supports and Knitting Elements. Part 2: Warp Let-off, Fabric Take-up and Batching.
ISO 10223:1992	Textile Machinery—Flat Warp Knitting Machines—Numbering of Guide Bars. TC 72/SC 3.

Dyeing and Finishing Equipment

ISO 1036:1984	Textile Machinery—Dyeing and Finishing Machines—Definition of Left and Right Sides. TC 72/SC 4.
ISO 1505:1993	Textile Machinery—Widths Relating to Dyeing and Finishing Machines—Definition and Range of Nominal Widths. TC 72/SC 4.
ISO 1506:1982	Textile Machinery—Dyeing, Finishing and Allied Machinery—Classification and Nomenclature. Trilingual Edition. TC 72/SC 4.
ISO 5248:1982	Textile Machinery and Accessories—Dyeing and Finishing Machinery—Vocabulary for Ancillary Devices. Trilingual Edition. TC 72/SC 4.
ISO 5249:1988	Textile Machinery and Accessories—Guide Rollers for Dyeing and Finishing Machinery—Main Dimensions. TC 72/SC 4.
ISO 5250:1982	Textile Machinery and Accessories—Dyeing and Finishing Machinery—Vocabulary for Stenters. TC 72/SC 4.
ISO 6178:1983	Centrifuges—Construction and Safety Rules—Method for the Calculation of the Tangential Stress in the Shell of a Cylindrical Centrifuge Rotor. TC 72/SC 4.
ISO 10457:1991	Textile Machinery—Dyeing and Finishing Machines—Nominal Speeds. TC 72/SC 4.
ISO 10459:1992	Textile Machinery—Dyeing and Finishing Machines—Designation of Operating Ranges of Component Parts. TC 72/SC 4.

LEATHER

ISO 1164:1993	Leather—Tests for Adhesion of Finish. IULTCS.
ISO 2417:1972	Leather—Determination of Absorption of Water. IULTCS.
ISO 2418:1972	Leather—Laboratory Samples—Location and Identification. IULTCS.
ISO 2419:1972	Leather—Condition of Test Pieces for Physical Tests. IULTCS.
ISO 2420:1972	Leather—Determination of Apparent Density. IULTCS.
ISO 2588:1985	Leather—Sampling—Number of Items for a Gross Sample. IULTCS.
ISO 2589:1972	Leather—Physical Testing—Measurement of Thickness. IULTCS.
ISO 2820:1974	Leather—Raw Hides of Cattle and Horses—Method of Trim. TC 120.
ISO 2821:1974	Leather—Raw Hides of Cattle and Horses—Preservation by Stack Salting. TC 120.
ISO 3376:1976	Leather—Determination of Tensile Strength and Elongation. IULTCS.
ISO 3377:1975	Leather—Determination of Tearing Load. IULTCS.
ISO 3378:1975	Leather—Determination of Resistance to Grain Cracking, and of Crack Index. IULTCS.
ISO 3379:1976	Leather—Determination of Distension and Strength of Grain—Ball Burst Test. IULTCS.
ISO 3380:1975	Leather—Determination of Shrinkage Temperature. IULTCS.
ISO 4044:1977	Leather—Preparation of Chemical Test Sample. IULTCS.
ISO 4045:1977	Leather—Determination of pH. IULTCS.
ISO 4047:1977	Leather—Determination of Sulphated Total Ash and Sulphated Water-Insoluble Ash. IULTCS.

