CLAIMS

1. An antifouling coating composition comprising a silyl ester copolymer (A) and a rosin compound and/or a monocarboxylic acid compound (B),

the silyl ester copolymer (A) having a solid content acid value of 0.1 to 10 mgKOH/g,

the silyl ester copolymer (A) having a constitutional unit derived from triisopropylsilyl methacrylate (a1), a constitutional unit derived from 2-methoxyethyl (meth)acrylate (a2), and a constitutional unit derived from an additional ethylenically unsaturated monomer (a3),

a content of the rosin compound and/or monocarboxylic acid compound (B) being 100 parts by mass or less per 100 parts by mass of the solid content of the silyl ester copolymer (A),

a content of the silyl ester copolymer (A) in the solid content of the antifouling coating composition being 10 to 20% by mass,

a content of the constitutional unit derived from triisopropylsilyl methacrylate (a1) being 35 to 75 parts by mass per 100 parts by mass of the total constitutional units of the silyl ester copolymer (A), and

a content of the constitutional unit derived from 2-methoxyethyl (meth)acrylate (a2) being 15 to 35 parts by mass per 100 parts by mass of the total constitutional units of the silyl ester copolymer (A).

2. The antifouling coating composition according to claim 1, wherein the additional ethylenically unsaturated monomer (a3) includes a monomer containing an acid group.

3. The antifouling coating composition according to claim 1 or 2, wherein the silyl ester copolymer (A) has a weight average molecular weight (Mw) of 12,000 or more.

4. The antifouling coating composition according to any one of claims 1 to 3, wherein the antifouling coating composition comprises copper or a copper compound (C), and a content of the copper or copper compound (C) in the solid content of the antifouling coating composition is 50% by mass or more.

5. The antifouling coating composition according to any one of claims 1 to 4, wherein the antifouling coating composition comprises a dehydrating agent (L), and the dehydrating agent (L) is an alkoxysilane compound.

6. The antifouling coating composition according to any one of claims 1 to 5, wherein the silyl ester copolymer (A) has a weight average molecular weight (Mw) of 12,000 or more and 25,000 or less.

7. The antifouling coating composition according to any one of claims 1 to 6, wherein the antifouling coating composition is an antifouling coating composition for repairing an aged antifouling coating film that is for repairing an aged antifouling coating film.

8. An antifouling coating film formed with the antifouling coating composition according to any one of claims 1 to 7.

9. A laminated antifouling coating film comprising an aged antifouling coating film or an epoxy coating film (X), and an antifouling coating film (Y) formed with an antifouling coating composition (y), laminated on each other,

the antifouling coating composition (y) comprising a silyl ester copolymer (A) and a rosin compound and/or a monocarboxylic acid compound (B),

the silyl ester copolymer (A) having a solid content acid value of 0.1 to 10 mgKOH/g,

the silyl ester copolymer (A) having a constitutional unit derived from triisopropylsilyl methacrylate (a1), a constitutional unit derived from 2-methoxyethyl (meth)acrylate (a2), and a constitutional unit derived from an additional ethylenically unsaturated monomer (a3),

a content of the rosin compound and/or monocarboxylic acid compound (B) being 100 parts by mass or less per 100 parts by mass of the solid content of the silyl ester copolymer (A),

a content of the silyl ester copolymer (A) in the solid content of the antifouling coating composition being 10 to 20% by mass,

a content of the constitutional unit derived from triisopropylsilyl methacrylate (a1) being 35 to 75 parts by mass per 100 parts by mass of the total constitutional units of the silyl ester copolymer (A), and

a content of the constitutional unit derived from 2-methoxyethyl (meth)acrylate (a2) being 15 to 35 parts by mass per 100 parts by mass of the total constitutional units of the silyl ester copolymer (A).

10. A substrate with an antifouling coating film, comprising a substrate having provided on a surface of the substrate the antifouling coating film according to claim 8 or the laminated antifouling coating film according to claim 9.

11. The substrate with an antifouling coating film according to the claim 10, wherein the substrate has provided on the surface of the substrate an aged antifouling coating film, and the antifouling coating film provided on the aged antifouling coating film.

12. A method for producing a substrate with an antifouling coating film, comprising the following steps (1-1) and (1-2), or the following steps (2-1) and (2-2):

(1-1) a step of coating or impregnating a surface of a substrate with the antifouling coating composition according to any one of claims 1 to 7, so as to provide a coated material or an impregnated material,

(1-2) a step of drying the coated material or the impregnated material obtained in the step (1-1), so as to provide an antifouling coating film,

(2-1) a step of drying the antifouling coating composition according to any one of claims 1 to 7, so as to provide an antifouling coating film, and

(2-2) a step of adhering the antifouling coating film obtained in the step (2-1) to a substrate.

13. The method for producing a substrate with an antifouling coating film according to claim 12, wherein

the step (1-1) is a step of coating or impregnating a surface of a substrate having on a surface thereof an aged antifouling coating film, with the antifouling coating composition, so as to provide a coated material or an impregnated material, and

the step (2-2) is a step of adhering the antifouling coating film obtained in the step (2-1) on a substrate having on a surface thereof an aged antifouling coating film.

14. A repair method of an aged antifouling coating film, comprising forming the antifouling coating film according to claim 8 on the aged antifouling coating film.