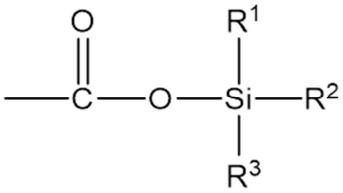
CLAIMS

1. A vehicle resin for an antifouling coating composition, the vehicle resin being a copolymer comprising:

a structural unit (A) derived from a polymerizable monomer (a) having a silicon atom-containing group represented by the following formula (1):

[Chemical 1]



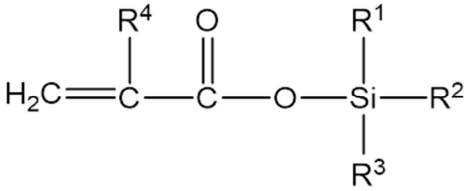
(1)

[in the formula (1), R^1, R^2, and R^3 each independently represent a hydrocarbon group having a carbon number of 1 to 6]; and

a structural unit (B) derived from a polymerizable monomer (b) copolymerizable with the polymerizable monomer (a), wherein

the polymerizable monomer (a) is a monomer represented by the following formula (2):

[Chemical 2]



(2)

[in the formula (2), R^1, R^2, and R^3 each independently represent a hydrocarbon group having a carbon number of 1 to 6, and R^4 represents a hydrogen atom or a methyl group],

a content of the structural unit (A) is greater than or equal to 50 mass% and less than or equal to 60 mass% in 100 mass% of the copolymer,

a content of the structural unit (B) is greater than or equal to 40 mass% and less than or equal to 50 mass% in 100 mass% of the copolymer,

the structural unit (B) includes a structural unit derived from (meth)acrylic acid ester containing an alkoxy group and/or an oxyalkylene chain in an ester moiety thereof, and

an acid value derived from free carboxy group is greater than or equal to 0.1 KOHmg/g and less than or equal to 60 KOHmg/g.

2. The vehicle resin according to Claim 1, wherein the acid value is greater than or equal to 0.1 KOHmg/g and less than or equal to 30 KOHmg/g.

3. The vehicle resin according to Claim 1, wherein the acid value is greater than or equal to 0.3 KOHmg/g and less than or equal to 20 KOHmg/g.

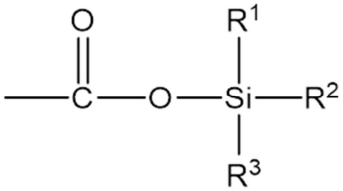
4. The vehicle resin according to any one of Claims 1 to 3, wherein the structural unit (B) includes a structural unit derived from (meth)acrylic acid, and

a content of the structural unit derived from (meth)acrylic acid is greater than or equal to 0.02 mass% and less than or equal to 8 mass% in 100 mass% of the copolymer.

5. A vehicle resin for an antifouling coating composition, the vehicle resin being a copolymer comprising:

a structural unit (A) derived from a polymerizable monomer (a) having a silicon atom-containing group represented by the following formula (1):

[Chemical 3]



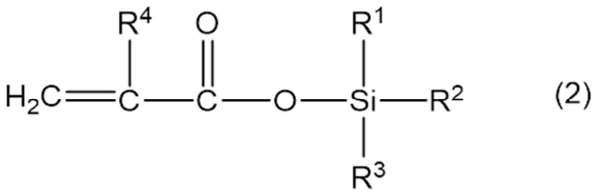
(1)

[in the formula (1), R^1, R^2, and R^3 each independently represent a hydrocarbon group having a carbon number of 1 to 6]; and

a structural unit (B) derived from a polymerizable monomer (b) copolymerizable with the polymerizable monomer (a), wherein

the polymerizable monomer (a) is a monomer represented by the following formula (2):

[Chemical 4]



(2)

[in the formula (2), R^1, R^2, and R^3 each independently represent a hydrocarbon group having a carbon number of 1 to 6, and R^4 represents a hydrogen atom or a methyl group],

a content of the structural unit (A) is greater than or equal to 50 mass% and less than or equal to 60 mass% in 100 mass% of the copolymer,

a content of the structural unit (B) is greater than or equal to 40 mass% and less than or equal to 50 mass% in 100 mass% of the copolymer,

the structural unit (B) includes a structural unit derived from (meth)acrylic acid, and a structural unit derived from (meth)acrylic acid ester containing an alkoxy group and/or an oxyalkylene chain in an ester moiety thereof, and

a content of the structural unit derived from (meth)acrylic acid is greater than or equal to 0.02 mass% and less than or equal to 8 mass% in 100 mass% of the copolymer.

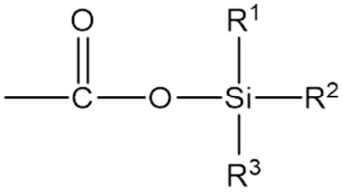
6. The vehicle resin according to Claim 4 or 5, wherein the content of the structural unit derived from (meth)acrylic acid is greater than or equal to 0.02 mass% and less than or equal to 5 mass% in 100 mass% of the copolymer.

7. The vehicle resin according to Claim 4 or 5, wherein the content of the structural unit derived from (meth)acrylic acid is greater than or equal to 0.05 mass% and less than or equal to 2.5 mass% in 100 mass% of the copolymer.

8. A vehicle resin for an antifouling coating composition, the vehicle resin being a copolymer comprising:

a structural unit (A) derived from a polymerizable monomer (a) having a silicon atom-containing group represented by the following formula (1):

[Chemical 5]



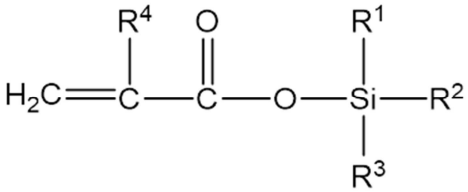
(1)

[in the formula (1), R^1, R^2, and R^3 each independently represent a hydrocarbon group having a carbon number of 1 to 6]; and

a structural unit (B) derived from a polymerizable monomer (b) copolymerizable with the polymerizable monomer (a), wherein

the polymerizable monomer (a) is a monomer represented by the following formula (2):

[Chemical 6]



(2)

[in the formula (2), R^1, R^2, and R^3 each independently represent a hydrocarbon group having a carbon number of 1 to 6, and R^4 represents a hydrogen atom or a methyl group],

a content of the structural unit (A) is greater than or equal to 50 mass% and less than or equal to 60 mass% in 100 mass% of the copolymer,

a content of the structural unit (B) is greater than or equal to 40 mass% and less than or equal to 50 mass% in 100 mass% of the copolymer,

the structural unit (B) includes a structural unit derived from (meth)acrylic acid, and

a content of the structural unit derived from (meth)acrylic acid is greater than or equal to 0.05 mass% and less than or equal to 2.5 mass% in 100 mass% of the copolymer.

9. An antifouling coating composition comprising the vehicle resin according to any one of Claims 1 to 8.

10. The antifouling coating composition according to Claim 9, further comprising an antifouling agent.