The present invention provides a sewing thread formed from poly(butylene terephthalate) multifilament yarns, the sewing thread being characterized in that the sewing thread has an elastic recovery at 20% elongation of greater than or equal to 60%, a method of producing same, and the use of same. In the present invention a PBT yarn designates a yarn composed of a polyester that uses butylene terephthalate (tetramethylene terephthalate) repeating units as principal repeating units and that contains the butylene terephthalate repeating units in an amount of 50 mol-% or more, preferably 70 mol-% or more, even more preferably by 90 mol-% or more. The yarn made from PBT can contain a third component as an other acid component and/or glycol components and or other additives or colours in a total amount of 50 mol-% or less.
POLY(BUTYLENECTEREPTHALATE) SEWING THREAD

BACKGROUND

[0001] 1) Field of the Invention

[0002] The present invention relates to a poly(butylene terephthalate) (PBT) sewing thread, and to sewn elastic articles prepared using the PBT sewing thread.

[0003] 2) Prior Art

[0004] Sewing threads are known in various structures: a plied sewing thread, a core yarn, an intermingled sewing thread, or a bonded sewing thread.

[0005] EP 0 569 890 A discloses a plied sewing thread. This sewing thread structure is a plied yarn, whereby this plied yarn has at least two, though preferably three, multifilament yarn components. Each yarn component constituting the plied yarn is likewise given initial twisting prior to twisting, whereby the pre-twisting of each multifilament yarn component with respect to its direction is opposite to the direction of twisting.

[0006] EP 0 569 891 A discloses a core spun sewing thread. Here, a multifilament first yarn component is spun over by a second yarn component consisting of spun yarns from natural or synthetic fibers.

[0007] EP 0 295 601 A describes a sewing thread consists of multifilament synthetic fibers, having the structure of an air-intermingled sewing thread, such that a multifilament first core thread component is intermingled by means of an air stream with a second effect thread component.

[0008] EP 0 919 649 A discloses a bonded sewing thread made of synthetic multifilaments, whereby the sewing thread has at least two yarn components, wherein the individual filaments are in each case aligned parallel to one another. Both these yarn components are twisted with another one, whereby to achieve the required thread cover both yarn components twisted with one another over their entire surface are provided with a polymer coating.

[0009] The above described known sewing threads are used only in a limited way for sewing elastic articles. When a stretch fabric is sewn with a sewing thread having no elasticity, the stretchability of the fabric in the seamed portions is poor, and the full advantage of the stretch fabric is not utilized. Moreover, when an excessive force is applied to the seams of a sewn stretch fabric, the fabric has a disadvantage that the sewing thread is easily broken.

[0010] Accordingly, when elasticity is required in the seams, the following has been practiced: the elasticity of the seams is obtained by forming seams having a structure of a multi-thread chain stitch, an overlock stitch or a zigzag stitch. However, these seams have the following drawbacks: a special sewing machine is required in order to form the structures; formation of the seams requires much time; a large amount of a sewing thread is used; and the seams have a poor appearance. Moreover, the elasticity of the fabric in the seamed portions is often unsatisfactorily.

[0011] Japanese Patent Publications (Kokai) No. 01-260030 and 02-026945 disclose the use of an elastic fiber, such as a polyurethane based yarn, covered by a soluble yarn such as a polyvinyl alcohol yarn as a elastic sewing thread. After the stretch fabric is sewn, the soluble yarn is dissolved and removed.

[0012] European Patent 1 188 852 A1 discloses a stretchable sewing thread using poly(trimethylene terephthalate) (PTT). PTT has the disadvantage that the melt spinning speeds need to be low (about 1,500 m/min) to prevent crystallization in the spun yarn, that leads to unstable packages. In addition PTT sewing threads need to be wound on a package with a specific low density and wet treated at 90°C in order to obtain a uniform relaxed yarn that does not shrink during the dyeing process and that gives a uniform dyed sewing thread.

[0013] European Patent 1 479 802 A also discloses sewing threads having good elasticity, again based on PTT.

SUMMARY OF THE INVENTION

[0014] An object of the present invention is to provide a stretchable sewing thread suitable for forming a highly stretchable lock stitch, and a sewn article prepared from a stretch fabric and having seams with excellent appearance and elasticity.

[0015] An additional object is to provide a stretchable sewing thread that does not have the problems associated with the prior art solutions.

