CLAIMS

1. A resin composition containing a (meth)acrylic copolymer, comprising:

at least one constituent unit (A) selected from the group consisting of a constituent unit (A1) having at least one structure (I) represented by Formula (1), Formula (2), or Formula (3), a constituent unit (A2) containing a triorganosilyloxycarbonyl group, and a constituent unit (A3) having at least one structure (III) represented by Formula (4) or Formula (5),

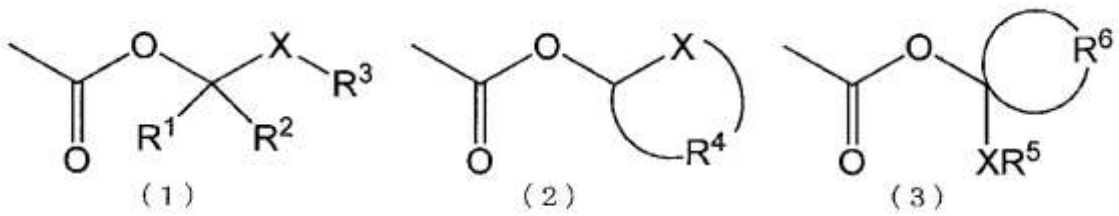
a constituent unit (B) derived from at least one polysiloxane block-containing polymerizable monomer (b) selected from the group consisting of a polymerizable monomer represented by Formula (b1), a polymerizable monomer represented by Formula (b2), a polymerizable monomer represented by Formula (b3), and a polymerizable monomer represented by formula (b4),

a constituent unit (C) derived from a macromonomer (c),

wherein the macromonomer (c) has two or more constituent units represented by Formula (c'),

wherein the content of the (meth)acrylic copolymer in the resin composition is 45% by mass or reater with respect to the total amount of the resin composition, and

wherein the content of the organic solvent in the resin composition is 15% by mass or greater with respect to the total amount of the resin composition.



-COO-M-OCO- ··· (4)

-COO-M-R^{22} ··· (5)

$CH_2=CR^{3a}$-CO-O-$(C_uH_{2u}$-O$)_v$-C_wH_{2w}-$(SiR^{3b}R^{3c}$-O$)_x$-$SiR^{3d}R^{3e}R^{3f}$ ··· (b1)

$CH_2=CR^{4a}$-CO-O-$(C_{u'}H_{2u'}$-O$)_{v'}$-$C_{w'}H_{2w'}$-$Si(OSiR^{4b}R^{4c}R^{4d})_3$ ··· (b2)

$CH_2=CR^{2a}$-CO-O-$(C_{k'}H_{2k'}$-O$)_{l'}$-$C_{m'}H_{2m'}$-$Si((OSiR^{2b}R^{2c})_r$-$OSiR^{2d}R^{2e}R^{2f})_2$-$OSi((OSiR^{2g}R^{2h})_s$-$OSiR^{2i}R^{2j}R^{2k})_2$-$C_{o'}H_{2o'}$-$(O$-$C_{p'}H_{2p'})_{q'}$-O-CO-$CR^{2l}=CH_2$ ··· (b3)

$CH_2=CR^{1a}$-CO-O-$(C_kH_{2k}$-O$)_l$-C_mH_{2m}-$(SiR^{1b}R^{1c}$-O$)_n$-$SiR^{1d}R^{1e}$-C_oH_{2o}-$(O$-$C_pH_{2p})_q$-O-CO-$CR^{1f}=CH_2$ ··· (b4)

(in Formulae (1) to (5) and (b1) to (b4), X represents -O-, -S-, or -NR^{14}-, R^{14} represents a hydrogen atom or an alkyl group, R^1 and R^2 each represents a hydrogen atom or an alkyl group having 1 to 10 carbon atoms, R^3 and R^5 each represents an alkyl group

having 1 to 20 carbon atoms, a cycloalkyl group, or an aryl group, R^4 and R^6 each represents an alkylene group having 1 to 10 carbon atoms,

