Claims

1. An adhesive composition for forming an adhesive layer that can bond a first substrate formed of a semiconductor-forming substrate to a second substrate formed of a support substrate in a peelable manner,

the composition comprising a component (A) which is cured through hydrosilylation and a peeling component (B) which contains a component containing an epoxy-modified polyorganosiloxane, wherein

the component (A) comprises a polysiloxane (A1) having one or more units selected from the group consisting of a siloxane unit represented by SiO_2 (unit Q), a siloxane unit represented by $R^1R^2R^3SiO_{1/2}$ (unit M), a siloxane unit represented by $R^4R^5SiO_{2/2}$ (unit D), and a siloxane unit represented by $R^6SiO_{3/2}$ (unit T) (wherein each of R^1 to R^6 is a group or an atom bonded to a silicon atom and represents an alkyl group, an alkenyl group, or a hydrogen atom) and a platinum group metal catalyst (A2); and

the polysiloxane (A1) comprises

a polyorganosiloxane (a1) having one or more units selected from the group consisting of a siloxane unit represented by SiO_2 (unit Q'), a siloxane unit represented by $R^1'R^2'R^3'SiO_{1/2}$ (unit M'), a siloxane unit represented by $R^4'R^5'SiO_{2/2}$ (unit D'), and a siloxane unit represented by $R^6'SiO_{3/2}$ (unit T'), and at least one unit selected from the group consisting of unit M', unit D', and unit T' (wherein

each of $R^{1'}$ to $R^{6'}$ is a group bonded to a silicon atom and represents an alkyl group or an alkenyl group, and at least one of $R^{1'}$ to $R^{6'}$ is an alkenyl group), and

a polyorganosiloxane (a2) having one or more units selected from the group consisting of a siloxane unit represented by SiO_2 (unit Q''), a siloxane unit represented by $R^{1''}R^{2''}R^{3''}SiO_{1/2}$ (unit M''), a siloxane unit represented by $R^{4''}R^{5''}SiO_{2/2}$ (unit D''), and a siloxane unit represented by $R^{6''}SiO_{3/2}$ (unit T''), and at least one unit selected from the group consisting of unit M'', unit D'', and unit T'', and having a functional group (Si-H) content of 6.0 mol/kg or greater (wherein each of $R^{1''}$ to $R^{6''}$ is a group or an atom bonded to a silicon atom and represents an alkyl group or a hydrogen atom, and at least one of $R^{1''}$ to $R^{6''}$ is a hydrogen atom).

2. An adhesive composition according to claim 1, wherein the epoxy-modified polyorganosiloxane has an epoxy value of 0.1 to 5.

3. A laminate comprising a first substrate formed of a semiconductor-forming substrate, a second substrate formed of a support substrate, and an adhesive layer which is provided between the first substrate and the second substrate and which bonds the two substrates in a peelable manner, wherein

the adhesive layer is a cured film formed by use of an adhesive composition as recited in claim 1 or 2.

4. A method for producing a laminate, the method comprising

a step of applying an adhesive composition as recited in claim 1 or 2 onto a first substrate formed of a semiconductor-forming substrate or a second substrate formed of a support substrate, to thereby form an adhesive coating layer, and

a step of adhering the first substrate to the second substrate by the mediation of the adhesive coating layer; applying a load to the first substrate and the second substrate in a thickness direction, to thereby closely bind the first substrate, the adhesive layer, and the second substrate, while at least one of a heat treatment and a reduced pressure treatment is performed; and then performing a post-heat treatment.

5. A method for thinning a semiconductor-forming substrate, the method comprising

a step of applying an adhesive composition as recited in claim 1 or 2 onto a first substrate formed of a semiconductor-forming substrate or a second substrate formed of a support substrate, to thereby form an adhesive coating layer,

a step of adhering the first substrate to the second substrate by the mediation of the adhesive coating layer; applying a load to the first substrate and the second substrate in a thickness direction, to thereby closely bind the first substrate, the adhesive layer, and the second substrate, while at least one of a heat treatment and a

reduced pressure treatment is performed; and then performing a post-heat treatment, to thereby form a laminate, and

a step of performing a thinning treatment on the first substrate of the laminate.