A wig exhibiting improved heat tolerance, stain resistance and decreased water absorption including a cap or net foundation and synthetic hair represented by strands of fluoropolymer fibers such as polytetrafluoroethylene multifilament fibers.
WIG AND METHOD OF MANUFACTURING SAME

FIELD OF THE INVENTION

[0001] This invention relates to wigs and methods of manufacturing wigs and more particularly to wigs including fluorocarbon polymer fibers as artificial hair.

BACKGROUND OF THE INVENTION

[0002] Wigs are fabricated by fastening hair-like strands, which may be real human or animal hair or a synthetic fiber such as nylon, acrylic, modacrylic, polyester or other polymer, to a net-like base made from cotton or nylon. The base commonly contains an elastic material around the circumference of the base to help hold the wig in place on the wearer’s head. Typically, fastening of the hair to the base is done manually or using sewing machines. A method of combining these two techniques is also employed.

[0003] Today, most artificial hair is made of synthetic fibers. The reasons for this include ease of manufacture, low cost, readiness in obtaining the desired color of hair and the desire for less troublesome washing and care for the hair. A major convenience to a wig owner is the fact that a wig can be washed, styled and dried while it is not being worn. However, a major inconvenience with washing a hairpiece is the amount of time necessary to completely dry the hairpiece such that it may be worn. Depending on the moisture-retention properties of the wig, drying time in ambient conditions can be up to several days. Hair or wig dryers can be used to dry a wig, however newer drying devices operate at high temperatures conventional synthetic fibers can become degraded and brittle. Additional heat degradation also occurs when these synthetic fibers are repeatedly styled using curling irons, hair straightening devices and the like.

SUMMARY OF THE INVENTION

[0004] The present invention is directed to a wig implanted with synthetic hair that is resistant to heat degradation caused by heating, drying and styling and that exhibits quicker drying and decreased water absorption compared to conventional synthetic hair fibers. To achieve a wig having these improvements, there is proposed a wig formed of a cap or net foundation and synthetic hair represented by strands of fluoropolymer fibers. Fluoropolymer fibers are selected in part because they exhibit desirable water retention of between less than 0.01% (24 hour) for polytetrafluoroethylene and fluoropolymerpropylene fibers to 0.04% (24 hour) for polyvinylidene fluoride fibers and melting points ranging between 340° F. for polyvinylidene fluoride fibers to 621° F. for polytetrafluoroethylene fibers. Additionally, fluoropolymer fiber hairs are resistant to stains, easy to clean and can be cleaned and styled using known styling methods and hair care products.

DETAILED DESCRIPTION OF PRESENTLY PREFERRED EMBODIMENTS

[0005] The present invention proposes substituting, in whole or in part, the real human or animal hair or a synthetic fibers typically implanted in a wig base as hair with multiflament fluoropolymer fibers. The term "fluoropolymer fiber" as used herein means a fiber prepared from polymers such as polytetrafluoroethylene, and polymers generally known as fluorinated olefinic polymers, for example, copolymers of tetrafluoroethylene and hexafluoropropene, copolymers of tetrafluoroethylene and perfluoroalkyl-vinyl esters such as perfluoropropyl-vinyl ether and perfluoroethyl-vinyl ether, fluorinated olefinic terpolymers including those of the above-listed monomers and other tetrafluoroethylene based copolymers. For the purposes of this invention, the preferred fluoropolymer fiber is polytetrafluoroethylene fiber.

[0006] The fluoropolymer fiber can be spun by a variety of means, depending on the exact fluoropolymer composition desired. Thus, the fibers can be spun by dispersion spinning; that is, a dispersion of insoluble fluoropolymer particles is mixed with a solution of a soluble matrix polymer and this mixture is then coagulated into filaments by extruding the mixture into a coagulation solution in which the matrix polymer becomes insoluble. The insoluble matrix material may later be sintered and removed if desired. One method which is commonly used to spin polytetrafluoroethylene and related polymers includes spinning the polymer from a mixture of an aqueous dispersion of the polymer particles and viscose, where cellulose xanthate is the soluble form of the matrix polymer, as taught for example in U.S. Pat. Nos. 3,655,853; 3,114,672 and 2,772,444. Preferably, the fluoropolymer fiber of the present invention is prepared using a more environmentally friendly method than those methods utilizing viscose. One such method is described in U.S. Pat. No. 5,820,984; 5,762,846, and 5,723,081. In general, this method employs a cellulose ether polymer such as methylethylcellulose, hydroxyethylcellulose, methylhydroxypropylcellulose, hydroxypropylmethylcellulose, hydroxypropylcellulose, ethylcellulose or carboxymethylcellulose as the soluble matrix polymer, in place of viscose. Alternatively, if melt viscosities are amenable, filament may also be spun directly from a melt. Fibers may also be produced by mixing fine powdered fluoropolymer with an extrusion aid, forming this mixture into a billet and extruding the mixture through a die or post to produce fibers which may have either expanded or un-expanded structures. For the purposes of this invention, the preferred method of making the fluoropolymer fiber is by dispersion spinning where the matrix polymer is a cellulose ether polymer.