ISO 4048:1977	Leather—Determination of Matter Soluble in Dichloromethane. IULTCS.
ISO 5397:1984	Leather—Determination of Nitrogen Content and "Hide Substance"—Titrimetric Method. IULTCS.
ISO 5399:1984	Leather—Determination of Water-Soluble Magnesium Salts—EDTA Titrimetric Method. IULTCS.
ISO 5400:1984	Leather—Determination of Total Silicon Content—Reduced Molybdosilcate Spectrometric Method. IULTCS.
ISO 11640:1993	Leather—Tests for Colour Fastness—Colour Fastness to Cycles of to-and-fro Rubbing. IULTCS.
ISO 11641:1993	Leather—Tests for Colour Fastness—Colour Fastness to Perspiration. IULTCS.
ISO 11642:1993	Leather—Tests for Colour Fastness—Colour Fastness to Water. IULTCS.
ISO 11643:1993	Leather—Tests for Colour Fastness—Colour Fastness of Small Samples to Dry-Cleaning Solutions. IULTCS.
ISO 11645:1993	Leather—Heat Stability of Industrial-Glove Leather. IULTCS.
ISO 11646:1993	Leather—Measurement of Area. IULTCS.

CLOTHING

Sizing

ISO 3635:1981	Size Designation of Clothes—Definitions and Body Measurement Procedure. TC 133.
ISO 3638:1977	Size Designation of Clothes—Infants' Garments. TC 133.
ISO 3636:1977	Size Designation of Clothes—Men's and Boy's Outerwear Garments. Technical Corrigendum 1:1990 to ISO 3636:1977.
ISO 3637:1977	Size Designation of Clothes—Women's and Girl's Outerwear Garments. TC 133. Technical Corrigendum 1:1990 to ISO 3637:1977.
ISO 4416:1981	Size Designation of Clothes—Women's and Girls' Underwear, Nightwear, Foundation Garments and Shirts. TC 133. Technical Corrigendum 1:1990 to ISO 4416:1981.
ISO/TR 10652:1991	Standard Sizing Systems for Clothes. TC 133.
ISO 4118:1978	Size Designation of Clothes—Gloves. TC 133.
ISO 4417:1977	Size Designation of Clothes—Headwear. TC 133.
ISO 7070:1982	Size Designation of Clothes—Hosiery. TC 133.
ISO 5971:1981	Size Designation of Clothes—Pantyhose. TC 133.
ISO 8559:1989	Garment Construction and Anthropometric Surveys—Body Dimensions. TC 133.

Protective Clothing

ISO 2801:1973	Clothing for Protection Against Heat and Fire—General Recommendations for Users and for Those in Charge of Such Users. TC 94/SC 13.
ISO 6529:1990	Protective Clothing—Protection Against Liquid Chemicals—Determination of Resistance of Air-Impermeable Materials to Permeation by Liquids. TC 94/SC 13.
ISO 6530:1990	Protective Clothing—Protection Against Liquid Chemicals—Determination of Resistance of Air-Impermeable Materials to Permeation by Liquids. TC 94/SC 13.

ISO 6942:1993	Clothing for Protection Against Heat and Fire—Evaluation of Thermal Behaviour of Materials and Material Assemblies When Exposed to a Source of Radiant Heat. TC 94/SC 13.
ISO 8096-1 to 3:1988-89	Rubber- or Plastics-Coated Fabrics for Water-Resistant Clothing - Specification (3 parts). TC 45. Part 1: PVC-Coated Fabrics. Technical Corrigendum 1:1991 to ISO 8096-1:1989. Part 2: Polyurethane- and Silicone Elastomer-Coated Fabrics. Part 3: Natural Rubber- and Synthetic Rubber-Coated Fabrics.
ISO 8194:1987	Radiation Protection—Clothing for Protection Against Radioactive Contamination—Design, Selection, Testing and Use. TC 85/SC 2.
ISO 9150:1990	Protective Clothing—Determination of Behaviour of Materials on Impact of Small Splashes of Molten Metal. TC 94/SC 13.
ISO 9185:1988	Protective Clothing—Assessment of Resistance of Materials to Molten Metal Splash. TC 94/SC 13.
ISO/TR 11079:1993	Evaluation of Cold Environments—Determination of Requisite Clothing Insulation (IREC). TC 159/SC 5.

