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Design Fabrics Suitable For Being Used As Heavy Duty Webbing Slings

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Synthetic webbing slings have become an increasingly important group of technical textiles, as safety is the paramount consideration involved in the use of any synthetic webbing for slings purposes. This research aims to produce fabrics suitable for being used in heavy duty webbing slings in order to form a secure grip around the load to be lifted. Woven and nonwoven techniques were used to produce several layers of fabrics (three, four and five layers). Polyester and polypropylene fibers were used to produce nonwoven samples (the outer layers) whereas woven samples (the inner layers) were produced using 100% polyester yarns of 8 ends\cm with three weaving structures (plain, twill 2\2 and satin 4) and two weft sets (12 and 16 picks\cm) . Two bonding techniques were also used to bond the layers together, needle felting and heat bonding. Mentioned statistical method carried out to evaluate samples reached important results as samples produced of five layers fabrics and bonded using needle punching technique with polyester outer layers and plain weave structure in the inner layers with 16picks/cm have scored the highest rates of tensile strength and abrasion resistance and the lowest rates of elongation.

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Achieving Optimum Scientific Standards for Producing Fabrics Suitable for Protecting Against Hazardous Chemical Liquids

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ABSTRACT

Occupational exposure of the skin to toxic chemicals is a recognized health problem so chemical protective clothing is considered the most important line of defense to the worker who is exposed to the hazardous chemicals. This research aims to produce fabrics suitable for protecting against hazardous liquids (accidental splashes of chemicals). All samples under study were produced cotton and cotton /polyester 50/50. Three weft sets were used 24, 27 and 30 picks /cm and three fabric structure (plain weave 1/1, twill 2/2 and satin 4). Samples were coated, on one face, with transol F L 20 to make the fabric repellent and a barrier to Protect against hazardous chemical liquids. Their influence on the performance of the end-use fabric and the achieved properties were studied. On the other hand physic-chemical properties including, studying the effect of some hazardous liquids chemicals using Gutter method, tensile strength and elongation, water absorption, roughness, thickness and weight were evaluated according to the final product needs. Some more results were reached concerning structures and materials.Most samples have achieved the expected results

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Effect of Some Construction Factors on Fabrics Used in Traveling Bags

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ABSTRACT

Fabrics are often utilized in the construction of various types of bags, specially traveling bags, wherestrength, flexibility and durability are important. The aim of this research is to produce woven fabrics suitable for being used in traveling bags. All samples under study were produced of polyester yarns 50, 70 and 100 denier .Three weft sets were used 60, 80 and 100 picks /cm and three fabric structure (plain weave 1/1, twill 1/4 and satin 5). Samples were coated using P.V.C in order to produce a waterproof, moisture vapor permeable laminated fabrics and having perforation to provide ventilation to the user. The influence of previous parameters on the performance of the end-use fabric was studied. On the other hand physico-chemical properties including, tensile strength and elongation, abrasion resistance, water permeability, water repellency, tear resistance, thickness and weight were evaluated according to the final product needs. Some more results were reached concerning structures and materials. Most samples have achieved the expected results.

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Achieving Optimum Functional Properties for Producing Automotive Airbags Fabrics

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ABSTRACT

Transportation is the largest user of technical textiles where textiles provide a very high performance specifications and special properties required such as safety, weight efficiency, comfort and material durability of the transporting medium .As safety of driver and passengers is the paramount consideration in case of a collision, this research aims to produce fabrics suitable for being used in cars airbags. In this research all samples under study were woven on rapier weaving machine with polyester warp yarns of 300 denier and warp set of 36 ends/cm. Three materials of weft yarns were used, nylon and polyester of 150, 300 and 450 denier and polypropylene yarns of 300 and 450 denier. Three weft sets were also used 8, 10 and 12 picks/cm with three weaving structures plain, hopsack 2/2 and twill 2/2 weaves. The best 20 samples, according to Radar analysis, were coated with a thin layer of silicon rubber. Tests were carried out to evaluate samples under study and more results were reached.

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Effect of Some Construction Factors on the Efficiency of Compression Sportswear Fabrics

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ABSTRACT

In recent years, development in next to skin compression active sportswear fabrics has been progressing to perform high functions and achieve comfort. The main purpose of this study was to produce adequate fabric to be used in compression sport fabrics. Woven technique was applied to produce fabrics under study using different constructions (regular hopsack 2/2, twill 1/3, satin 4 and double weave) with warp sets of 80,100 and 120 ends/cm and weft sets of 75,100 and 125 picks/cm. Two textile materials were also employed; textured polyester of 50 and 70 denier for warp yarns and Lycra covered with polyester 60 detex for weft yarns. Different parameters were studied including fabric structure, warp and weft set and yarn count and their influence on the performance of the end-use fabrics were also studied. On the other hand physical properties including; air permeability, water permeability tensile strength and elongation, abrasion resistance, thickness and weight, were evaluated according to the final product needs. The results demonstrated that some properties such as air and water vapor permeability, abrasion resistance, thickness and weight are influenced by both material type and structure parameters.

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DESIGNING AND PRODUCTION OF WATERPROOF BREATHABLE FABRIC SUITABLE FOR SLEEPING BAGS

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ABSTRACT

The aspect of protection and comfort are both very important for the performance of personal protective clothing and equipment. The aim of this research is to produce fabrics suitable for sleeping bags which is both waterproof and breathable (water vapor permeable) to improve user comfort by reducing the buildup of perspiration inside the sleeping bag. all samples under study were produced of polyester yarns of 100 denier for end yarns and 50, 70 and 100 denier for weft yarns .three weft sets were also used 60, 80 and 100 picks /cm with three fabric structure (plain weave 1/1, twill 1/4 and satin 4). Samples were coated using p.v.c in order to produce a waterproof, moisture vapor permeable fabrics and having perforation to provide ventilation to the user. The influence of these variables on the performance of the end-use fabric and achieved properties were studied. on the other hand physic-chemical properties including, tensile strength and elongation, abrasion resistance, water permeability, water repellency, tear resistance, thickness and weight were evaluated according to the final product needs. Some more results were reached concerning structures and materials .most samples have achieved the expected results.

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THERMO-INSULATION PROPERTIES OF CROSS-LAID NONWOVEN FABRICS MADE OF PET AND PP WASTE FIBERS

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ABSTRACT

Thermal properties are among the most important features of textiles that are used for personal protection and protection of objects. This research deals with thermal insulation properties of cross-laid nonwoven fabrics made of waste fibers (polyester and polypropylene fibers). In this research 72 samples were produced with cross-laid nonwoven technique and bonded using needle punching method using two groups of waste fibers ,waste blend (1) composed of polypropylene / polyester waste fibers of 50/50 blend and the waste blend (2) composed of polypropylene / polyester /polyester hollow waste fibers of 15/50/35 blend. Four fabric weights were produced 300, 600, 900 and 1200 g/ m2 with three number of beats 600, 800 and 950 beats/min. and three puncture depths 12, 16 and 20 mm. Different parameters including fiber type, puncture depth, fabric weight and number of beats per unit area were studied and their influence on the performance of the end-use fabrics were also studied. The results demonstrated that thermal insulation properties of fabrics are increased by adding hollow fibers and increasing fabrics weight and both puncture depth and number of beats/min.

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