CLAIMS

1. A thermoplastic resin fiber comprising a thermoplastic resin containing a polyolefin resin, a polyamide resin, and a compatibilizer, and having a fracture elongation of 50% or more, wherein

the compatibilizer is a modified elastomer having a reactive group that reacts with the polyamide resin,

wherein the polyolefin resin forms a continuous phase (A), and

wherein the polyamide resin and the modified elastomer form a dispersed phase (B) dispersed in the continuous phase (A).

2. The thermoplastic resin fiber according to claim 1, which has a breaking strength of 0.5 cN/dtex or more but 3.0 cN/dtex or less.

3. The thermoplastic resin fiber according to claim 1 or 2, wherein when a breaking strength before drawing is defined as S_0 (cN/dtex) and a breaking strength after drawing is defined as S_1 (cN/dtex), the ratio between them (S_0/S_1) is 0.3 or more but 1.15 or less.

4. The thermoplastic resin fiber according to any one of claims 1 to 3, wherein when a fiber diameter before drawing is defined as D_0 (mm) and a fiber diameter after drawing is defined as D_1 (mm), D_0 is larger than D_1.

5. The thermoplastic resin fiber according to claim 4, wherein the dispersed phase (B) has a fine dispersed phase (B_2) dispersed in the dispersed phase (B).

6. A fabric comprising the thermoplastic resin fiber according to any one of claims 1 to 5.

7. A method for producing the thermoplastic resin fiber which comprises a thermoplastic resin containing a polyolefin resin, a polyamide resin, and a compatibilizer that is a modified elastomer having a reactive group which reacts with the polyamide resin, and has a fracture elongation of 50% or more, the method comprising

a spinning step in which a thermoplastic resin composition obtained by melt-kneading a melt-kneaded product of the polyamide resin and the modified elastomer having a reactive group which reacts with the polyamide resin and the polyolefin resin is spun into a fiber.

8. The method for producing the thermoplastic resin fiber according to claim 7, wherein the polyolefin resin in the thermoplastic resin fiber forms a continuous phase (A), and

wherein the polyamide resin and the modified elastomer in the thermoplastic resin fiber form a dispersed phase (B) dispersed in the continuous phase (A).

9. The method for producing the thermoplastic resin fiber according to claim 8,

wherein the dispersed phase (B) has a fine dispersed phase (B2) dispersed in the dispersed phase (B).