

CLAIMS

[Claim 1]

A semiconductor processing pressure sensitive adhesive sheet comprising a substrate and a pressure sensitive adhesive layer provided on one surface of the substrate, the pressure sensitive adhesive layer being formed of a pressure sensitive adhesive composition, wherein

the pressure sensitive adhesive composition contains a polymer (A) having a reactive functional group (A1); a polymer (B) having a reactive functional group (B1) different from the reactive functional group (A1) and an energy ray-polymerizable group (B2); a crosslinking agent (C) that reacts with the reactive functional group (A1); and a crosslinking agent (D) that reacts with the reactive functional group (B1);

the crosslinking agent (C) and the crosslinking agent (D) are different compounds from each other; and

the semiconductor processing pressure sensitive adhesive sheet is used to be attached on a wafer surface having bumps and protect the wafer surface having bumps.

[Claim 2]

The semiconductor processing pressure sensitive adhesive sheet according to claim 1, wherein a weight average molecular weight of the polymer (A) is higher than a weight average molecular weight of the polymer (B).

[Claim 3]

The semiconductor processing pressure sensitive adhesive sheet according to claim 1 or 2, wherein the polymer (A) and the polymer (B) each are an acrylic polymer.

[Claim 4]

The semiconductor processing pressure sensitive adhesive sheet according to claim 3, wherein a weight average molecular weight of the acrylic polymer constituting the polymer (A) is higher than a weight average molecular weight of the acrylic polymer constituting the polymer (B), and a difference therebetween is 200,000 or

more.

[Claim 5]

The semiconductor processing pressure sensitive adhesive sheet according to claim 4, wherein the weight average molecular weight of the acrylic polymer constituting the polymer (A) is from 300,000 to 1,000,000, and the weight average molecular weight of the acrylic polymer constituting the polymer (B) is from 5,000 to 100,000.

[Claim 6]

The semiconductor processing pressure sensitive adhesive sheet according to any one of claims 3 to 5, wherein the acrylic polymer constituting the polymer (A) is an acrylic copolymer (A') containing a structural unit derived from a functional group monomer (a1) having the reactive functional group (A1) and a structural unit derived from an alkyl (meth)acrylate (a2).

[Claim 7]

The semiconductor processing pressure sensitive adhesive sheet according to any one of claims 3 to 6, wherein the acrylic polymer constituting the polymer (B) is a reaction product obtained by allowing a part of the reactive functional group (B1) of an acrylic copolymer (B') containing a structural unit derived from a functional group monomer (b1) having the reactive functional group (B1) and a structural unit derived from an alkyl (meth)acrylate (b2) to react with an energy ray-polymerizable group-containing compound (S) having the energy ray-polymerizable group (B2).

[Claim 8]

The semiconductor processing pressure sensitive adhesive sheet according to any one of claims 1 to 7, wherein the reactive functional group (A1) is a carboxy group, and the reactive functional group (B1) is a hydroxy group.

[Claim 9]

The semiconductor processing pressure sensitive adhesive sheet according to claim 8, wherein the crosslinking agent (C) is an epoxy-based crosslinking agent, and the crosslinking agent (D) is an isocyanate-based crosslinking agent.

[Claim 10]

The semiconductor processing pressure sensitive adhesive sheet according to any one of claims 1 to 9, wherein the content of the crosslinking agent (D) is larger than the content of the crosslinking agent (C) on a mass basis in the pressure sensitive adhesive composition, and the content of the crosslinking agent (D) in the pressure sensitive adhesive composition is from 2 to 20 parts by mass based on 100 parts by mass of the polymer (B).

[Claim 11]

A semiconductor processing pressure sensitive adhesive sheet comprising a substrate and a pressure sensitive adhesive layer provided on one surface of the substrate, the pressure sensitive adhesive layer being formed of a pressure sensitive adhesive composition, wherein

the pressure sensitive adhesive composition contains a polymer (A) having a reactive functional group (A1); a polymer (B) having a reactive functional group (B1) different from the reactive functional group (A1) and an energy ray-polymerizable group (B2); a crosslinking agent (C) that reacts with the reactive functional group (A1); and a crosslinking agent (D) that reacts with the reactive functional group (B1);

the reactive functional group (A1) is a carboxy group, and the reactive functional group (B1) is a hydroxy group; and

the crosslinking agent (C) is an epoxy-based crosslinking agent, and the crosslinking agent (D) is an isocyanate-based crosslinking agent.

[Claim 12]

A semiconductor processing pressure sensitive adhesive sheet comprising a substrate and a pressure sensitive adhesive layer provided on one surface of the substrate, the pressure sensitive adhesive layer being formed of a pressure sensitive adhesive composition, wherein

the pressure sensitive adhesive composition contains a polymer (A) having a reactive functional group (A1); a polymer (B) having a reactive functional group (B1) different from the reactive functional group (A1) and an energy ray-polymerizable group (B2); a crosslinking agent (C) that reacts with the reactive functional group (A1); and a crosslinking agent (D) that reacts with the reactive functional group (B1); and

the content of the crosslinking agent (D) is larger than the content of the crosslinking agent (C) on a mass basis in the pressure sensitive adhesive composition, and the content of the crosslinking agent (D) in the pressure sensitive adhesive composition is from 2 to 20 parts by mass based on 100 parts by mass of the polymer (B).