[0016] The present inventors have discovered that a sewing thread containing at least one multifilament yarn made from poly(butylene terephthalate) (PBT) provides high stretchability and enables sewing of seams with excellent appearance and elasticity, that are specifically well suited for stretch fabrics.

[0017] Furthermore, the present inventors have found that sewing threads containing at least one multifilament yarn made from PBT solve the problems mentioned above, and thus achieved the present invention. That is, the present invention provides a sewing thread comprising one or more multifilament yarns, wherein one or more of the multifilament yarns comprise(s) poly(butylene terephthalate).

[0018] Quite unexpectedly, the present inventors have found that although PBT multifilament yarns have a lower elastic recovery compared to PTT multifilament yarns, the final dyed sewing threads have comparable elastic recovery and seam elongations. Therefore, the use of a PBT sewing thread is preferable to PTT sewing threads since its elasticity is not reduced during the dyeing and finishing steps of the sewing thread process.

[0019] In the broadest sense, the invention is directed to sewing thread comprising one or more multifilament yarns, wherein one or more of said multifilament yarns comprise(s) poly(butylene terephthalate).

DETAILED DESCRIPTION

[0020] In the present invention a PBT yarn designates a yarn composed of a polyester that uses butylene terephthalate (tetramethylene terephthalate) repeating units as principal repeating units and that contains the butylene terephthalate repeating units in an amount of 50 mol-% or more, preferably 70 mol-% or more, even more preferably by 90 mol-% or more. The yarn made from PBT can contain a third component as an other acid component and/or glycol components and or other additives or colours in a total amount of 50 mol-% or less.
Poly(butylene terephthalate) is synthesized by reacting terephthalic acid or its functional derivatives with butane diol in the presence of a catalyst, usually titanium compounds under suitable reaction conditions. In the course of the synthesis, other diacids and diols may also be added to form a copolyester.

Examples of the third components to be added include aliphatic dicarboxylic acids such as oxalic acid and adipic acid, allylic dicarboxylic acids such as cyclohexanediacarboxylic acid, aromatic dicarboxylic acids such as isophthalic acid and sodium sulfosuccinate; aliphatic glycols such as ethylene glycol, 1,2-propylene glycol and tetramethyley glycol, allylic glycols such as cyclohexanediethanol, aliphatic glycols each having an average group such as 1,4-bis[(β-hydroxyethoxy)benzene], polyester glycols such as polyethylene glycol and polypropylene glycol, aliphatic oxycarboxylic acids such as (ω-oxyacrylic acid and aromatic oxycarboxylic acid such as p-oxybenzoic acid. Moreover, a compound having one or three or more ester-forming functional groups such as trimethylol propane or pentaerythritol may also be employed so long as the resultant polymers are substantially linear.

The poly(butylene terephthalate) yarn used in the present invention is generally a yarn produced by melt spinning the poly(butylene terephthalate) polymer. The PBT yarn may also be a yarn produced by separately synthesizing polyesters other than PBT such as poly(trimethylene terephthalate) (PTT), poly(ethylene terephthalate) (PET), polymides and blending the polymers; the yarns may also be produced by composite spinning (sheath core, side-by-side).

The PBT yarn may contain delustering agents such as titanium dioxide, stabilizing agents such as phosphoric acid, ultraviolet-ray absorbers such as hydroxy benzophenone derivative, flame retardants, antiatatic agents, pigments, solvents, fluorescent brighteners, nucleating agents, infrared-ray absorbers, defoaming agents and the like and mixtures thereof.

The PBT yarn forming the sewing thread of the invention can be obtained by any of the following methods: a method wherein the PBT polymer is melt spun, the yarn is wound at a speed between 700 and 5000 m/min to give an undrawn yarn and the undrawn yarn is drawn and twisted; a one step direct drawing method in which a spinning step and a drawing step are combined; and a high speed spinning method in which the winding speed is set at 5000 m/min or more. The preferred process is spinning the yarn at speeds >1500 m/min and drawing and relaxing it at a ratio between 1.2 to 2.3 to achieve the desired balance of physical properties.

The cross-sectional shape of a filament forming the multifilament yarn may be polygon-shaped, for example round shaped, triangle-shaped, L-shaped, T-shaped, trilobal, Y-shaped, W-shaped, eight-leaf-shaped, flat shaped, dogbone-shaped, multi-leaf-shaped, hollow hole-shaped, and indefinitely shaped. Of these cross-sectional shapes, a round-shaped cross section is particularly preferred.

