CLAIMS

[Claim 1]

An antifouling coating composition comprising a hydrolyzable copolymer (A) containing an organosiloxane block and a metal ester group, and zinc oxide (B),

wherein the copolymer (A) comprises

5 to 25% by mass of a constituent unit derived from a metal ester group-containing monomer (a1),

5 to 15% by mass of a constituent unit derived from an organosiloxane block-containing monomer (a2) represented by the formula (2) below, and

a constituent unit derived from a monomer (a3) represented by the formula (3) below; and

the content of the zinc oxide (B) relative to 100 parts by mass of the content of the copolymer (A) is 70 to 200 parts by mass:

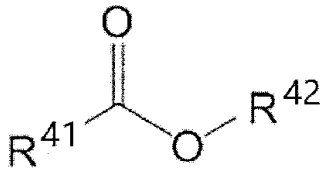
[Chem. 1]

$$R^1_{(3-p)}X_pSiO\left[\left(SiR^2_2O\right)_m\left(SiXR^3O\right)_n\right]SiX_qR^1_{(3-q)} \qquad (2)$$

[wherein R^1, R^2, and R^3 each independently represent a monovalent hydrocarbon group, X each independently represent a (meth)acryloyloxyalkyl group or a mercaptoalkyl group, m is 1 or greater, n is 0 or greater, p and q are each

independently 0 or 1, and n + p + q is 1 or greater],

[Chem. 2]

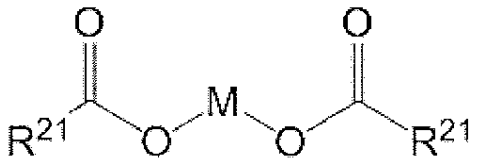


(3)

[wherein R^{41} represents a monovalent group including an ethylenically unsaturated group, and R^{42} represents a monovalent hydrocarbon group with 3 to 6 carbon atoms being free of an ethylenically unsaturated group],

wherein the monomer (a1) comprises at least one monomer selected from monomers (a11) represented by the formula (1-1) below and monomers (a12) represented by the formula (1-2) below:

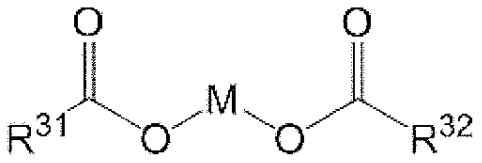
[Chem. 3]



(1-1)

[wherein R^{21} each independently represent a monovalent group including a terminal ethylenically unsaturated group, and M represents a metal atom],

[Chem. 4]



(1-2)

[wherein R^{31} represents a monovalent group including a terminal ethylenically unsaturated group, and R^{32} represents a monovalent group with 1 to 30 carbon atoms being free of a terminal ethylenically unsaturated group, and M represents a metal atom].

[Claim 2]

The antifouling coating composition according to claim 1, wherein the monomer (a3) comprises a monomer represented by the formula (3) in which R^{42} is a butyl group.

[Claim 3]

The antifouling coating composition according to claim 1 or 2, wherein the copolymer (A) has a weight average molecular weight of 3,000 to 5,000.

[Claim 4]

The antifouling coating composition according to any one of claims 1 to 3, wherein the acid value of a solvent-soluble content is 30 to 95 mgKOH/g.

[Claim 5]

An antifouling coating film formed from the antifouling coating composition according to any one of claims 1 to 4.

[Claim 6]

A substrate with an antifouling coating film, having a substrate and the antifouling coating film according to claim 5.

[Claim 7]

A method for producing a substrate with an antifouling coating film, comprising a step wherein the antifouling coating composition according to any one of claims 1 to 4 is provided on at least a part of a substrate and is subsequently dried.

[Claim 8]

An antifouling method for a substrate, comprising a step wherein the antifouling coating film according to claim 5 is formed on at least a part of a substrate.

[Claim 9]

A method for repairing a substrate with an antifouling coating film, comprising a step wherein a repair coating material is applied onto the substrate with an antifouling coating film according to claim 6.