STEP[47]

ISO 10303-1 to 203:1994-95	
	Part 1: Overview and Fundamental Principles.
	Part 11: EXPRESS Language and Reference Manual.
	Part 21: Physical File, Exchange Structure Working Format, Active Transfer.
	Part 41: Fundamentals of Product Description and Support.
	Part 42: Geometry and Topology Representations.
	Part 43: Representation Specialization.
	Part 44: Product Structure Configuration.
	Part 46: Visual Presentation.
	Part 101: Draughting.
	Part 201: Explicit Draughting.
	Part 203: Configuration-Controlled Design.

[47] This listing includes only the STEP initial release. There are many other parts in some stage of the development and approval process.

C.7 NFPA Apparel Standards[48]

The following are performance specifications for clothing to protect against hazardous environments. Most of them relate to fire fighting. The standards are listed in numerical order.

NFPA 1971	Protective Clothing for Structural Fire Fighting
NFPA 1972	Helmets for Structural Fire Fighting
NFPA 1973	Gloves for Structural Fire Fighting
NFPA 1974	Protective Footwear for Structural Fire Fighting
NFPA 1975	Station/Work Uniforms for Fire Fighters
NFPA 1976	Protective Clothing for Proximity Fire Fighting
NFPA 1977	Protective Clothing and Equipment for Wildland Fire Fighting
NFPA 1983	Fire Service Life Safety Rope, Harness, and Hardware
NFPA 1991	Vapor-Protective Suits for Hazardous Chemical Emergencies
NFPA 1992	Liquid Splash-Protective Suits for Hazardous Chemical Emergencies
NFPA 1993	Support Function Protective Clothing for Hazardous Chemicals Operations

[48] National Fire Protection Association. pp. 31, 32. 1995.

C.8 SAE AMS Textile Specifications[49]

These specifications for the most part relate to high performance aramid and para-aramid textile materials. They are listed in numerical order.

3901B #	Organic Fiber (Para-Aramid), Yarn and Roving, High Modulus (**Oct 92**)
3901/1B #	Yarn, Organic Fiber (Para-Aramid), High Modulus, OY 390 (2689)/23.5 Tensile Strength, 18 (125)/982 Tensile Modulus, 195 Denier, 0.6% Finish (**Oct 92**)
3901/2B #	Yarn, Organic Fiber (Para-Aramid), High Modulus, OY 390 (2689)/24.5 Tensile Strength, 17.5 (121)/934 Tensile Modulus, 380 Denier, 0.6% Finish (**Oct 92**)
3901/3B #	Yarn, Organic Fiber (Para-Aramid), High Modulus, OY 390 (2689)/25.5 Tensile Strength, 16.5 (114)/900 Tensile Modulus, 1140 Denier, 0.6% Finish (**Oct 92**)
3901/4B #	Yarn, Organic Fiber (Para-Aramid), High Modulus, OY 390 (2689)/24.3 Tensile Strength, 18 (125)/982 Tensile Modulus, 1420 Denier, 0.6% Finish (**Oct 92**)
3901/5B #	Yarn, Organic Fiber (Para-Aramid), High Modulus, OY 450 (3103)/23.0 Tensile Strength, 17.5 (121)/780 Tensile Modulus, 7100 Denier, 0.6% Finish (**Oct 92**)
3901/6B #	Yarn, Organic Fiber (Para-Aramid), High Modulus, OY 500 (3447)/23.5 Tensile Strength, 7.5 (121)/800 Tensile Modulus, 4560 Denier, 0.6% Finish (**Oct 92**)
3901/7A #	Yarn, Organic Fiber (Para-Aramid), High Modulus, OY 390 (2689)/21.5 Tensile Strength, 16.5 (114)/825 Tensile Modulus, 2160 Denier, 0.6% Finish (**Oct 92**)
3901/8A #	Yarn, Organic Fiber (Para-Aramid), High Modulus, OY 390 (2689)/21.5 Tensile Strength, 18 (124)/982 Tensile Modulus, 195 Denier, 1.2% Finish (**Oct 92**)
3901/9A #	Yarn, Organic Fiber (Para-Aramid), High Modulus, OY 390 (2689)/24.5 Tensile Strength, 17.5 (121)/934 Tensile Modulus, 380 Denier, 1.2% Finish (**Oct 92**)
3901/10A #	Yarn, Organic Fiber (Para-Aramid), High Modulus, OY 390 (2689)/23.6 Tensile Strength, 16.5 (114)/885 Tensile Modulus, 1140 Denier, 1.2% Finish (**Oct 92**)
3901/11A #	Yarn, Organic Fiber (Para-Aramid), High Modulus, OY 390 (2689)/22.2 Tensile Strength, 16.5 (114)/870 Tensile Modulus, 1420 Denier, 1.2% Finish (**Oct 92**)
3901/12A #	Yarn, Organic Fiber (Para-Aramid), High Modulus, OY 390 (2689)/21.5 Tensile Strength, 16.5 (114)/870 Tensile Modulus, 1420 Denier, 1.2% Finish (**Oct 92**)
3902B #	Cloth, Organic Fiber (Para-Aramid), High Modulus, for Structural Composites (**Oct 89**)