The filamentary yarn can be a flat drawn yarn that is obtained by any one of the above various spinning and drawing methods, a false twisted yarn (including a draw textured yarn from PBT partially oriented yarn, (POY) a twisted false twisted yarn (for example, a yarn obtained by twisting in the S or Z direction, false twisting in the Z or S direction) and an air-jet texturized yarn. Forming a sewing thread from a flat drawn yarn or a false twisted yarn is preferred to obtain excellent properties.

The total yarn size of the poly(butylene terephthalate) multifilament yarn is preferably from 20 to 550 dtex.

A poly(butylene terephthalate) multifilament flat drawn yarn, especially suitable to produce a stretchable PBT sewing thread, is characterized in that the multifilament yarn has a tenacity between 25 cN/tex and 50 cN/tex, preferably between 30 and 40 cN/tex. It is also characterized as a yarn having an elongation at break between 30 to 60%, preferably between 40 and 50%. It is also characterized to have an elastic recovery from 20% elongation of equal to or greater than 60%, even more preferably equal to or greater than 75%.

The PBT sewing thread of the present invention has a breaking strength between 20 to 50 cN/tex, preferably between 30 to 40 cN/tex; and a breaking elongation between 25 to 100%, preferably between 40 to 50%. When the breaking strength is less than 20 cN/tex an insufficient seam strength results. On the other hand, when the breaking strength exceeds 45 cN/tex, the sewing thread shows a low breaking elongation, and the fabric stretchability of the fabric sewn articles becomes poor.

Furthermore, the sewing thread of the present invention shows an elastic recovery from a 20% elongation of 60% or more, preferably from 70 to 85%. When a stretchable fabric is sewn using a sewing thread that shows an elastic recovery in the range mentioned above, the stretchable fabric shows an extremely excellent recovery performance.

The sewing thread of the present invention can be aplied sewing thread, a core yarn, an intermingled sewing thread, or a bonded sewing thread. The inventive sewing thread comprises at least a multifilament PBT yarn or spun yarns of PBT staple fibers.

A plied sewing thread can be made by first twisting the multifilament yarn, the number of twists is preferably 200 to 2000 turns/meter (T/m). Examples of the number of doubling are 2-ply thread obtained by doubling and twisting two yarns, 3-ply thread obtained by doubling and twisting three yarns, 2x3-ply thread obtained by doubling and twisting three 2-ply threads each of which has been obtained by doubling and twisting two yarns. It is desirable that the number of final twisting be from 0.7 to 0.8 times that of first twisting to suppress the formation of a kinked yarn as much as possible. Moreover, the direction of final twisting should fundamentally be the Z direction. However, for sewing threads such as one for a two-needle lock stitch, both S twisting and Z twisting are preferably applied. At least one of the multifilament yarns must be PBT; the others may be PTT, PET, polymide or a combination of these.

A core spun sewing thread can be made by sheathing the PBT multifilament yarn with fibers of natural or synthetic origins. Two or more of these sheathed single yarns are twisted together to form a sewing thread. Examples of natural fibers are cotton fibers, and examples of synthetic fibers are PBT, PET, PTT and polymides.

Air-intermingled sewing threads can be made by texturing of two multifilament yarns, by feeding the filament...
material into the texturing jet at a higher speed than it is withdrawn therefrom. The excess of the feed speed over the withdrawal speed, expressed as a percent of the withdrawal speed, is termed the overfeed. In the process the yarns which are to be mixed with each other are fed into the texturing jet at different rates of overfeed. The feed yarn strand which will constitute the core filaments of the yarn will usually be fed into the texturing jet at an overfeed of from 3 to 10%, while the feed yarn strand which will constitute the effect filaments of the yarn according to the invention will usually be overfed at from 10 to 60%. The core yarn is a multifilament PBT yarn, and the effect yarn may be PBT, PET, PTT or a polyamide multifilament yarn.

[0036] Bonded sewing threads can be made by twisting two or more multifilament yarns together and bonding them with a polymer coating, such as an aqueous emulsion of linear polyurethane. At least one of the multifilament yarns must be a PBT yarn, and the other yarns PBT, PET, PTT or a polyamide multifilament yarn.