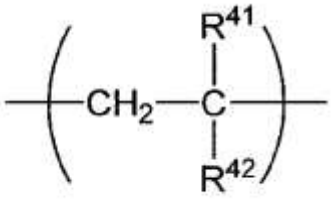
M represents Zn, Cu, Mg, or Ca, R^{22} represents a monovalent organic acid residue,

R^{3a} represents a hydrogen atom or a methyl group, u represents an integer of 2 to 5, v represents a number of 0 to 50, w represents an integer of 2 to 5, x represents a number of 3 to 80, R^{3b} to R^{3f} each represents an alkyl group, an alkoxy group, a phenyl group, a substituted phenyl group, a phenoxy group, or a substituted phenoxy group,

R^{4a} represents a hydrogen atom or a methyl group, u' represents an integer of 2 to 5, v' represents an integer of 0 to 50, w' represents an integer of 2 to 5, R^{4b} to R^{4d} each represents an alkyl group, $-(OSiR^{51}R^{52})_y-OSiR^{53}R^{54}R^{55}$ (here, y represents an integer of 0 to 20, and R^{51} to R^{55} represent an alkyl group), $-R^{56}-(OC_2H_4)_{y'}-OR^{57}$ (here, y' represents an integer of 1 to 20, R^{56} represents an alkylene group, and R^{57} represents an alkyl group),

R^{2a} and R^{2l} each represents a hydrogen atom or a methyl group, k' and p' each represents an integer of 2 to 5, l' and q' each represents a number of 0 to 50, m' and o' each represents an integer of 2 to 5, r and s each represents a number of 0 to 20, R^{2b} to R^{2k} each represents an alkyl group,

R^{1a} and R^{1f} each represents a hydrogen atom or a methyl group, k and p each represents an integer of 2 to 5, l and q each represents a number of 0 to 50, m and o each represents an integer of 2 to 5, n represents a number of 3 to 80, and R^{1b} to R^{1e} each represents an alkyl group, an alkoxy group, a phenyl group, a substituted phenyl group, a phenoxy group, or a substituted phenoxy group).



... (c')

(in Formula (c'), R^{41} represents a hydrogen atom, a methyl group, or CH_2OH, R^{42} represents OR^{43}, a halogen atom, COR^{44}, $COOR^{45}$, CN, $CONR^{46}R^{47}$, or R^{48}, R^{43} to R^{47} each independently represents a hydrogen atom, an alkyl group having an unsubstituted or substituted group, an alicyclic group having an unsubstituted or substituted group, an aryl group having an unsubstituted or substituted group, a heteroaryl group having an unsubstituted or substituted group, a non-aromatic heterocyclic group having an unsubstituted or substituted group, an aralkyl group having an unsubstituted or substituted group, an alkaryl group having an unsubstituted or substituted group, or an organosilyl group having an unsubstituted or substituted group, and R^{48} represents an aryl group having an

unsubstituted or substituted group or a heteroaryl group having an unsubstituted or substituted group).

2. The resin composition containing the (meth)acrylic copolymer according to Claim 1, wherein a number-average molecular weight of the macromonomer (c) is in a range of 500 to 50000.

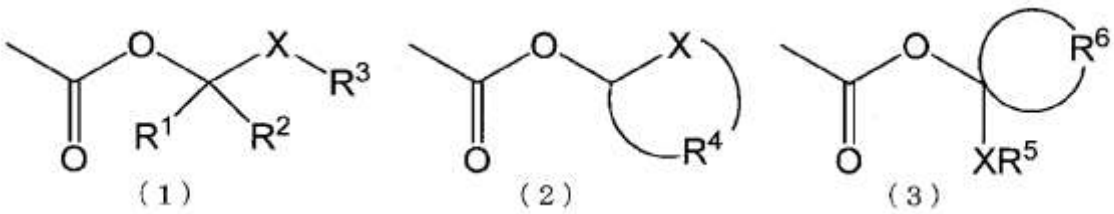
3. A method for producing a resin composition containing a (meth)acrylic copolymer, comprising:

a step of polymerizing a monomer mixture which contains at least one polymerizable monomer (a) selected from the group consisting of a polymerizable monomer (a1) having at least one structure (I) represented by Formula (1), Formula (2), or Formula (3), a polymerizable monomer (a2) containing a triorganosilyloxycarbonyl group, and a polymerizable monomer (a3) having at least one structure (III) represented by Formula (4) or Formula (5), at least one polysiloxane block-containing polymerizable monomer (b) selected from the group consisting of a polymerizable monomer represented by Formula (b1), a polymerizable monomer represented by formula (b2), a polymerizable monomer represented by Formula (b3), and a polymerizable monomer represented by Formula (b4), and a macromonomer (c) to obtain a (meth)acrylic copolymer,

wherein the macromonomer (c) has two or more constituent units represented by Formula (c'),

wherein the content of the (meth)acrylic copolymer in the resin composition is 45% by mass or reater with respect to the total amount of the resin composition, and

wherein the content of the organic solvent in the resin composition is 15% by mass or greater with respect to the total amount of the resin composition.



-COO-M-OCO- ··· (4)

-COO-M-R^{22} ··· (5)

$CH_2=CR^{3a}$-CO-O-$(C_uH_{2u}$-O$)_v$-C_wH_{2w}-$(SiR^{3b}R^{3c}$-O$)_x$-$SiR^{3d}R^{3e}R^{3f}$ ··· (b1)

$CH_2=CR^{4a}$-CO-O-$(C_{u'}H_{2u'}$-O$)_{v'}$-$C_{w'}H_{2w'}$-$Si(OSiR^{4b}R^{4c}R^{4d})_3$ ··· (b2)

$CH_2=CR^{2a}$-CO-O-$(C_{k'}H_{2k'}$-O$)_{l'}$-$C_{m'}H_{2m'}$-$Si((OSiR^{2b}R^{2c})_r$-$OSiR^{2d}R^{2e}R^{2f})_2$-$OSi((OSiR^{2g}R^{2h})_s$-$OSiR^{2i}R^{2j}R^{2k})_2$-$C_{o'}H_{2o'}$-$(O$-$C_{p'}H_{2p'})_{q'}$-O-CO-$CR^{2l}=CH_2$ ··· (b3)

$CH_2=CR^{1a}$-CO-O-$(C_kH_{2k}$-$O)_l$-C_mH_{2m}-$(SiR^{1b}R^{1c}$-$O)_n$-$SiR^{1d}R^{1e}$-C_oH_{2o}-$(O$-$C_pH_{2p})_q$-O-CO-$CR^{1f}=CH_2$ ··· (b4)

(in Formulae (1) to (5) and (b1) to (b4), X represents -O-, -S-, or $-NR^{14}$-, R^{14} represents a hydrogen atom or an alkyl group, R^1 and R^2 each represents a hydrogen atom or an alkyl group having 1 to 10 carbon atoms, R^3 and R^5 each represents an alkyl group having 1 to 20 carbon atoms, a cycloalkyl group, or an aryl group, R^4 and R^6 each represents an alkylene group having 1 to 10 carbon atoms,

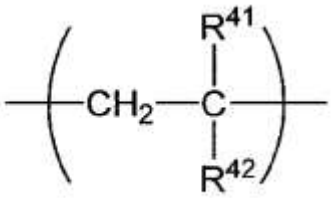
M represents Zn, Cu, Mg, or Ca, R^{22} represents a monovalent organic acid residue,

R^{3a} represents a hydrogen atom or a methyl group, u represents an integer of 2 to 5, v represents a number of 0 to 50, w represents an integer of 2 to 5, x represents a number of 3 to 80, R^{3b} to R^{3f} each represents an alkyl group, an alkoxy group, a phenyl group, a substituted phenyl group, a phenoxy group, or a substituted phenoxy group,

