CLAIMS:

1. A core/sheath composite filament for toothbrushes comprising:

a core made of a synthetic resin fiber; and

a sheath integrally covering the core, the sheath being made of an elastomer compatible with the synthetic resin constituting the core,

wherein a cross section of the core/sheath composite filament, the cross section being perpendicular to the lengthwise direction, is formed into a quadrangular shape.

2. The core/sheath composite filament for toothbrushes according to claim 1, wherein the core is made of a polyester-based synthetic resin fiber and the sheath is made of a thermoplastic elastomer (TPE).

3. The core/sheath composite filament for toothbrushes according to claim 1 or 2, wherein the core is made of polybutylene terephthalate (PBT) and the sheath is made of a polyester-based thermoplastic elastomer (TPE).

4. The core/sheath composite filament for toothbrushes according to any one of claims 1 to 3, wherein the length on each side of the cross section of the core/sheath composite filament is in the range of 0.14 to 0.30 mm.

5. The core/sheath composite filament for toothbrushes according to any one of claims 1 to 4, wherein a cross section of the core, the cross section being perpendicular to the lengthwise direction, has a circular shape.

6. The core/sheath composite filament for toothbrushes according to claim 5, wherein the diameter of the core is in the range of 0.12 to 0.27 mm.

7. The core/sheath composite filament for toothbrushes according to any one of claims 1 to 3, wherein an outer surface of the sheath is formed into a concave shape so as to be gently depressed inwardly.

8. A toothbrush comprising a brush portion having a tufting plate and a plurality of tufts tufted in the tufting plate, wherein the tuft including the core/sheath composite filament for toothbrushes according to any one of claims 1 to 7 is used in the toothbrush.

9. The toothbrush according to claim 8, wherein centers of tufting holes, the tufting holes being adjacent to each other in the longitudinal direction of the toothbrush, have a portion not being located on a straight line parallel to the longitudinal direction of the toothbrush in the tufting plate.

10. The toothbrush according to claim 8 or 9, wherein the tufts include a tuft configured by bundling a plurality of the core/sheath composite filaments and tufted in a central part of the tufting plate and a tuft configured by bundling a plurality of monofilaments made of a hard synthetic resin and tufted in a peripheral part of the tufting plate.

AMENDED CLAIMS

(accepted by International Bureau on February 18, 2011)

1. A core/sheath composite filament for toothbrushes comprising:

a core made of a synthetic resin fiber; and

a sheath integrally covering the core, the sheath being made of an elastomer compatible with the synthetic resin constituting the core,

wherein a cross section of the core/sheath composite filament, the cross section being perpendicular to the lengthwise direction, is formed into a quadrangular shape.

2. The core/sheath composite filament for toothbrushes according to claim 1, wherein the core is made of a polyester-based synthetic resin fiber and the sheath is made of a thermoplastic elastomer (TPE).

3. The core/sheath composite filament for toothbrushes according to claim 1 or 2, wherein the core is made of polybutylene terephthalate (PBT) and the sheath is made of a polyester-based thermoplastic elastomer (TPE).

4. The core/sheath composite filament for toothbrushes according to any one of claims 1 to 3, wherein the length on each side of the cross section of the core/sheath composite filament is in the range of 0.14 to 0.30 mm.

5. The core/sheath composite filament for toothbrushes according to any one of claims 1 to 4, wherein a cross section of the core, the cross section

being perpendicular to the lengthwise direction, has a circular shape.

6. The core/sheath composite filament for toothbrushes according to claim 5, wherein the diameter of the core is in the range of 0.12 to 0.27 mm.

7. The core/sheath composite filament for toothbrushes according to any one of claims 1 to 3, wherein an outer surface of the sheath is formed into a concave shape so as to be gently depressed inwardly.

8. A toothbrush comprising a brush portion having a tufting plate and a plurality of tufts tufted in the tufting plate, wherein the tuft including the core/sheath composite filament for toothbrushes according to any one of claims 1 to 7 is used in the toothbrush.

9. (Amended) The toothbrush according to claim 8, wherein when the longitudinal direction of the toothbrush is defined as a row direction and a direction perpendicular to the longitudinal direction of the toothbrush is defined as a column direction, at least one pair of centers of tufting holes, the tufting holes being located nearest to each other in adjoining columns, has a portion not being located on a straight line parallel to the longitudinal direction of the toothbrush in the tufting plate.

10. The toothbrush according to claim 8 or 9, wherein the tufts include a tuft configured by bundling a plurality of the core/sheath composite filaments and tufted in a central part of the tufting plate and a tuft

configured by bundling a plurality of monofilaments made of a hard synthetic resin and tufted in a peripheral part of the tufting plate.

CLAIMS

1. A core/sheath composite filament for toothbrushes comprising:
a core made of a synthetic resin fiber; and
a sheath integrally covering the core, the sheath being made of an elastomer compatible with the synthetic resin constituting the core,
wherein a cross section of the core/sheath composite filament, the cross section being perpendicular to a lengthwise direction, is formed into a quadrangular shape, and a length on each side of the quadrangular shape of the sheath is in the range of 0.16 mm to 0.30 mm.

2. The core/sheath composite filament for toothbrushes according to claim 1, wherein the core is made of a polyester-based synthetic resin fiber and the sheath is made of a thermoplastic elastomer (TPE).

3. The core/sheath composite filament for toothbrushes according to claim 1, wherein the core is made of polybutylene terephthalate (PBT) and the sheath is made of a polyester-based thermoplastic elastomer (TPE).

4. The core/sheath composite filament for toothbrushes according to Claim 1, wherein a length on each side of the cross section of the core/sheath composite filament is in a range of 0.14 to 0.30 mm.

5. The core/sheath composite filament for toothbrushes according to Claim 1, wherein a cross section of the core, the cross section being perpendicular to the lengthwise direction, has a circular shape.

6. The core/sheath composite filament for toothbrushes according to claim 5, wherein a diameter of the core is in a range of 0.12 to 0.27 mm.

7. A toothbrush comprising a brush portion having a tufting plate and a plurality of tufts tufted in the tufting plate, wherein the tuft including the core/sheath composite filament for toothbrushes according to Claim 1 is used in the toothbrush.

8. The toothbrush according to claim 8, wherein when a longitudinal direction of the toothbrush is defined as a row direction and a direction perpendicular to the longitudinal direction of the toothbrush is defined as a column direction, at least one pair of centers of tufting holes, the tufting holes being located nearest to each other in adjoining columns, has a portion not being located on a straight line parallel to the longitudinal direction of the toothbrush in the tufting plate.

9. The toothbrush according to claim 8, wherein the tufts include a tuft configured by bundling a plurality of the core/sheath composite filaments and tufted in a central part of the tufting plate and a tuft configured by bundling a plurality of monofilaments made of a hard synthetic resin and tufted in a peripheral part of the tufting plate.