[0037] The sewing thread is preferably dyed by rewinding the thread on a package dye tube and dyeing by standard methods. In order to improve the cohesiveness or integrity and sewing performance of a sewing thread, a solution containing a sewing performance improver, a smoothing agent and a binder may be circulated around the yarn package having been scoured after dyeing so that the agents are allowed to adhere thereto. Examples of the sewing performance improver and the smoothing agent include silicone compounds, polyethylene-based emulsions and wax compounds. Examples of the binder include polyester-based resins, polyurethane based resins and acrylic based resins.

[0038] A stretch fabric in the present invention signifies a fabric that shows an extensibility in the warp and/or weft direction of from 5 to 200%. The extensibility herein is obtained by the following procedure: two samples having dimensions of 140 mm x 165 mm (tensile side constraint side) with the tensile side of one sample taken in the warp direction of the fabric and that of the other sample taken in the weft direction are prepared; each sample is pulled at a rate of 60 cm/min so that a tensile elongation curve is obtained; the elongation of the fabric sample to which a stress of 2 kg per 5 cm width is applied is measured from the curve. Examples of fabric include a woven fabric, a knitted fabric and a non-woven fabric. Of the fabrics, a woven fabric and a knitted fabric are especially preferred. Means for applying stretch to these fabrics include a procedure that utilizes the stretch of yarns forming the fabric, a procedure that utilizes the stretch of the texture of the fabric, and a procedure that utilizes a combination of the above two techniques.

[0039] Specific examples of the stretch fabric of the present invention include clothes showing an extensibility of from 10 to 25% such as shirts, blouses, working clothes, uniforms, slacks, jackets, suits and coats, clothes showing an extensibility of from 20 to 40% such as sports jackets, training wear, play wear, T-shirts, underwear and sweaters, and clothes showing an extensibility of from 40 to 200% such as foundation garments, leotards, swimsuit, swimwear and skate wear. Although the sewing thread of the invention can be used for sewing all these stretch fabrics, use of fabrics showing an extensibility of 20% or more, particularly 40% or more is preferred because the seams are excellent in elasticity and the sewn articles thus obtained do not constrain the wearers and show excellent wearability.

[0040] In addition, the seams made using the inventive sewing thread, in particular double lock stitch seams, have excellent seam elasticity, which is also present when there is no excess yarn length or only minimal excess yarn length of the sewing thread in such a seam, whereby the high elasticity of the inventive sewing thread and in particular the high elongation of same ensures that after repeated strength loading and after repeated overloading of the seam there is no unwanted gaping of the seam, as the sewing thread adapts to the elasticity of the stretch fabric.

Test Methods

Tensile Strength and Elongation

[0041] Using a Statimat, a tensile elongation curve is obtained under the conditions of a sample length of 100 mm and a tensile speed of 600 mm/min, and the stress at 5% elongation and a 30% elongation, the breaking strength (cN/dtex) and the breaking elongation (%) are measured.

Yarn and Thread Elastic Recovery

[0042] An initial load of 0.05 cN/dtex is applied to the thread, and a stress-strain measurement is performed by elongating the thread at a constant rate of 100 mm/min until a preset test load is reached, at which point the test elongation is recorded. The yarn is relaxed and the permanent elongation is determined. The yarn is then elongated again to a higher test load. This procedure is repeated by increasing the test load level in steps of 25 cN until the yarn fails. The elastic recovery at each test load level is calculated from the following formula:

\[
elastic \text{ recovery} \ (\%) = \frac{\text{elastic elongation} \times \text{test elongation}}{\text{100}}
\]

wherein elastic elongation designates the difference between test and permanent elongation. E.g. a permanent elongation of 1.1% after test elongation of 15.1% corresponds to an elastic elongation of 14% (=15.1％-1.1％) and an elastic recovery of 92.6% (=14％/15.1％) at 15.1％ elongation. The elastic recovery at 20% elongation is obtained through interpolation between two measurement points adjacent to 20% elongation.

Specific Viscosity

[0043] A polymer is dissolved in dichloroacetic acid at 55° C. at a concentration of 0.1 g/cc. The solution thus obtained is transferred to an Ubbelohde viscometer, and measured at 25° C. The specific viscosity (SV) is calculated from the following formula:

\[
SV = \frac{T - T_0}{T_0}
\]

Where T is the drop time of the sample solution and T_o is the drop time of the solvent.

