Claims

1. A method for producing a processed semiconductor substrate, the method comprising a first step of producing a laminate including a semiconductor substrate provided with metallic materials, a support substrate, and an adhesive layer formed from an adhesive composition; a second step of processing the semiconductor substrate of the produced laminate; a third step of separating the semiconductor substrate after processing; and a fourth step of removing an adhesive residue remaining on the separated semiconductor substrate with a cleaning agent composition, wherein a metal corrosion inhibiting cleaning agent composition for use in removing an adhesive residue of a semiconductor substrate having metallic materials is used as the cleaning agent composition,

and wherein

the metal corrosion inhibiting cleaning agent composition comprises a quaternary ammonium salt, a metal corrosion inhibitor, and an organic solvent, and the metal corrosion inhibitor comprises a C7 to C40 saturated aliphatic hydrocarbon compound monocarboxylic acid, a C7 to C40 saturated aliphatic hydrocarbon compound dicarboxylic acid or anhydride, a C7 to C40 unsaturated aliphatic hydrocarbon compound monocarboxylic acid, or a C7 to C40 unsaturated aliphatic hydrocarbon compound dicarboxylic acid or anhydride.

2. The method for producing a processed semiconductor substrate according to claim 1, wherein the metal corrosion inhibitor includes a C7 to C40 saturated aliphatic hydrocarbon compound monocarboxylic acid, a C7 to C40 saturated aliphatic hydrocarbon compound dicarboxylic anhydride, or a C7 to C40 unsaturated aliphatic hydrocarbon compound dicarboxylic anhydride.

3. The method for producing a processed semiconductor substrate according to claim 2, wherein the metal corrosion inhibitor includes a C7 to C40 saturated aliphatic hydrocarbon compound monocarboxylic acid or a C7 to C40 unsaturated aliphatic hydrocarbon compound dicarboxylic anhydride.

4. The method for producing a processed semiconductor substrate according to claim 1, wherein the metal corrosion inhibitor includes lauric acid, dodecanedioic acid, or octadecenylsuccinic anhydride.

5. The method for producing a processed semiconductor substrate according to any one of claims 1 to 4, wherein the quaternary ammonium salt is a halogen-containing quaternary ammonium salt.

6. The method for producing a processed semiconductor substrate according to claim 5, wherein the halogen-containing quaternary ammonium salt is a fluorine-containing quaternary ammonium salt.

7. The method for producing a processed semiconductor substrate according to claim 6, wherein the fluorine-

containing quaternary ammonium salt is tetra(hydrocarbyl)ammonium fluoride.

8. The method for producing a processed semiconductor substrate according to claim 7, wherein the tetra(hydrocarbyl)ammonium fluoride includes at least one species selected from the group consisting of tetramethylammonium fluoride, tetraethylammonium fluoride, tetrapropylammonium fluoride, and tetrabutylammonium fluoride.

9. A semiconductor substrate cleaning method comprising removing an adhesive layer provided on a semiconductor substrate by use of a cleaning agent composition, wherein

the adhesive residue is originating from an adhesive layer formed from an adhesive composition containing a component (A) which is curable through hydrosilylation,

a metal corrosion inhibiting cleaning agent composition for use in removing an adhesive residue of a semiconductor substrate having metallic materials is used as the cleaning agent composition, and

wherein the metal corrosion inhibiting cleaning agent composition comprises a quaternary ammonium salt, a metal corrosion inhibitor, and an organic solvent, and the metal corrosion inhibitor comprises a C7 to C40 saturated aliphatic hydrocarbon compound monocarboxylic acid, a C7 to C40 saturated aliphatic hydrocarbon compound dicarboxylic acid or anhydride, a C7 to C40 unsaturated aliphatic hydrocarbon compound monocarboxylic acid, or a C7 to C40 unsaturated

aliphatic hydrocarbon compound dicarboxylic acid or anhydride.

10. The semiconductor substrate cleaning method comprising removing an adhesive layer provided on a semiconductor substrate by use of a cleaning agent composition according to claim 9, wherein the metal corrosion inhibitor includes a C7 to C40 saturated aliphatic hydrocarbon compound monocarboxylic acid, a C7 to C40 saturated aliphatic hydrocarbon compound dicarboxylic anhydride, or a C7 to C40 unsaturated aliphatic hydrocarbon compound dicarboxylic anhydride.

11. The semiconductor substrate cleaning method comprising removing an adhesive layer provided on a semiconductor substrate by use of a cleaning agent composition according to claim 10, wherein the metal corrosion inhibitor includes a C7 to C40 saturated aliphatic hydrocarbon compound monocarboxylic acid or a C7 to C40 unsaturated aliphatic hydrocarbon compound dicarboxylic anhydride.

12. The semiconductor substrate cleaning method comprising removing an adhesive layer provided on a semiconductor substrate by use of a cleaning agent composition according to claim 9, wherein the metal corrosion inhibitor includes lauric acid, dodecanedioic acid, or octadecenylsuccinic anhydride.

13. The semiconductor substrate cleaning method comprising removing an adhesive layer provided on a semiconductor substrate by use of a cleaning agent composition according to any one of claims 9 to 12, wherein the quaternary ammonium salt is a halogen-containing quaternary ammonium salt.

14. The semiconductor substrate cleaning method comprising removing an adhesive layer provided on a semiconductor substrate by use of a cleaning agent composition according to claim 13, wherein the halogen-containing quaternary ammonium salt is a fluorine-containing quaternary ammonium salt.

15. The semiconductor substrate cleaning method comprising removing an adhesive layer provided on a semiconductor substrate by use of a cleaning agent composition according to claim 14, wherein the fluorine-containing quaternary ammonium salt is tetra(hydrocarbyl)ammonium fluoride.

16. The semiconductor substrate cleaning method comprising removing an adhesive layer provided on a semiconductor substrate by use of a cleaning agent composition according to claim 15, wherein the tetra(hydrocarbyl)ammonium fluoride includes at least one species selected from the group consisting of tetramethylammonium fluoride, tetraethylammonium fluoride, tetrapropylammonium fluoride, and tetrabutylammonium fluoride.