R^{4a} represents a hydrogen atom or a methyl group, u' represents an integer of 2 to 5, v' represents an integer of 0 to 50, w' represents an integer of 2 to 5, R^{4b} to R^{4d} each represents an alkyl group, $-(OSiR^{51}R^{52})_y$-$OSiR^{53}R^{54}R^{55}$ (here, y represents an integer of 0 to 20, and R^{51} to R^{55} represent an alkyl group), $-R^{56}$-$(OC_2H_4)_{y'}$-OR^{57} (here, y' represents an integer of 1 to 20, R^{56} represents an alkylene group, and R^{57} represents an alkyl group),

R^{2a} and R^{2l} each represents a hydrogen atom or a methyl group, k' and p' each represents an integer of 2 to 5, l' and q' each represents a number of 0 to 50, m' and o' each represents an integer of 2 to 5, r and s each represents a number of 0 to 20, R^{2b} to R^{2k} each represents an alkyl group,

R^{1a} and R^{1f} each represents a hydrogen atom or a methyl group, k and p each represents an integer of 2 to 5, l and q each represents a number of 0 to 50, m and o each represents an integer of 2 to 5, n represents a number of 3 to 80, and R^{1b} to R^{1e} each represents an alkyl group, an alkoxy group, a phenyl group, a substituted phenyl group, a phenoxy group, or a substituted phenoxy group).



··· (c')

(in Formula (c'), R^{41} represents a hydrogen atom, a methyl group, or CH_2OH, R^{42} represents OR^{43}, a halogen atom, COR^{44}, $COOR^{45}$, CN, $CONR^{46}R^{47}$, or R^{48}, R^{43} to R^{47} each independently represents a hydrogen atom, an alkyl group having an unsubstituted or substituted group, an alicyclic group having an unsubstituted or substituted group, an aryl group having an unsubstituted or substituted group, a heteroaryl group having an

unsubstituted or substituted group, a non-aromatic heterocyclic group having an unsubstituted or substituted group, an aralkyl group having an unsubstituted or substituted group, an alkaryl group having an unsubstituted or substituted group, or an organosilyl group having an unsubstituted or substituted group, and R^{48} represents an aryl group having an unsubstituted or substituted group or a heteroaryl group having an unsubstituted or substituted group).

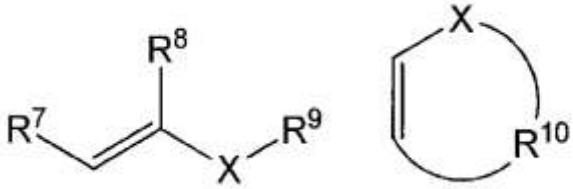
4. The resin composition containing the (meth)acrylic copolymer according to Claim 1 or 2, further comprising:

silicone oil.

5. The resin composition containing the (meth)acrylic copolymer according to Claim 1 or 2,

wherein the (meth)acrylic copolymer has the constituent unit (A1), and

the resin composition further contains at least one compound (Y) selected from the group consisting of a compound represented by Formula (31), a compound represented by Formula (32), and a compound represented by Formula (33)



(31) (32) (33)

(in Formulae (31) to (33), X represents -O-, -S-, or $-NR^{14}-$, R^{14} represents a hydrogen atom or an alkyl group, R^7 represents a hydrogen atom or an alkyl group having 1 to 9 carbon atoms, R^8 represents a hydrogen atom or an alkyl group having 1 to 10 carbon atoms, R^9 and R^{11} each represents an alkyl group having 1 to 20 carbon atoms, a cycloalkyl group, or an aryl group, R^{10} represents a single bond or an alkylene group having 1 to 9 carbon atoms, and R^{12} represents an alkylene group having 1 to 9 carbon atoms).

6. An antifouling paint composition, comprising:

the resin composition containing the (meth)acrylic copolymer according to Claim 1 or 2.

7. The antifouling paint composition according to Claim 6, further comprising:

an antifouling agent.

8. The antifouling paint composition according to Claim 6 or 7, further comprising: a thermoplastic resin other than the (meth)acrylic copolymer.