in Formulae (a) and (b), ClogP represents a value represented by a base-10 logarithm logP of P which is a 1-octanol/water partition coefficient representing a ratio of an equilibrium concentration in 1-octanol and water, pKa represents an acid dissociation constant, and pKb represents a base dissociation constant,

wherein a content of the silicone compound in the temporary bonding material is 0.001% to 1.0% by mass,

wherein the temporary bonding material includes an elastomer and wherein the elastomer is a polystyrene-based elastomer, and

wherein the temporary bonding material includes a resin at a ratio of 50.00% to 99.99% by mass.

[0004b] In a further aspect of the present disclosure, there is provided a method for manufacturing a semiconductor element, comprising removing a temporary bonding material including a silicone compound using a detergent composition including an acid or base and an organic solvent,

wherein a value represented by Formula (a) of the acid is 0 to 10 and a value represented by Formula (b) of the base is -5 to 0;

Formula (a) ClogP-pKa

Formula (b) ClogP-pKb

in Formulae (a) and (b), ClogP represents a value represented by a base-10 logarithm logP of P which is a 1-octanol/water partition coefficient representing a ratio of an equilibrium concentration in 1-octanol and water, pKa represents an acid dissociation constant, and pKb represents a base dissociation constant,

wherein a content of the silicone compound in the temporary bonding material is 0.001% to 1.0% by mass,

wherein the temporary bonding material includes an elastomer and wherein the elastomer is a polystyrene-based elastomer, and

wherein the temporary bonding material includes a resin at a ratio of 50.00% to 99.99% by mass.

[0005] With regard to the object, the present inventors have conducted extensive studies, and as a result, they have found that the object can be accomplished by removing a temporary bonding material including a silicone compound with a detergent composition including an acid or base and an organic solvent. Specifically, according to <1>, and preferably according to <2> to <30>, the object was accomplished.

<1> A kit comprising:

a detergent composition including an acid or base and an organic solvent; and

a temporary bonding material including a silicone compound,

in which a value represented by Formula (a) of the acid is 0 to 10 and a value

WHAT IS CLAIMED IS:

1. A kit comprising:

a detergent composition including an acid or base and an organic solvent; and

a temporary bonding material including a silicone compound,

wherein a value represented by Formula (a) of the acid is 0 to 10 and a value represented by Formula (b) of the base is -5 to 0;

Formula (a) ClogP-pKa

Formula (b) ClogP-pKb

in Formulae (a) and (b), ClogP represents a value represented by a base-10 logarithm logP of P which is a 1-octanol/water partition coefficient representing a ratio of an equilibrium concentration in 1-octanol and water, pKa represents an acid dissociation constant, and pKb represents a base dissociation constant,

wherein a content of the silicone compound in the temporary bonding material is 0.001% to 1.0% by mass,

wherein the temporary bonding material includes an elastomer and wherein the elastomer is a polystyrene-based elastomer, and

wherein the temporary bonding material includes a resin at a ratio of 50.00% to 99.99% by mass.

2. The kit according to claim 1,

wherein the silicone compound is a silicone oil.

3. The kit according to claim 1 or 2,

wherein the silicone compound includes a polyether-modified silicone.

4. The kit according to claim 3,

wherein a ratio represented by Formula (A) of the polyether-modified silicone is 80% or more;

Formula (A) $\{(MO+EO)/AO\}\times100$

in Formula (A), MO is % by mole of methylene oxide included in the polyether structure in the polyether-modified silicone, EO is % by mole of ethylene oxide included in the polyether structure in the polyether-modified silicone, and AO is % by mole of alkylene oxide included in the polyether structure in the polyether-modified silicone.

5. The kit according to any one of claims 1 to 4,

wherein a solubility of the elastomer in the organic solvent at 25°C is 18% to 40% by mass.

6. The kit according to any one of claims 1 to 5,

wherein the organic solvent is at least one selected from an aromatic compound, a saturated alicyclic compound, a cyclic ketone, or a cyclic terpene.

