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Treatments of Ceramic Powers, Capsules, and Plasma in the Power Net Warp Knitting Fabric

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1. INTRODUCTION

Power net is an elasticized warp knitting fabric used for foundation garments, panties, all in one, firm control body briefs, open bottom girdle, panty briefs and girdles, women's brassieres, lining, bathing suits, dance wear and costuming Fibers that may stretched at least 200 percent before they break, and rapidly recover when tensile forces are released, are called elastomers. Most laces and nets manufactured today are formed with Raschel knit method. Guide bars can carry a variety of yarns in a variety of patterns to form structures in the machine. A Raschel warp knit machine is used to knit power net construction. Most laces and nets manufactured today are formed with Raschel knit method. Guide bars can carry a variety of yarns in a variety of patterns to form structures in the machine.

Treatments of ceramic powers, capsules, and plasma in the power net warp knitting fabric affect the physical and chemical properties even though the predicted results and the actual results are very different. The results of treating the ceramic powers, capsules, and plasma in polyester/spandex power net warp knitted are reported.

2. EXPERIMENTAL

A Four-bar Raschel Machine: The spandex yarn together with polyester yarn is used to make elastic power net fabrics by means of the warp knitting in the Raschel warp knitting machine.

Materials: The constituent materials of power net fabric are polyester and spandex yarns. The important physical properties of power net fabric are extensibility and retractive force due to the use of spandex yarn. The power net fabric was manufactured using 210 denier spandex yarn and polyester yarn of 70 denier/24filaments. Using the different warping machines, these yarns were supplied to the warp knitting machine.

Warping from the Creel of the Spandex Bobbins: Warping process for spandex yarns is very sophisticated because of the extensibility of spandex. A special warping machine for spandex yarns is used in controlling yarn tension accurately. The optimum preliminary draft in warping depends on the design of the particular warping machine and the characteristics of the spandex used in knitting. In general, over the 200 denier yarn, a preliminary draft of 60-70% is used. But under 100 denier, a preliminary draft of about 100% is used. In this experiment, a preliminary draft of 80% is used.

3. RESULTS AND DISCUSSION

Figure 1 shows the outward appearances of the functional capsules for power net fabrics.

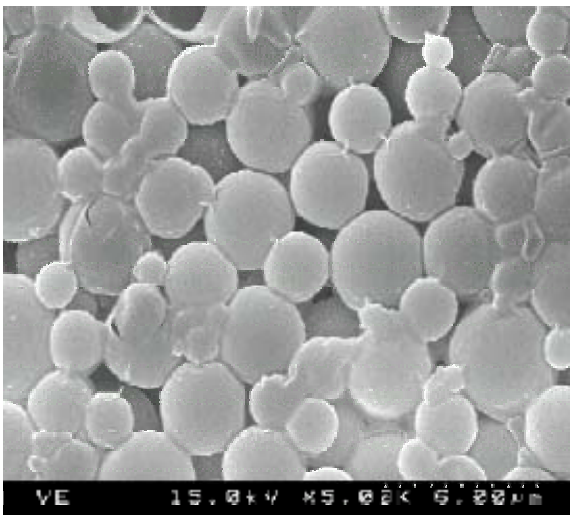

Figure 1. Outward appearances of the functional capsules for the power net fabrics.

Table 1. The details of a power net construction

Net connecting yarn density(threads/in)	35
Spandex warp yarn density(ends/in)	50
Tensile strength(N)	298
Tensile elongation(%)	283
Common notation for materials(spandex 210d/polyester 70d)	2170

Power Net Construction: Specifications of the

power net construction knitted in the experiments are given in Table 1. Figure 2 shows the outward appearances of the functional capsules treated on the power net fabrics.