[49] Society of Automotive Engineers, Inc. pp. 101-103. 1994.

A previous issue of this document has DODISS acceptance. DODISS adoption means that the document has been coordinated by the tri-services and is approved for military use.

3903A +	Cloth, Organic Fiber (Para-Aramid), High Modulus, Epoxy Resin Impregnated (**Oct 85**)
3903/1A +	Cloth, Organic Fiber, High Modulus, Epoxy Resin Impregnated, OC Style 120, 175 (350) (**Jan 88**)
3903/2A +	Cloth, Organic Fiber, High Modulus, Epoxy Resin Impregnated, OC Style 181, 175 (350) (**Jan 88**)
3903/3A +	Cloth, Organic Fiber, High Modulus, Epoxy Resin Impregnated, OC Style 281, 175 (350) (**Jan 88**)
3903/4A +	Cloth, Organic Fiber, High Modulus, Epoxy Resin Impregnated, OC Style 328, 175 (350) (**Jan 88**)
3903/5A +	Cloth, Organic Fiber, High Modulus, Epoxy Resin Impregnated, OC Style 120, 80 (180) (**Jan 88**)
3903/6A +	Cloth, Organic Fiber, High Modulus, Epoxy Resin Impregnated, OC Style 181, 80 (180) (**Jan 88**)
3903/7A +	Cloth, Organic Fiber, High Modulus, Epoxy Resin Impregnated, OC Style 281, 80 (180) (**Jan 88**)
3903/8A +	Cloth, Organic Fiber, High Modulus, Epoxy Resin Impregnated, OC Style 328, 80 (180) (**Jan 88**)
3904A	Fiber, Organic (Para-Aramid), Yarn and Roving, Intermediate Modulus, for Cables, Cordage, and Woven Goods (**Apr 89**)
3904/1A	Yarn, Organic Fiber (Para-Aramid), Intermediate Modulus, 200 Denier, 1.75% Finish (**Apr 89**)
3904/2A	Yarn, Organic Fiber (Para-Aramid), Intermediate Modulus, 400 Denier, 1.75% Finish (**Apr 89**)
3904/3A	Yarn, Organic Fiber (Para-Aramid), Intermediate Modulus, 1000 Denier, 1.75% Finish (**Apr 89**)
3904/4A	Yarn, Organic Fiber (Para-Aramid), Intermediate Modulus, 1000 Denier, 1.5% Finish, for Weaving (**Apr 89**)
3904/5A	Yarn, Organic Fiber (Para-Aramid), Intermediate Modulus, 1500 Denier, 1% Finish, for Cable and Cordage (**Apr 89**)
3904/6	Yarn, Organic Fiber (Para-Aramid), Intermediate Modulus, 1500 Denier, 7.0% Finish, for Cable and Cordage (**Apr 89**)
3904/7	Yarn, Organic Fiber (Para-Aramid), Intermediate Modulus, 1500 Denier, Zero Finish, for Cable and Cordage (**Apr 89**)
3904/8	Yarn, Organic Fiber (Para-Aramid), Intermediate Modulus, 1500 Denier, 1.0% Finish, for Weaving (**Apr 89**)
3904/9	Yarn, Organic Fiber (Para-Aramid), Intermediate Modulus, 3000 Denier, 0.9% Finish, for Non-Apparel Ballistic Applications (**Apr 89**)
3904/10	Roving, Organic Fiber (Para-Aramid), Intermediate Modulus, 15,000 Denier, 7.0% Finish, for Cable and Cordage (**Apr 89**)
3904/11	Roving, Organic Fiber (Para-Aramid), Intermediate Modulus, 15,000 Denier, 1.0% Finish, for Cable and Cordage (**Apr 89**)
3904/12	Roving, Organic Fiber (Para-Aramid), Intermediate Modulus, 9000 Denier, 7.0% Finish, for Cable and Cordage
3907	Cloth, Aramid, Plain and Basket Weave (**Oct 85**)
3907/1	Cloth, Aramid, 5 oz per sq. yd (170g/m^2), Basket Weave (**Oct 85**)