EXAMPLE 1

[0044] A poly(butylene terephthalate) (SV=1.1) was spun at a spinning temperature of 260° C. and a winding speed of 3000 m/min to give a POY yarn. The yarn was then drawn by a draw twister to give a drawn yarn of 95 dtex 32 filaments, the drawn yarn showed a breaking strength of 35 cN/dtex and a breaking elongation of 44% and an elastic recovery from 20% elongation of 78%.
The PBT flat yarn thus obtained was first twisted to give 760 T/m (S direction). Three of such twisted PBT flat yarns were final twisted together to give 570 T/m (Z direction) to produce a 3-ply thread. The 3-ply thread was then wound on a perforated plastic bobbin, dyed in a dyeing bath at 100° C. using a disperse dye. The dyed thread was lubricated using silicone oil.

The sewing thread thus obtained showed a breaking strength of 30 cN/tex, a breaking elongation of 44%, an elastic recovery from 20% elongation of 84%. Sewing elastic knitwear made of PET and Lycra®, with a fabric elongation at break of 96%, with this sewing thread and stretching it, revealed a seam elongation of 60%. The seam showed an excellent appearance even after stretching the sewn fabric several times to an extent of 30%.

**EXAMPLE 2**

Using the procedure of Example 1, PBT was spun at 1180 m/min. The 91 dtex drawn yarn had a tenacity of 34.7 cN/tex, an elongation at break of 29.5% and an elastic recovery from 20% elongation of 80%.

A dyed plied sewing thread was produced by the procedure of Example 1. The dyed sewing thread had a breaking strength of 32.3 cN/tex, a breaking elongation of 37%, an elastic recovery from 20% elongation of 82%.

**COMPARATIVE EXAMPLE 1**

A dyed 3-ply sewing thread made from poly(ethylene terephthalate), SV of 0.95, multifilament yarn, 95 dtex 32 filaments, was produced according to the procedure in Example 1. The sewing thread had a tenacity of 63 cN/tex and an elongation of 22.5%. The thread elastic recovery from 20% elongation was close to 0. Sewing elastic knitwear made of PET and Lycra®, with an elongation at break of 96%, with this sewing thread and stretching it, revealed a maximum elongation of only 29.7%.

**COMPARATIVE EXAMPLE 2**

A dyed 3-ply sewing thread made from poly(ethylene terephthalate), SV of 0.95, multifilament yarn, 95 dtex 24 filaments, was produced according to the procedure in Example 1. The multifilament yarn had a tenacity of 46.4 cN/tex and an elongation at break of 45.3%. The elastic recovery from 20% elongation was only 45%. Sewing elastic knitwear made of PET and Lycra®, with an elongation at break of 96%, with this sewing thread and stretching it, revealed a maximum elongation of only 55%. The seam was overextended even after stretching the sewn fabric to an extent of 30% and deformed the fabric.

**COMPARATIVE EXAMPLE 3**

A poly(trimethylene terephthalate), PTT (SV=1.1) was spun at a winding speed of 1180 m/min. The yarn was then drawn by a draw twister to give a drawn yarn of 64 dtex 32 filaments, the drawn yarn showed a breaking strength of 36 cN/tex and a breaking elongation of 49.8% and an elastic recovery from 20% elongation of 95%.

The PTT flat yarn thus obtained was doubled and first twisted to give 650 T/m (S direction). Two of such twisted PTT flat yarns were final twisted together to give 600 T/m (Z direction) to produce a 2-ply thread. The 2-ply thread was then wound on a perforated plastic bobbin, dyed in a dyeing bath at 100° C. using a disperse dye. The dyed thread was lubricated using silicone oil.

The sewing thread thus obtained showed a breaking strength of 29.1 cN/tex, a breaking elongation of 51.4%, an elastic recovery from 20% elongation of 90%. Sewing elastic knitwear made of PET and Lycra®, with a fabric elongation at break of 96%, with this sewing thread and stretching it, revealed a seam elongation of 65%.

An attempt was made to spin the PTT polymer at higher spinning speeds (3000 mpm), but the spun yarn package build was poor and the drawing of the spun yarn was unacceptable.

