A polyester fiber and lightweight woven nylon yarn blended process may include a lightweight weaving procedure, a secondary lightweight procedure, a dyeing procedure; and a water rinsing and drying procedure. In one embodiment, in the lightweight weaving procedure, a plurality of chemical monofilament fibers is twirled into bunched chemical monofilament fibers by a kneading process, the bunched chemical monofilament fibers and a woven complex yarn (polyester fiber and woven nylon yarn) are fed into a loom simultaneously, the loom is equipped with a fiber opening knife for performing a fiber opening process for the woven complex yarn, the fiber opening knife performs the fiber opening process to cut the woven complex yarn into a plurality of equal sized furcal structures longitudinally to cause wear and tear to achieve lightweight preliminarily, then the furcal structures and the bunched chemical monofilament fibers are undergone a knitting process to obtain a lightweight fabric;
lightweight weaving procedure → secondary lightweight procedure → dyeing procedure → water rinsing and drying procedure → end product

FIG. 1
POLYESTER FIBER AND LIGHTWEIGHT WOVEN NYLON YARN BLENDED PROCESS

BACKGROUND OF THE INVENTION

[0001] 1. Field of Invention

[0002] The present invention relates to a polyester fiber and lightweight woven nylon yarn blended process, and more particularly to a polyester fiber and lightweight woven nylon yarn blended process by which two lightweight processes in weaving procedures are employed to produce a fabric with lighter weight.

[0003] 2. Related Art

[0004] China patent publication number CN100558978C titled “Microfibers Dyeing Method and Fabric Woven from the Dyed Microfibers” dated in 11 Nov. 2009 comprises a lightweight procedure, in which the microfibers are wound on a yarn dyeing machine, an alkaline reagent is added to the wound microfibers under an even temperature between 100 to 130°C, and maintained from 30 to 60 minutes to reduce the weight of the microfibers by 6 to 15%; a water rinsing procedure, in which 70 to 80°C nonferrous water is sprayed into the lightweight microfibers by a spray nozzle to eliminate impurities from the microfibers by water pressure, a cleaning agent is used for cleaning the microfibers, and the microfibers are undergone an acidic treatment to reach a PH value of 4 to 5; a water rinsing procedure; and a water rinse and drying procedure.

[0005] The above conventional method uses the corrosive alkaline reagent to reduce the weight first, and the acidic treatment is further employed to balance the acidic and alkaline values. The discharging of the alkaline and acidic agents will cause environmental pollution and therefore does not conform to the environmental standards, which is one of the disadvantages.

[0006] Furthermore, the use of the corrosive alkaline reagent to reduce the weight first, and further the acidic treatment to balance the acidic and alkaline values is not only troublesome in operation, but will also increase the cost of work time. Additionally, the alkaline reagent and the acidic reagent used for balancing will increase the cost of consumables and therefore does not conform to the economical effectiveness, which is another one of the disadvantages.

[0007] Lastly, the finished product produced employing the above troublesome operation is merely yarn, which only belongs to the preliminary procedure in producing a fabric as the finished product. The absence of fabric as the finished product further exposes the disadvantages of time and work consuming and troublesome.

SUMMARY OF THE INVENTION

[0008] The present invention of a polyester fiber and lightweight woven nylon yarn blended process aims to solve the drawbacks of the conventional method mentioned above, which are environmental pollution caused by the use of the alkaline agent and the balancing acidic agent, and the increase of costs caused by troublesome in the preliminary procedures in producing a fabric, and yet cannot obtain the fabric as the finished product.

[0009] A primary objective of the present invention is to provide a polyester fiber and lightweight woven nylon yarn blended process which does not require the use of the alkaline agent and the balancing acidic agent in order to avoid environmental pollution.

[0010] A secondary objective of the present invention is to provide a polyester fiber and lightweight woven nylon yarn blended process which does not require the troublesome operation in using corrosive alkaline reagent and the acidic treatment for balancing afterwards, and therefore can reduce the costs and is economically effective.