+ DODISS adpotion means that the document has been coordinated by the tri-services and is approved for military use.

3907/2	Cloth, Aramid, 4.3 oz per sq. yd (145g/m^2), Plain Weave (**Oct 85**)
3908A	Cloth, Aramid (Para), Plain Weave, Thermally Stable (**Jan 92**)
3909	Cloth, Parachute, Aramid, Intermediate Modulus (**Jul 85**)
3909/1	Cloth, Parachute, Aramid, 3.0 oz per sq. yd (100 g/m^2), 350 lb per in. (61,300 N/m) (**Jul 85**)
3909/2	Cloth, Parachute, Aramid, 2.25 oz per sq. yd (75 g/m^2), 250 lb per in. (43,800 N/m) (**Jul 85**)
3909/3	Cloth, Parachute, Aramid, 2.0 oz per sq. yd (68 g/m^2), 230 lb per in. (40,275 N/m) and 220 lb per in. (38,525 N/m) (**Jul 85**)

D GLOSSARY[50]

This glossary contains terms common to the fiber, textile, and apparel sectors of the FTA industry, and some terms appearing in the titles of standards listed in Appendix C : FTA Standards Listing. They are listed alphabetically.

alpaca/alpacea	1. Animal belonging to the species of Llama; it produces a short textile fiber of 4 inches in one years growth. 2. A thin cloth made of the woolly hair of the alpaca often with dyed silk, cotton, or another fiber in the weft.
anthropometry	The study and technique of human body measurement.
barre	1. A crossover striped cloth with stripes formed by weft from selvage; either woven or printed. 2. A defect due to variation in the number of picks per inch.
bast/bass	Strong woody fibers obtained from the stem, leaves, or fruit of various trees and plants, and known as bast or hard fibers. They are used especially in the manufacture of ropes, cordage, matting, etc.
beam	A cylinder of wood or metal on which the warp from the warping machine is wound before weaving; it is called the yarn beam or weaver's beam, backbeam or section beam.
chambray	1. A plain woven cotton or linen fabric with colored warp and white filling that gives a mottled colored surface; used for shirts, children's clothes, and dresses. 2. A similar but heavier carded yarn fabric used for work-shirts and children's play clothes.
chelation	The chemical process of forming a ring compound by joining a chelating agent to a metal ion.
CID	Commercial Item Description: The new format for specification of military items, including clothing. It will replace the traditional "MIL-specs." The CID gives the manufacturer more freedom in determining processes and in some cases materials to meet performance criteria.
CIM	Computer Integrated Manufacturing: The process of monitoring and controlling manufacturing processes on the shop floor electronically. This requires that machines of different types made by various manufacturers communicate with one another.
colorfastness/fastness	Retentive quality of firmness of dyes; such as fastness to light, perspiration, salt water, washing, etc. Fast colors are durable or lasting. (Note that the term, "colorfastness," is referred to in that