**INDUSTRIAL APPLICABILITY**

The stretchable PBT sewing thread of the present invention is excellent in sewing performance, and that makes a seam excellent in appearance and stretchability, and that exhibits excellent adaptability to sewing a stretchable fabric. Although the PBT multifilament yarn has a lower elastic recovery at 20% elongation compared to PTT multifilament yarns, the final dyed sewing threads have comparable elastic recovery and seam elongations. The use of a PBT sewing thread is therefore preferable to PTT sewing threads since its elasticity is not reduced during the dyeing and finishing steps of the sewing thread process.

Thus it is apparent that there has been provided, in accordance with the invention, a sewing thread, a process of using sewing thread, and use of sewing thread, that fully satisfied the objects, aims and advantages set forth above. While the invention has been described in conjunction with specific embodiments thereof, it is evident that many alternatives, modifications and variations will be apparent to those skilled in the art in light of the foregoing description. Accordingly, it is intended to embrace all such alternatives, modifications and variations as fall within the spirit and broad scope of the appended claims.

What is claimed is:

1. Sewing thread comprising one or more multifilament yarns, wherein one or more of said multifilament yarns comprise(s) poly(butylene terephthalate).

2. Sewing thread according to claim 1, wherein said poly(butylene terephthalate) multifilament yarn is made of a polyester comprising butylene terephthalate repeating units as principal repeating units in an amount of 50 mol-% or more.

3. Sewing thread according to claim 2, wherein said polyester comprises 70 mol-% or more butylene terephthalate.

4. Sewing thread according to claim 2, wherein said polyester comprises 90 mol-% or more butylene terephthalate.

5. Sewing thread according to claim 2, wherein said polyester comprises further repeat units from components selected from the group containing aliphatic, alicyclic and aromatic dicarboxylic acids, other than terephthalic acid; aliphatic, alicyclic and polyether glycols, other than butylene glycol.

6. Sewing thread according to claim 1, wherein said poly(butylene terephthalate) multifilament yarn comprises additives and/or colours.
7. Sewing thread according to claim 1, wherein said multifilament yarns are plied together.

8. Sewing thread according to claim 1, wherein said multifilament yarns are false twisted or air textured.

9. Sewing thread according to claim 1, wherein said multifilament yarns are sheathed with natural or synthetic fibres.

10. Sewing thread according to claim 1, wherein said multifilament yarns are bonded together.

11. Sewing thread according to claim 1, wherein the sewing thread has an elastic recovery from a 20% elongation of greater than or equal 60% and an elongation at break of greater than or equal to 25%.

12. Sewing thread according to claim 1, wherein the sewing thread has a breaking strength of from 20 to 50 cN/tex and an elongation at break of from 25 to 100%.

13. A method of producing a plied sewing thread, comprising the steps of: doubling and twisting multifilament yarns, whereby at least one of the multifilament yarns is made from poly(butylene terephthalate), having titer of greater than or equal 20 dtex to give a doubled, tripled or quadrupled twisted thread, dyeing the resultant thread, and coating the dyed thread with a sewing thread lubricant and/or a smoothing agent and/or a binder or a mixture thereof.

14. A method of producing a plied sewing thread, comprising the steps of: twisting a multifilament yarn made from poly(butylene terephthalate) and having titer of from 20 to 550 dtex to give from 200 to 1800 T/m in S-direction, jointly twisting two or three of the resultant S-twisted yarns to give from 180 to 1600 T/m in Z-direction, dyeing the resultant Z-twisted thread, and coating the resultant dyed thread with a sewing thread lubricant and/or a smoothing agent and/or a binder or a mixture thereof.

15. A method of producing a core spun sewing thread, wherein a sheath of natural or synthetic fibers is wrapped around a multifilament yarn made from poly(butylene terephthalate).

16. A method of producing an air-intermingled sewing thread, comprising the steps of: feeding a first multifilament yarn made from poly(butylene terephthalate) through an air texturing jet to form a core yarn, and feeding a second multifilament yarn through the same said air texturing jet at a higher overfeed than said core yarn.

17. A method of producing a bonded sewing thread, comprising the steps of: plying two or more multifilament yarns, whereby one or more of said multifilament yarns are made from poly(butylene terephthalate), and bonding them together with a polymeric binder.

18. Use of poly(butylene terephthalate) for manufacturing at least one multifilament yarn of a sewing thread.

19. Use of multifilament yarns made from poly(butylene terephthalate) for manufacturing a plied, core-spun, intermingled or bonded sewing thread.

20. Use of poly(butylene terephthalate) sewing thread according to claim 13 for sewing seams in stretch fabrics.

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