[0011] A third objective of the present invention is to provide a polyester fiber and lightweight woven nylon yarn blended process which does not require troublesome preliminary procedures and can still produce a fabric with a lighter weight as the finished product directly through processing lightweight procedures two times.

[0012] The present invention of a polyester fiber and lightweight woven nylon yarn blended process comprises following procedures of:

[0013] a lightweight weaving procedure A, in which a plurality of chemical monofilament fibers is twisted into bunched chemical monofilament fibers by a knitting process, the bunched chemical monofilament fibers and a woven complex yarn (polyester fiber and woven nylon yarn) are fed into a yarn entrance of a loom simultaneously, the loom is equipped with a fiber opening knife for performing a fiber opening process for the woven complex yarn, the fiber opening knife performs the fiber opening process to cut the woven complex yarn into a plurality of equal sized furcal structures longitudinally to cause wear and tear to achieve lightweight preliminarily, then the furcal structures and the bunched chemical monofilament fibers are undergone a knitting process to obtain a lightweight fabric;

[0014] a secondary lightweight procedure B, in which the lightweight fabric woven using the previous procedure is washed with 130°C water to cause further partial damage to the nylon in the woven complex yarn of the lightweight fabric by the water temperature 10°C higher than the temperature (not over 120°C) that the nylon can endure in order to achieve lightweight the second time;

[0015] a dyeing procedure C, in which a dye, a dispersant agent, a leveling agent, an antistatic agent and a softening agent are added together for dyeing the lightweight fabric under pressure; and

[0016] a water rinsing and drying procedure D, in which the dyed lightweight fabric is washed with water and dried for obtaining the finished product of the present invention.

[0017] The bunched chemical monofilament fibers are kneaded from the chemical monofilament fibers to have a thickness of 150 to 500 deniers.

[0018] The chemical monofilament fibers are selected from polypropylene chemical monofilament fiber, nylon chemical monofilament fiber, or polyester chemical monofilament fiber.

[0019] The woven complex yarn has a thickness of 50 to 320 deniers.

[0020] The present invention will become more fully understood by reference to the following detailed description thereof when read in conjunction with the attached drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] FIG. 1 is a flow chart of a weaving process of a polyester fiber and lightweight woven nylon yarn blended process of the present invention;

[0022] FIG. 2 is a flow chart of a lightweight knitting process of the polyester fiber and lightweight woven nylon yarn blended process of the present invention;
FIG. 3 is a structural view of a woven complex yarn after performing a fiber opening process of the polyester fiber and lightweight woven nylon yarn blended process of the present invention; and

FIG. 4 is a partial structural view of a woven fabric of the polyester fiber and lightweight woven nylon yarn blended process of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Please refer to FIGS. 1 and 2. FIG. 1 is a flow chart of a weaving process of a polyester fiber and lightweight woven nylon yarn blended process of the present invention; and FIG. 2 is a flow chart of a lightweight knitting process of the polyester fiber and lightweight woven nylon yarn blended process of the present invention. The polyester fiber and lightweight woven nylon yarn blended process of the present invention comprises following procedures of:

1. a lightweight weaving procedure A, as shown in FIG. 2, in which a plurality of chemical monofilament fibers 10 is twisted into bunched chemical monofilament fibers 10' with a thickness of 150 to 500 deniers by a knitting process A1, the bunched chemical monofilament fibers 10' and a woven complex yarn 20 (polyester fiber and woven nylon yarn, together with a thickness of 50 to 320 deniers) are fed into a yarn entrance of a loom 30 simultaneously, the loom 30 is equipped with a fiber opening knife for performing a fiber opening process A2 for the woven complex yarn 20, the fiber opening knife performs the fiber opening process A2 to cut the woven complex yarn 20 into a plurality of equal sized fuscal structures (as shown in FIG. 3) longitudinally to cause wear and tear to achieve lightweight preliminarily, then the fuscal structures and the bunched chemical monofilament fibers 10' are undergone a knitting process A3 to obtain a lightweight fabric 40;