7. The kit according to any one of claims 1 to 6,

wherein the detergent composition includes an acid and the acid is at least one selected from a phosphoric acid, a phosphonic acid, a phosphinic acid, a sulfonic acid, or a carboxylic acid.

8. The kit according to any one of claims 1 to 6,

wherein the detergent composition includes a base and the base is at least one selected from an aliphatic amine, an aromatic amine, or a heterocyclic amine.

9. The kit according to any one of claims 1 to 8,

wherein the mass ratio of the acid or base to the organic solvent is 0.0001:99.9999 to 50:50.

10. The kit according to any one of claims 1 to 9,

wherein a content of the acid in the detergent composition is 0.8% by mass or less, and

wherein a content of the base in the detergent composition is 1.0% by mass or less.

11. A method for manufacturing a semiconductor element, comprising removing a temporary bonding material including a silicone compound using a detergent composition including an acid or base and an organic solvent,

wherein a value represented by Formula (a) of the acid is 0 to 10 and a value represented by Formula (b) of the base is -5 to 0;

Formula (a) ClogP-pKa

Formula (b) ClogP-pKb

in Formulae (a) and (b), ClogP represents a value represented by a base-10 logarithm logP of P which is a 1-octanol/water partition coefficient representing a ratio of an equilibrium concentration in 1-octanol and water, pKa represents an acid dissociation constant, and pKb represents a base dissociation constant,

wherein a content of the silicone compound in the temporary bonding material is 0.001% to 1.0% by mass,

wherein the temporary bonding material includes an elastomer and wherein the elastomer is a polystyrene-based elastomer, and

wherein the temporary bonding material includes a resin at a ratio of 50.00% to 99.99% by mass.

12. The method for manufacturing a semiconductor element according to claim 11,

wherein the silicone compound is a silicone oil.

13. The method for manufacturing a semiconductor element according to claim 11 or 12,

wherein the silicone compound includes a polyether-modified silicone.

14. The method for manufacturing a semiconductor element according to claim 13,

wherein a ratio represented by Formula (A) of the polyether-modified silicone is 80% or more;

Formula (A) $\{(MO+EO)/AO\}\times100$

in Formula (A), MO is % by mole of methylene oxide included in the polyether structure in the polyether-modified silicone, EO is % by mole of ethylene oxide included in the polyether structure in the polyether-modified silicone, and AO is % by mole of alkylene oxide included in the polyether structure in the polyether-modified silicone.

15. The method for manufacturing a semiconductor element according to any one of claims 11 to 14, wherein the solubility of the elastomer in the organic solvent at 25°C is 18% to 40% by mass.

16. The method for manufacturing a semiconductor element according to any one of claims 11 to 15, wherein the organic solvent is at least one selected from an aromatic compound, a saturated alicyclic compound, a cyclic ketone, or a cyclic terpene.

17. The method for manufacturing a semiconductor element according to any one of claims 11 to 16, wherein the detergent composition includes an acid and the acid is at least one selected from a phosphoric acid, a phosphonic acid, a phosphinic acid, a sulfonic acid, or a carboxylic acid.

18. The method for manufacturing a semiconductor element according to any one of claims 11 to 16, wherein the detergent composition includes a base and the base is at least one selected from an aliphatic amine, an aromatic amine, or a heterocyclic amine.

19. The method for manufacturing a semiconductor element according to any one of claims 11 to 18, wherein the temporary bonding material is used for temporary adhesion between a carrier substrate and a substrate to be processed, and

the temporary bonding material to be removed by the detergent composition is the temporary bonding material remaining on the substrate to be processed after peeling off the carrier substrate, and the temporary bonding material remaining on the substrate to be processed after peeling off the carrier substrate and further peeling off the temporary bonding material.

20. The method according to any one of claims 11 to 19,

wherein a content of the acid in the detergent composition is 0.8% by mass or less, and

wherein a content of the base in the detergent composition is 1.0% by mass or less.