[50] The entries in this glossary were obtained from the following references (some entries have been modified):
Link, 1954.
The Riverside Publishing Company, 1984.

form and also in the form, "colour fastness," in the standards listings.)

colorimeter

1. An instrument for measuring the depth of color in a liquid by comparison with a standards liquid of the same tint.
2. An instrument or device for determining and specifying colors by reference either to other colors or to certain complex stimuli.

cotton

A soft white fibrous substance covering the seeds of various malvaceuous plants. Careful selection has greatly improved the quality and increased the length of the fiber knows as staple-length. On account of its cheapness, cotton is the most important of textile products. The most important property of cotton s the spiral-like appearance or convolution of its fiber which gives it a natural twist, causing the fibers to adhere together while the yarn is being formed. The cotton staple falls into one or more categories in each group:

Table 1 : Cotton Staple Qualities

Quality	Color	Feel, Handle	Defects
Even	Fair	Soft	Sandy
Irregular	Good	Firm	Dusty
Good	Spotted	Hard	Leafy
Very Good	Stained	Rough	Husky/Howly
Strong	Tinged	Towy	Neppy
Weak	Highly Colored		
Silky			
Long Stapled			
Short Stapled			
Damaged			
Coarse			

In the United States, the cotton receives one of the following overall grades (with "1" being of the highest quality):

1) Middling Fair
2) Strict Good Middling
3) Good Middling
4) Strict Middling
5) Middling
6) Strict Low Middling
7) Low Middling
8) Strict Good Ordinary
9) Good Ordinary

crocking

The tendency of excess dye to rub off.

crockmeter

A laboratory device for measuring the fastness of dyes to rubbing.

degumming/boiling off

A process by which the natural gum of silk is dissolved and the released fibers are freed to be drawn.

desizing

The process of eliminating sizing (stiffening materials) from grey goods preparatory to bleaching, dyeing etc. The sizing substance is first made soluble by an acid or enzyme, then washed out.

drawing

1. The process of pulling out or elongating the sliver of the carding machine.
2. Various processes, including giling, reducing, and roving, by which slivers are converted into rovings of the required thickness for spinning.

fiber

Any tough substance composed of threadlike tissues and capable of being spun and woven; the minimum length for fibers to be spun into yarn is one-fifth of an inch. Vegetable fibers are yielded by the bast of plants, excepting cotton, which is the hairy tuft of the seed. The following table gives a list of fibers by origin:

Table 2 : Fibers by Origin

Animal	Vegetable	Mineral	Synthetic
Wool Hair Silk Sinew	Cotton Hemp Flax Jute Ramio Phormium	Asbestos Metals	Rayon Nylon Vinyon Aralac Glass Paper

filament

1. A thread or threadlike object, an appendage or a separate fiber; the extreme length of filaments permits their being used in a yarn without twist or with very low twist, and they are usually made into yarn without the spinning operation required for fibers.
2. The single individual unit which is extracted by the silkworm or by the spinneret.
3. *Continuous filaments* are synthetic and regenerated fibers which have a short staple.
4. *Monofilament* is a simple filament of sufficient size to function as a yarn in normal textile operation.
5. *Multifilament* is a rayon yarn with a very large number of fine filaments.

findings

Small, miscellaneous materials used in the apparel manufacture process; not of textile origin; these would include buttons and zippers.

flax

A plant cultivated for its fibers; the long silky bast fiber freed from the stem by retting and various mechanical processes is used in the manufacture of a thread which is woven into a cloth generally known as linen.

gabardine

A twilled fabric in which warp threads predominate; used as material of clothing for both sexes.

hand/handle (fabric) The reaction to the sense of touch, when raw material or goods are grasped in the hand to judge their quality, taking into account especially their fineness and softness.

havelock A cloth covering for a cap, with a flap to cover and protect the back of the neck.