2. a secondary lightweight procedure B, in which the lightweight fabric 40 woven using the previous procedure is washed with 130°C water to cause further partial damage to the nylon in the woven complex yarn 20 of the lightweight fabric 40 by the water temperature 10°C higher than the temperature (not over 120°C) nylon can endure in order to achieve lightweight the second time;

3. a dyeing procedure C, in which a dye, a dispersant agent, a leveling agent, an antistatic agent and a softening agent are added together for dyeing the lightweight fabric 40 under pressure; and

4. a water rinsing and drying procedure D, in which the dyed lightweight fabric 40 is washed with water and dried for obtaining the lightweight fabric 40 as shown in FIG. 4, that is, a lightweight fabric structure interleaveingly knitted and arranged with the bunched chemical monofilament fibers 10' and the woven complex yarn 20 opened into a plurality of line yarns by the fiber opening process A2, as shown in the figure, the chemical monofilament fibers 10 are interleaveingly arranged and formed between gaps of the interlacedly arranged woven complex yarn 20.

The chemical monofilament fibers 10 in the lightweight weaving procedure A are selected from polypropylene chemical monofilament fiber, nylon chemical monofilament fiber, or polyester chemical monofilament fiber.

The polyester fiber and lightweight woven nylon yarn blended process of the present invention does not require the troublesome preliminary procedures and can still produce the fabric with a lighter weight as the finished product directly through processing the lightweight procedures two times. Not only that the use of alkaline agent and balancing acidic agent can be avoided to cause environmental pollution, but the increased costs of consumables and work time caused by the troublesome alkaline and acidic balancing operations in the fabric preliminary procedures can also be saved, and therefore both the advantages of environmental friendliness and economical effectiveness can be achieved.

Note that the specifications relating to the above embodiments should be construed as exemplary rather than as limitative of the present invention, with many variations and modifications being readily attainable by a person of average skill in the art without departing from the spirit or scope thereof as defined by the appended claims and their legal equivalents.

What is claimed is:

1. A polyester fiber and lightweight woven nylon yarn blended process, comprising following procedures of:

   a lightweight weaving procedure, twisting a plurality of chemical monofilament fibers into bunched chemical monofilament fibers by a knitting process, feeding the bunched chemical monofilament fibers and a woven complex yarn (polyester fiber and woven nylon yarn) into a yarn entrance of a loom simultaneously, the loom being equipped with a fiber opening knife for performing a fiber opening process for the woven complex yarn, performing the fiber opening process by cutting the woven complex yarn into a plurality of equal sized fuscal structures longitudinally with the fiber opening knife for causing wear and tear and achieving lightweight preliminarily, performing a knitting process for the fuscal structures and the bunched chemical monofilament fibers for obtaining a lightweight fabric;

   a secondary lightweight procedure, washing the lightweight fabric woven from the previous procedure with 130°C water for causing further partial damage to the nylon in the woven complex yarn of the lightweight fabric by the water temperature 10°C higher than the nylon enduring temperature (not over 120°C) for achieving lightweight the second time;

   a dyeing procedure, adding a dye, a dispersant agent, a leveling agent, an antistatic agent and a softening agent together for dyeing the lightweight fabric under pressure; and

   a water rinsing and drying procedure, washing the dyed lightweight fabric with water and drying for obtaining the finished product of the present invention.

2. The polyester fiber and lightweight woven nylon yarn blended process as claimed in claim 1, wherein the bunched chemical monofilament fibers are knitted from the chemical monofilament fibers to have a thickness of 150 to 500 deniers.

3. The polyester fiber and lightweight woven nylon yarn blended process as claimed in claim 2, wherein the chemical monofilament fibers are selected from polypropylene chemical monofilament fiber, nylon chemical monofilament fiber, or polyester chemical monofilament fiber.

4. The polyester fiber and lightweight woven nylon yarn blended process as claimed in claim 1, wherein the woven complex yarn has a thickness of 50 to 320 deniers.

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