

Editorial on Protective Garments for Medical Care

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Editorial

Protective garments play a crucial role by designing the clothing for both health care professionals and patients in the medical sector. The construction of the medical garments includes protection from pathogens, treatment garment to enhance the healing rate and caring garment to aid physical and mental disabilities personnel to have comfortable wear. The developments and innovation in protective garments are due to the combination of the conventional textile manufacturing with multi-disciplinary research in medicine and engineering technology. This paper shortly summarizes the garments used for medical textile and their construction required to meet the user's comfort and need. Protective garments combine the properties of textiles along with additional functions in various application fields to comfort and offer protection to the wearer. This can be attributed to the inbuilt properties of fabric substrate such as lightweight, flexibility, dimensional stability and specific properties brought through altering fabric structure and surface modification. The other major advantage of textiles is ease of tailorability depending on the end user's comfort and requirement. Protective garments based on technical performance and functional properties can be classified as industrial, agricultural, military, civilian, medical, sports, and sports protective textiles. The manufacturing of those protective textiles composed of natural and synthetic fibers utilizes conventional fabric manufacturing system such as weaving, knitting, braiding, embroidery, 3D weaving and nonwoven technologies along with advanced functionalization process such as physical and chemical modification, coating, inkjet spinning, lithography and nanotechnology. Among other areas of application, protective garment finds its major application in medical sector by offering protection for medical personnel and the patients. The major limitation of traditional medical garments are poor fitting, discomfort and appearance of the garment which makes the wearers less likely to meet their psychological needs. Thus, the medical garment should be designed in such way that it should make the user to get a dignified and aesthetic appearance by encouraging their social connection with others thus maintain the functional and symbolic values of the garments. Medical garments can be classified based on specific functions such as protective, treatment and

care. The protective function of the medical garments is to protect against the bacteria, physiological fluids, biological pollution and various harmful substances to the medical personnel and patients such as patient gowns, surgeon and laboratory coats. The treatment function of the garment enhances the healing of the treatment process by offering safety from infection and hazardous environments such as pressure garments and compression stockings. The caring function of the protective garments focusses on the tailored apparels to suit the physical and psychological requirements of physical and mental disabilities user. Medical garments can be classified into health care products (face mask, surgical gowns, drapes), extracorporeal devices (kidney, liver, lung, heart spacer), therapeutic products (heating pads), nonimplantable materials (bandages, wound dressing, pressure garments) and implantable materials (heart valves, vascular grafts, ligaments, tendons). Medical drapes and gowns offer the protection from different infection and microorganism thus avoiding the transmission of diseases from patients to the health care professionals. The construction of the medical garments includes protection from pathogens, treatment garment to enhance the healing rate and caring garment to aid physical and mental disabilities personnel to have comfortable wear. The developments and innovation in protective garments are due to the combination of the conventional textile manufacturing with multi-disciplinary research in medicine and engineering technology. This paper shortly summarizes the garments used for medical textile and their construction required to meet the user's comfort and need. The major requirement of those gowns is enhanced liquid barrier performance and breathability and also offering other properties such as tearing strength, abrasion resistance and sterile fabric based on the selection of the materials. The polymers used for the production of those garments include polyester, polyethylene, and polypropylene. The manufacturing technique of disposable gowns utilizes nonwoven process such as spunlacing, spunbonded melt blown spunbonded (SMS) fabric, wet laid nonwoven fabric. The non-disposable gowns are made of woven fabric with closely packed yarns which offers higher resistance against pathogens, contamination, and nonhazardous liquid light splash. Due to the high cost of laundering and sterilization for the reuse of the surgical gowns, single use surgical gowns are not used nowadays.

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