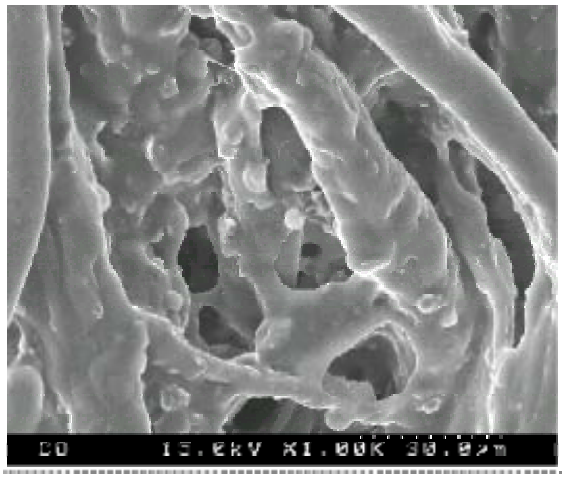

Figure 2. SEM photograph of the functional capsules treated on the power net fabrics.

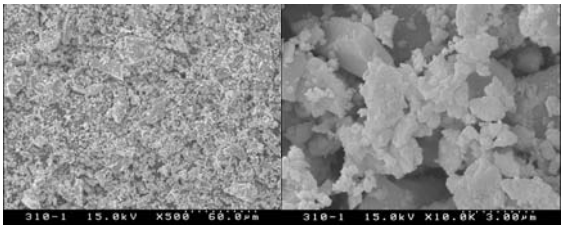

Figure 3. Outward appearances of the functional ceramics for the power net fabrics.

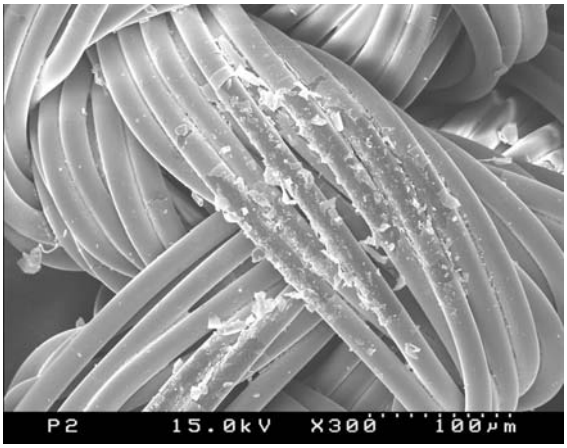

Figure 4. SEM photograph of the functional treatment of coating on the power net fabrics.

Figure 3 shows the outward appearances of the functional ceramics for the power net fabrics and Figure 4 shows the SEM photograph of the functional treatment of coating on the polyester/ spandex power net by using of circular cross-section fibers. Figure 5 shows the result of plasma treatment on the polyester/spandex power net by using of triangular cross-section fibers.

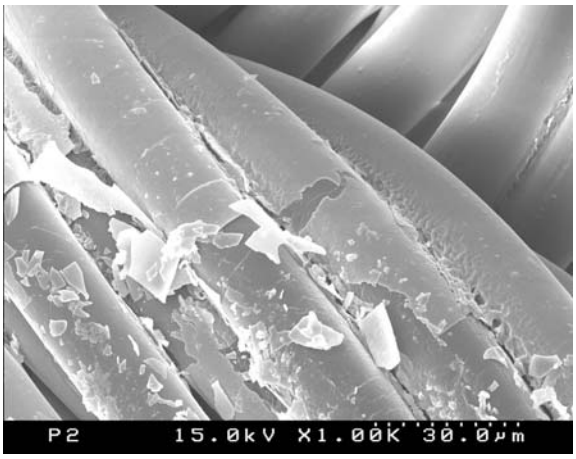

Figure 5 shows the result of plasma treatment on the polyester/spandex power net warp knitted fabric by using of circular cross-section fibers.

4. CONCLUSIONS

One of the important characteristics of power net is the strong open-effect structure. Not only strong two way elasticity but also functional characteristics are required for foundation garments nowadays. Power net fabric is one of the highly extensible two-way fabrics. Power net structure shows special characteristics in the wearing of final functional clothes. It is an elasticized warp knitting fabric used for foundation garments, panties, all in one, firm control body briefs, open bottom girdle, panty briefs and girdles, women's brassieres, lining, bathing suits, dance wear and costuming.

The treatments of the ceramic powers, capsules, and plasma in polyester/spandex power net warp knitted change the physical and chemical properties and shapes.

5. REFERENCES

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