heald/heddle 1. One of the sets of parallel double cords or wires on the loom, which with their mounting compose the harness used to guide the warp.
2. To draw the warp threads with a heddle hook through the heald-eyes or comb, which is a loop formed in each heald.

hemp A plant cultivated for its touch bast fibers, which is obtained similarly to flax; it is used for making cloth and cordage.

huck/huckabauk A cotton cloth with a rough surface obtained by short floats of warp and weft threads on a plain weave ground texture; employed for towels.

integration The process of brining all parts of a system or process together and making them compatible.

kemp Thick opaque and wavy fibers with a pointed tip and root, which are shed periodically into the fleece; they develop in nearly all breeds of sheep but principally in mountainous and carpet wool types. They greatly reduce the value of the wool because of the inferior spinning properties; they do not show up dyes.

knitting 1. The process of making a fabric by interlacing one or more yarns in a series of connected loops by means of needles, either by hand or by machines; there are rectilinear and circular knitting machines employed to make jerseys, stocking, and the like.
2. *Gauge*: a standard measure of the fineness of a knitted fabric obtained by counting the number of needles in a given unit of space.

medullated (wool) This differs from true kemp because it is not shed but grows with the wool; it is distinguished by the coarser diameter of the medullated cells.

mercerization A process to which cotton yarn is subjected to produce luster and shrinkage; the material is treated in a caustic soda solution for one minute and in tension, then neutralized and washed off.

modulus A constant or coefficient that expresses the degree to which a substance possesses some property.

nep 1. Lumps or rolled up and tangled wool fibers which curl up in carding and sometimes also in combing by inefficient setting of the cylinders or rollers; they should be cleared out of the sliver in combing.
2. A cluster of fibers in the wool staple.

3. Little knots formed in cotton by immature fibers in the wool staple.

nonwovens

Materials, such as felts, which undergo neither the weaving nor the knitting process. Such fibers may be forced together and the cohesion produced by that process is enough for the intended applications.

pack

1. A bundle or a bale of raw material or of goods; to bale, to load.
2. A measure of scouring wool or wool top weighing 240 lbs.

pirn (weft)

1. A single-headed bobbin or spool in which head and barrel are shaped conically.
2. Yarn wound on the weaver's shuttle.

roving/roving-frame

1. Final product of the drawing process obtained on the roving frames called also dandles, resulting in a strand of wool of the desired thickness for spinning it into a worsted yarn.
2. Drawing process before spinning in worsted yarn manufacture.

saponification

1. Chemical process of soap-making.
2. The decomposition of any ester into the corresponding alcohol and fatty acid; also, the similar production of an acid from some other derivative.
3. *Saponification number*: milligrams of potassium hydride needed to saponify 1.0000 milligrams of the oil, fat, etc., that is being tested.

sisal

Approximately 300 species of plants which grow in desert and subtropical regions and supply very strong, smooth, yellowish bast fibers; they are used for upholstery and as substitutes of flax and hemp in the manufacture of sackcloths and carpets.

size/sizing

1. Stiffening or finishing threads, yarn, or fabrics by the use of sizes and glutinous materials; it can be done by means of a sizing apparatus attached to the loom (as in the slasher-sizer) or as a finishing process. There are three types of sizing as follows:

Table 3 : Sizing Types

Light Sizing	Medium Sizing	Heavy Sizing
Up to 10% of size. Gives a better handle to the cloth.	From 10% to 40% of size. Makes the cloth heavier for jeans and other clothing.	Up to 100% of size. Used for cheap cotton shirting. Also starching.

