DOWNLOAD PDF FUNCTIONAL FINISHES

Chapter 1 : Functional Fenestration Inc.

Functional finishes for textiles reviews the most important fabric finishes in the textile industry. It discusses finishes designed to improve the comfort and other properties of fabrics, as well as finishes which protect the fabric or the wearer.

Fireproof fabric or flame retardant fabric may be defined as one that does not propagate flame although it may burn or char when exposed to heat. Flame resistant or retardant fabric are those that ignite with difficulty, burn slowly. When the source of flame is removed. As in defense organization for tents, ropes, baggage, parachutes, industry uniforms, in coal mines, uniforms for a fire fighter. The cellulosic textile material will burn readily once they are ignited. The risk of fire increased when such synthetic fibres are blended with cellulosic fibre because the combustion of cellulosic material which is non melting produces scaffolding effect since the use of blend increasing, there is need to make such blend flame retardant. Control the fire properties of combustible items. Provide for suppression of the fire. By chemically treating the fibres to produce the desired effect. Mechanism Of Flame Retardant Finish There are many theories have been postulated to explain how flame resistance is imparted to cellulosic material, but chemical theory most widely accepted. The flame resistance of cellulosic materials is brought about by dehydration of cellulose. The release of formaldehyde which is harmful to the environment. Acid tendering of the fabric during curing. Harshening of fabric handle. Flame retardants for polyester Polyester can be made flame retardant by following methods. Is physically or chemically combined with the polyester. Delion PFR is added at the beginning of polycondensation reaction. The compound tris 2,3-dibromopropyl phosphate was once widely used as the flame retardant for polyester but was abandoned due to carcinogenic effect. Flame retardants for Nylon The nylon6,6 fabric has been widely used in the military and civilian area for many areas. However, the melting drip problem has not been effectively solved despite the efforts made in last two decades. Advantages of flame retardants based on Nitrogen compounds Nitrogen compounds are a small but rapidly growing group of flame retardants FR which are in the focus of public interest concerning environmentally friendly flame retardants. The problem of soiling is not a new one. A soil release finish does not prevent soil from entering into the fabric but simply allows it to leave faster. It removes from the fabric and transfers it to the detergent; it protects the fibre from attack by soiling matter; it prevents redeposition of the soil. Mechanism of Soiling A fabric gets soiled mainly by three types of mechanism. Also, soil which is oily in nature can diffuse into the fibre. By adhesion by electrical forces It is due to the attraction of dust particles from the air by electrically charged fibre surface. This phenomenon occurs mainly with synthetic fibres because of their low moisture regain. Positively charged fabric surface is soiled more than the negatively charged surface. Charged fibres attract soil from the atmosphere, positively charged fabric attracting more soil than the negatively charged one. Coarser yarn greater tendency to the soil. Circular cross-sectional fibres retain less soil than one with an irregular cross section. Higher the twist in the yarn, greater the soil retention. Fabric made from spun yarn is easily soiled than filament yarn. Particle size of soil The smaller the size of the soil particles, greater is the soil retention of the fabric. Anti-pilling Finish pilling is nothing but the formation of small knots on the surface of the fabric, is formed by the entanglement of the fibres on the surface of the fabric. It spoils the appearance of the fabric. One of the main reason for the formation of pills is high tenacity of fibre. Fibre who has low tenacity like cotton, wool, silk, etc. Factors influencing pilling are Fibre characteristics longer staple length has low tendency to form pills. Finer count less pilling problem. Fibre crimp is high then less formation of pills are less. Fibres with circular cross-section have high tendency to form pills rather than irregular one. Yarn construction higher twist then pills formation low. Plied yarn shows less pilling than single yarn. High tenacity causes more pills formation. Fabric construction loosely woven fabric or fr fabric with open structure causes more pills formation. Plain woven fabrics are more pills resistant than twill or sateen. Singing is the most important operation for reducing pilling. During singing, protruding fibres are burnt. Generally singeing is carried out after dyeing. Anti-static finish anti-static finish mostly used for synthetic fibres. Synthetic fibres accumulate static charges on their surface. By applying antistatic agent development of static electricity can be

minimized. Antistatic agent can be applied to filaments, yarns or fabrics. These agents have to be polar hygroscopic ; it will attract water molecules so, that it helps to maintain a layer of moisture on the surface of fibre which is responsible for dissipating static electricity. Six link theory â€" this is the main mechanism of the spread of infection by the microbes can be explained by the six link theory. According to this theory, six different links are formed between the pathogen, environment and the host in which all join to form a circular chain. Methodologies for Antibacterial finishing 1. The surface application This method is applicable to all fibres, but for cotton, it is the major mode of finishing. Washing durability depends on the strength of the bond so formed. Finishes impervious to water Textile fabrics treated with finishes impervious to water fall into two categories: While wax dispersions, pyridinium compounds, silicones, fluorochemicals this used for synthetic fibre as water repellent agent. There is great potential for these functional finishes as they are considered to be good enough as well as we have to focus on to overcome the demerits such as loss in strength, stiffness, poor handle, etc. CBS publishers, New Delhi, p Amsamani, the textile magazine, vol.

