CLAIMS

1. An antifouling composite coating film, comprising:

(I) a urethane resin anticorrosive coating film formed from an anticorrosive paint composition comprising a main agent selected from the group consisting of polyols and glycidyl ethers, and an isocyanate curing agent, and

(II) an antifouling coating film that is for preventing the deposition of aquatic organisms and is formed from a curable polysiloxane composition comprising components (a), (b), and (c) below,

the urethane resin anticorrosive coating film (I) and the antifouling coating film (II) being laminated,

(a) a diorganopolysiloxane having at least two functional groups in one molecule,

(b) an organosilane having at least two hydroxyl groups or hydrolyzable groups in one molecule and/or a partial hydrolysis-condensate thereof,

(c) an amino group-containing alkoxysilane represented by the following general formula (1) and/or a reaction product thereof:

$$X\text{-}R^1\text{-}SiR^2_n(OR^3)_{3-n} \quad \ldots \quad (1)$$

wherein R^1 represents an alkylene group having 1 to 10 carbon atoms;

R^2 represents an alkyl group having 1 to 10 carbon atoms, an alkenyl group having 2 to 5 carbon atoms, or an aryl group having

6 to 12 carbon atoms;

R^3 represents an alkyl group having 1 to 10 carbon atoms;

X is a group represented by R^4R^5N- or $R^6R^7C=N-$, wherein R^4 represents a hydrogen atom, an alkyl group having 1 to 10 carbon atoms, an alkenyl group having 2 to 5 carbon atoms, an aryl group having 6 to 12 carbon atoms, or $H_2N(CH_2)_p(NH(CH_2)_q)_r-$, wherein p and q are integers of 2 to 5, and r is an integer of 0 to 5; R^5 represents a hydrogen atom, an alkyl group having 1 to 10 carbon atoms, an alkenyl group having 2 to 5 carbon atoms, or an aryl group having 6 to 12 carbon atoms; and R^6 and R^7 each independently represent a hydrogen atom, an alkyl group having 1 to 10 carbon atoms, an alkenyl group having 2 to 5 carbon atoms, or an aryl group having 6 to 12 carbon atoms; and

n is an integer of 0 to 2,

the antifouling composite coating film being used for protecting a surface of a substrate selected from the group consisting of ships, fishery materials, underwater structures and sludge scattering prevention films for various ocean civil engineering works.

2. The antifouling composite coating film according to claim 1, wherein the functional groups of the diorganopolysiloxane (a) are selected from the group consisting of a hydroxyl group, an iminoxy group, an amino group, an acetyloxy group, and an alkoxy group.

3. The antifouling composite coating film according to claim 1 or 2, wherein the organosilane and/or the partial hydrolysis-condensate thereof (b) is represented by the following

polysiloxane composition.

8. The antifouling composite coating film according to any one of claims 1 to 7, wherein the main agent is a polyol and the isocyanate curing agent is a polyisocyanate.

9. The antifouling composite coating film according to claim 8, wherein the anticorrosive paint composition has a ratio of the equivalent of an isocyanate group contained in the polyisocyanate to the equivalent of a hydroxyl group contained in the polyol [NCO group/OH group] is 0.3/1.0 to 2.0/1.0.

10. The antifouling composite coating film according to any one of claims 1 to 9, further comprising a silicone oil (e).

11. The antifouling composite coating film according to any one of claims 1 to 10, excluding an antifouling composite coating film having an antifouling film that contains a photocatalyst and exerts anti-fouling properties by activation of the photocatalyst.

12. An antifouling substrate comprising a substrate and the antifouling composite coating film according to any one of claims 1 to 11 laminated on a surface of the substrate in order of substrate/ coating film (I)/ coating film (II), wherein the substrate is selected from the group consisting of ships, fishery materials, underwater structures and sludge scattering prevention films for various ocean civil engineering works.

13. The antifouling substrate according to claim 12, wherein the substrate is an underwater structure or a ship.

14. A method for producing an antifouling substrate, comprising laminating the antifouling composite coating film according to any one of claims 1 to 11 on a surface of a substrate in order of substrate/ coating film (I)/ coating film (II), wherein the substrate is selected from the group consisting of ships, fishery materials, underwater structures and sludge scattering prevention films for various ocean civil engineering works.