2. Determination of the count of rovings or yarns.
3. The process of mapping sets of dimensions for a garment to one numerical value. For instance, a size 7 dress denotes particular circumferential and linear measurements. Accurate anthropometric data is crucial to effective sizing.

slashing — A process in which sizing is applied to warp threads in their full width; it is used to size the warp yarn with a starch or like substance that will lay all the fibers parallel, and add strength to the yarn; this enables to go through weaving without damage.

sliver — A continuous strand of cotton, wool, or other fiber, in a loose untwisted state, produced by a carding, drawing or combing machine.

spinning — 1. Final drawing of a carded or combed sliver or roving into a yarn inserting the required degree of twists, and winding it upon a cone; this is usually done by ring spinning, the air-jet system, or the open-end centrifugal process.
2. *Wool spinning* is done by either the woolen or worsted method.
3. *Cotton Spinning* joins and twists together a series of short fibers to make a thread of desired fineness and length; it consists of the following operations: opening and cleaning the bales, carding or loosening and parallellizing the fibers, drawing the slivers to a uniform length, spinning the slivers into yarn, and winding the yarn from the cones onto spools.
4. *Dry spinning* is the method for flax, hemp, jute, etc., as well as rayon.

stoving — 1. The submitting of dampened wool, yarn or cloth to an agent, such as sulfur dioxide fumes, for bleaching.
2. Treating of the silk cocoon by hearing to kill the chrysalis.

sundries — Miscellaneous articles used in sewing garments; not of textile origin; these would includes buttons, zippers, etc.

tannin — 1. Tannic acid.
2. A chemical substance capable of promoting tanning.

tanning — The art or process of making leather from rawhides.

textile — Material capable of being spun or woven, knitted, felted, bonded, or crocheted.

vulcanization — A process that increases the strength, resiliency, and freedom from stickiness of a material by combining it with sulfur or other additives in the presence of heat and pressure.

warp/warping — 1. A series of threads which are extended lengthwise in the loom and crossed by the weft; it is usually longer and harder twisted than the weft.
2. *Warping* is the arranging of the chain or series of warp threads according to quality and color, winding them off the bobbins and on to a special beam attached to the loom.

weaving — 1. The process of interlacing a series of longitudinal yarns with another yarn running crosswise and known as the weft or filling, on machines called looms.

weaving (con't)	2. A particular pattern or design of weaving such as plain, twill, satin, herringbone, hopsack, etc. 3. *Cross weaving* is a style of weaving which produces open work effects such as seen in gauze and lenos; it is produced by crossing one warp thread with another, first to one side and then to the other in some definite order.
weft	The thread which is thrown through the warp at right angles by means of a shuttle; it is, as a rule, softer spun and weaker than warp yarn.

E LIST OF ACRONYMS

The following is a list of key acronyms used in this paper. Many of them refer to organizations. A brief description and contact information for these organizations can be found in Appendix B: FTA Standards Organizations.

AAMA	American Apparel Manufacturers Association
AATCC	American Association of Textile Chemists and Colorists
ALCA	American Leather Chemists Association
AMTEX	American Textile Partnership
ANSI	American National Standards Institute
APDES	Apparel Product Data Exchange Standard
ARC	(AAMA) Apparel Research Committee
ASTM	American Society for Testing and Materials
ATMI	Apparel Textile Manufacturers Association
CIM	Computer-Integrated Manufacturing
DAMA	(AMTEX) Demand-Activated Manufacturing Architecture
EC	European Community
EDI	Electronic Data Interchange
EDIFACT	Electronic Data Interchange for Administration, Commerce, and Transport
FASLINC	Fabric and Supplier Linkage Council
FTA	Fiber/Textile/Apparel (Industry)
ISO	International Organization for Standardization
ITC	Integrated Textile Complex
NBS	National Bureau of Standards (name changed to NIST in 1988)
NFPA	National Fire Protection Association
NIST	National Institute of Standards and Technology
SAE	Society of Automotive Engineers
SAFLINC	Sundries and Finding Linkage Council

SRD	Standard Reference Data
SRM	Standard Reference Material
STEP	Standard for the Exchange of Product Model Data
TALC	Textile Apparel Linkage Council
TDI	Trade Data Interchange
UCS	Uniform Communication Standards
VICS	Voluntary Interindustry Communication Standard
WINS	Warehouse Information Network Standard