Chapter 2 : Finishing (textiles) - Wikipedia

Historically, functional finishes have been broadly divided based on how the finish influenced the performance of the fabric. For example, finishes were divided into finishes that enhance fabric comfort, maintenance, safety, and durability.

The things which were impossible to do in past are now can be done easily with the use of technology. All this is possible due to advancement in Science and Technology. Now one can easily use a mobile phone and its features just by swiping on the fabric, all this is possible due to advancement in the textile sector. When we think of finishing fabric the things which come to mind is crease resistant finish, heat setting etc. All the basics finish but now with high desires of customer one is demanding the fabric or textile product which is having multiple advantages and which is suitable according to the end use of the fabric like the fabric must be anti-microbial, it must smell good etc. And many more such desires of the customer results in the development of the advances textile finishes, which we can apply to the textile material in order to enhance its quality and usability. So all the advanced functional finishes are discussed in this paper. Technology, Textile finishes, Anti- microbial, Customer Textile Finishing Finishing is the term for a multitude of processes and treatments which a fabric may undergo after it has been made and colored dyed or printed. The finishing process imparts the final and aesthetic, chemical and mechanical properties of the fabric as per the end use requirements. Finishing majorly depends upon the end use of the fabric. So that it will help firefighter to wear the fabric and work in the fire conditions. Finishing gives the following advantages: Improve the appearance of the fabric. Improve feel of the fabric. Improves the wearing quality of the fabric. It covers the fault of the original cloth. It enhances the appearance of the fabric. It increases the product demand in the market as it makes the fabric looks good. Classification of Finishes The textile finish can be classified in several ways. A person who is concerned with the end product usually categories finishes as aesthetic finishes and functional finishes. Aesthetic finish is all about the appearance of the fabric while the functional finish is the one in which the performance of the fabric is improved under specific end use conditions. A person concerned with the textile processing will categories finishing as chemical finishing and mechanical finishing. Finishing is also categorized by their degree of performance as permanent, durable, semi-durable and temporary. The most commonly used chemicals for finishing are:

Chapter 3 : Functional Finishes - LJ Specialities

Functional finishes Special finishes imparted to fabrics, keeping the functional use of the fabric is known as special or functional finishes. Absorbency finish: Although the cellulose fibers like cotton, linen and rayon have good absorbency, sometimes it is desired that they should be more absorbent.

Introduction[edit] In order to impart the required functional properties to the fiber or fabric, it is customary to subject the material to different types of physical and chemical treatments. For example, wash and wear finish for a cotton fabric is necessary to make it crease -free or wrinkle -free. In a similar way, mercerising , singeing , flame retardant , water repellent, waterproof , anti-static and peach finishing achieve various fabric properties desired by consumers. The use of open weave has enabled production of lighter, breathable , fabrics to ensure better wearing comfort. Hence the sequence of finishing operations is likely to be different. While cellulosic fabrics require a resin finishing treatment to impart easy-care properties, synthetic fibers already exhibit these easy-care criteria and require only a heat setting operation. Finishing- processing of cotton[edit] Purification and preliminary processes[edit] The grey cloth,woven cotton fabric in its loom-state, not only contains impurities, including warp size, but requires further treatment in order to develop its full textile potential. Furthermore, it may receive considerable added value by applying one or more finishing processes. The fabric passes over brushes to raise the fibres, then passes over a plate heated by gas flames. Scouring is usually carried in iron vessels called kiers. The fabric is boiled in an alkali , which forms a soap with free fatty acids saponification. A kier is usually enclosed, so the solution of sodium hydroxide can be boiled under pressure, excluding oxygen which would degrade the cellulose in the fibre. If the appropriate reagents are used, scouring will also remove size from the fabric although desizing often precedes scouring and is considered to be a separate process known as fabric preparation. Preparation and scouring are prerequisites to most of the other finishing processes. At this stage even the most naturally white cotton fibres are yellowish, and bleaching, the next process, is required. Textile bleaching Bleaching improves whiteness by removing natural coloration and remaining trace impurities from the cotton; the degree of bleaching necessary is determined by the required whiteness and absorbency. Cotton being a vegetable fibre will be bleached using an oxidizing agent , such as dilute sodium hypochlorite or dilute hydrogen peroxide. If the fabric is to be dyed a deep shade, then lower levels of bleaching are acceptable, for example. However, for white bed sheetings and medical applications, the highest levels of whiteness and absorbency are essential. Mercerized cotton A further possibility is mercerizing during which the fabric is treated with caustic soda solution to cause swelling of the fibres. This results in improved lustre, strength and dye affinity. Cotton is mercerized under tension, and all alkali must be washed out before the tension is released or shrinkage will take place. Mercerizing can take place directly on grey cloth, or after bleaching. The pigment selectively reflects certain wavelengths of light while absorbing others. A dye can be considered as a substance that can be fixed to a material that has these properties. The colour it reflects is defined by the structure of the molecule, and particular the parts of the chromogen molecule called the chromophore group. Dyeing Finally, cotton is an absorbent fibre which responds readily to colouration processes. Dyeing, for instance, is commonly carried out with an anionic direct dye by completely immersing the fabric or yarn in an aqueous dyebath according to a prescribed procedure. For improved fastness to washing, rubbing and light, other dyes such as vats and reactives are commonly used. These require more complex chemistry during processing and are thus more expensive to apply. Textile printing Printing, on the other hand, is the application of colour in the form of a paste or ink to the surface of a fabric, in a predetermined pattern. It may be considered as localised dyeing. Printing designs on to already dyed fabric is also possible. The common processes are block printing , roller printing and screen printing Mechanical finishing Raising Another finishing process is raising. During raising, the fabric surface is treated with sharp teeth to lift the surface fibres, thereby imparting hairiness, softness and warmth, as in flannelette. Calender Calendering is the third important mechanical process, in which the fabric is passed between heated rollers to generate smooth, polished or embossed effects depending on roller surface properties and relative speeds. Shrinking Sanforizing Main article:

Chapter 4 : Functional Finishes on Textiles - Fibre2Fashion

functional finishes Special finishes imparted to fabrics, keeping the functional use of the fabric is known as special or functional finishes. Absorbency finish: Although the cellulose fibers like cotton, linen and rayon have good absorbency, sometimes it is desired that they should be more absorbent.

Functional Finishes Functional finishes, also referred to as performance finishes, enhance fabric performance. Functional finishes play an important role in enhancing performance, especially of natural fibers, as their properties cannot be enhanced during fiber production. For manufactured fibers, performance is enhanced during fiber production see the manufactured fibers section and to a lesser extent by application of finishes to fabrics. The challenge for the textile industry is to enhance the performance with little or no change to other characteristics such as hand and strength. Historically, functional finishes have been broadly divided based on how the finish influenced the performance of the fabric. For example, finishes were divided into finishes that enhance fabric comfort, maintenance, safety, and durability. A majority of these finishes are chemical finishes, which enhance performance with varying degrees of permanence. They are typically applied by dipping fabric in a chemical bath and squeezing between rollers, or spraying a liquid or foam onto the fabric. Technological advances and consumer demands have drastically changed the types of finishes that are used for apparel, interiors, and outdoor applications. The recent push to use environmentally friendly processes to produce products with enhanced performance and appearance has drastically changed the textile industry. Environmental considerations are often factored in the development of newer chemistries and technologies for functional finishes. New application methods are being developed that require less energy. The development of newer multifunctional finishes makes it difficult to categorize them based on how the finish influences performance. Nanotechnology has gained momentum in recent years because of its enhanced performance. Nanotechnology enhances properties by attaching chemicals at the molecular level of the fiber. Attachment at the molecular level typically improves the permanence of a finish, without adversely affecting hand and air permeability properties. Nanotechnology is used commercially in a wide variety of finishes ranging from antimicrobials to stain repellent finishes. The new finishes are based on proprietary technology. Microencapsulation is a relatively new process for developing performance textiles. The process is used for fiber modification see the manufactured fibers section and as a mechanism to impart desirable properties that are often difficult to apply using other finishing methods. The durability of a finish depends on the chemicals, fabric, and process used for applying the finish. Microcapsules not visible to naked eye filled with ingredients such as fragrance, insect repellent, or cooling materials are anchored within the fabrics to which the finish is applied. During use, the ingredients from the microcapsules are slowly released onto the skin in contact with the fabric. This finish can be applied to fabrics produced with natural or manufactured fibers. Microencapsulation technology is commonly used for cosmetic textiles and is of interest to the medical community as it may be used for administering medicines and vitamins.

Chapter 5 : functional finish at theinnatdunvilla.com

The challenges facing the finishing industry have intensified in the last one decade, with finishers faced with the new task of striving to survive in this global and highly competitive market.

Chapter 6 : Functional Finishes | Resil â€“ Science for change

Resil's innovative performance finish solutions enhance the personality of your fabrics. From antimicrobial and fragrance finishes to anti-ageing, wrinkle-free, stain repellent and moisture management solutions, Resil offers finishes that serve a variety of needs.

Chapter 7 : iTextiles - Functional Finishes

functional finishes are those which improves the garment's functionality.

Chapter 8 : Advanced Functional Finishes In Textile - Textile Mates

By applying functional finishes on the fabric. to explore their potential it is necessary to study these functional finishes. This paper presents an overview of some of the advanced functional finishes which used in textile for developing & improving functional properties of fabric as well as improve appearance, performance, handle, comfort, etc.

Chapter 9 : Advanced Functional Finishes - Textile Mates

Advanced Functional Finishes. Functional finishing is all about improving the performance of the fabric for the specific end use conditions. Following are the functional finishes which will be discussed further.