[0007] The wig base and the method of manufacturing the wig can be provided according to any means known in the art, for example, as disclosed in U.S. Pat. No. 4,799,502 to Kobayashi et al; U.S. Pat. No. 4,016,888 to Smiley; U.S. Pat. No. 4,817,641 to Kobayashi et al; U.S. Pat. No. 4,825,886 to Allen; U.S. Pat. No. 4,955,400 to Takahashi; U.S. Pat. No. 5,044,382 to Ando; U.S. Pat. No. 5,988,177 to Hata; U.S. Pat. No. 3,589,376 to Kohler; and U.S. 3,968,807 to Kraicer. In addition, the wig of the present invention can be made manually, for example, by shaping a wet cotton lace over a wig block to form a wig base, selecting a ventilating needle based on the number of hairs that are to be included in a knot, folding the hair in the root end so it makes a loop, taking the needle through the lace and grabbing a number of strands of hair back through the lace, forming a simple knot or a double knot and pulling the whole hair through the loop until the knot is complete.

EXAMPLE

[0008] Polytetrafluoroethylene multiflament fibers made in accordance with the preferred method are cut into desired lengths of not less than 24 cm. Implementing a method of
manufacturing a wig as identified above, the fibers are implanted into a wig base or artificial scalp to provide a wig. As will be apparent to one skilled in the art, various modifications can be made within the scope of the aforesaid description. Such modifications being within the ability of one skilled in the art form a part of the present invention and are embraced by the claims below.

It is claimed:
1. A wig comprising:
a wig base for receiving hairs, and
hairs planted into the wig base,
wherein the hairs are fluoropolymer fibers.
2. The wig according to claim 1 wherein the fluoropolymer fibers are mult filament fibers.
3. The wig according to claim 2 wherein the mult filament fibers are dispersion spun fibers.
4. The wig according to claim 2 wherein the mult filament fibers are paste extruded fibers.
5. The wig according to claim 1 wherein the fibers are polytetrafluoroethylene fibers.
6. The wig according to claim 1 wherein the fibers are polyvinylidene fluoride fibers.
7. The wig according to claim 1 wherein the fibers are fluoroethylene propylene fibers.
8. The wig according to claim 1 wherein the fibers are ethylene tetrafluoroethylene fibers.
9. The wig according to claim 1 wherein the fibers are ethylene tetrafluoroethylene fibers.
10. A hairpiece comprising:
an artificial scalp, and
a plurality of mult filament fluoropolymer fibers implanted in the artificial scalp.
11. The hairpiece according to claim 10 wherein the fluoropolymer fibers are selected from the group consisting of polyvinylidene fluoride fibers, perfluoroalkoxy fibers, fluoroethylene propylene fibers, ethylene tetrafluoroethylene fibers and combinations thereof.
12. The hairpiece according to claim 10 wherein the fluoropolymer fibers are polytetrafluoroethylene fibers.
13. The hairpiece according to claim 12 wherein the fluoropolymer fibers are dispersion spun.
14. The hairpiece according to claim 10 wherein the fluoropolymer fibers exhibit a melting point of between 500°F and 612°F.
15. The hairpiece according to claim 10 wherein the fluoropolymer fibers exhibit a water absorption over 24 hours of less than 0.01%.
16. A method of manufacturing an artificial hairpiece comprising:
providing a hairpiece base configured for receiving artificial hairs, and
planting fluoropolymer fiber artificial hairs in the hairpiece base.
17. The method according to claim 1 wherein the fluoropolymer fiber artificial hairs are polytetrafluoroethylene fibers.
18. The method according to claim 17 wherein the polytetrafluoroethylene fibers are mult filament fibers.
19. The method according to claim 16 wherein the fluoropolymer fiber artificial hairs exhibit water absorption over 24 hours of less than 0.03% and a melting point of between 500°F and 612°F.
20. The method according to claim 16 wherein the fluoropolymer fiber artificial hairs are selected from the group consisting of polytetrafluoroethylene fibers, polyvinylidene fluoride fibers, perfluoroalkoxy fibers, fluoroethylene propylene fibers, ethylene tetrafluoroethylene fibers and combinations thereof.