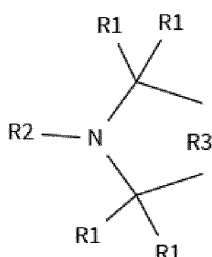


CLAIMS

1. A method for establishing a fouling-release coating system on a surface of a substrate comprising the sequential steps of;

- 5 a. optionally applying one or more layers of a primer composition onto the surface of said substrate and allowing said layer(s) to cure, thereby forming a primed substrate;
- b. applying one or more layers of silicone-containing tie-coat composition in liquid form, onto the surface of said primed substrate or said substrate, and allowing said layer(s) to cure, thereby forming a cured tie-coat layer;
- 10 c. applying one or more layers of a fouling-release coating composition onto said cured tie-coat layer, wherein said fouling-release coating composition comprises a condensation-curable polysiloxane-based binder matrix constituting at least 40 % by dry weight of said coating composition, wherein more than 65 % by weight of said binder matrix is represented by
- 15 polysiloxane parts, and allowing said fouling-release coating composition to cure; wherein said tie-coat composition and/or said fouling-release coating composition comprises constituents having poly(oxyalkylene) chains, and wherein said tie-coat composition and/or said fouling-release coating composition further comprises one or more sterically hindered amines, in
- 20 particular 2,2,6,6-tetraalkyl piperidine derivatives.

2. The method according to claim 1, wherein the sterically hindered amines are hindered amine moieties of the general formula I:



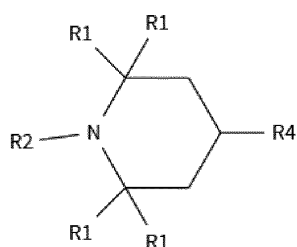
25

wherein

each R1 is independently linear or branched C₁-C₄ alkyl;

- R2 is selected from -H, optionally substituted linear or branched C₁₋₃₀-alkyl, optionally substituted linear or branched C₂₋₃₀-alkenyl, optionally substituted aryl, -OH, optionally substituted linear or branched C₁₋₃₀-alkoxy, optionally substituted linear or branched C₁₋₃₀-alkenyloxy, optionally substituted aryloxy, optionally substituted linear or branched C₁₋₃₀-alkylcarbonyl, optionally substituted C₁₋₃₀-alkenylcarbonyl, and optionally substituted arylcarbonyl;
- 10 R3 is an optionally substituted divalent group forming an N-heterocyclic 5-, 6- or 7-membered ring together with the intervening -C(R1)₂-N(R2)-C(R1)₂- group.

3. The fouling-release coat according to claim 2, wherein the hindered amine moieties are selected from 2,2,6,6-tetraalkyl piperidine moieties of general formula II:



15

- wherein R1 and R2 are defined for general formula I; and R4 represents hydrogen atom(s) or is one or two substituents selected from C₁₋₃₀-alkyl, C₁₋₃₀-alkenyl, aryl, C₁₋₃₀-alkoxy, C₁₋₃₀-alkenyloxy, aryloxy, C₁₋₃₀-alkylcarbonyl, C₁₋₃₀-alkenylcarbonyl, arylcarbonyl, C₁₋₃₀-alkylcarbonyloxy, C₁₋₃₀-alkenylcarbonyloxy, and arylcarbonyloxy, in particular from C₁₋₈-alkoxy, C₁₋₈-alkenyloxy, aryloxy, C₁₋₈-alkylcarbonyloxy, C₁₋₈-alkenylcarbonyloxy, and arylcarbonyloxy and/or the attachment point(s) for a polymer, wherein two of said substituents for R4 may form a spiro structure.
- 20

- 25 4. The method according to claim 3, wherein R2 is not H and/or R2 is not -OH.

5. The method according to any one of claims 3-4, wherein the sterically hindered amine(s) comprises 2,2,6,6-tetraalkyl piperidine moieties of the general formula II, and wherein the piperidine derivative(s) are selected from the following types: N-C₁₋₃₀-alkyl

piperidine derivatives, N-C₁₋₃₀-alkenyl piperidine derivatives, N-aryl piperidine derivatives, N-C₁₋₃₀-alkoxy piperidine derivatives, N-C₁₋₃₀-alkenyloxy piperidine derivatives, N-aryloxy piperidine derivatives, N-C₁₋₃₀-alkylcarbonyl piperidine derivatives, N-C₁₋₃₀-alkenylcarbonyl piperidine derivatives, and N-arylcarbonyl piperidine derivatives.

5 6. The method according to any one of the preceding claims, wherein hindered amine moieties, in particular 2,2,6,6-tetraalkyl piperidine moieties, are present in the coat in an amount of 0.003-0.5 mol/kg per coating layer.

7. The method according to any one of the preceding claims, wherein the sterically hindered amine(s), in particular 2,2,6,6-tetraalkyl piperidine derivative(s), are in liquid form
10 at 20 °C.

8. The method according to any one of the preceding claims, wherein the constituent having poly(oxyalkylene) chains is selected from poly(oxyalkylene)-modified alcohols of the general formula (I):

15 $(\text{POA-O})_x\text{-R-}(\text{-O-FA})_y$ (I)

wherein

each POA represents a poly(oxyalkylene) moiety,

each FA represents a C₈₋₃₀ fatty acyl moiety,

R represents the organic residue of an alcohol R(OH)_{x+y}, said organic residue having 2-50
20 carbon atoms, and
X is 1-5, Y is 0-10 and X+Y is 1-12.

9. The method according to any one of the preceding claims, wherein said tie-coat composition comprises one or more cross-linkable polysiloxanes, preferably selected from hydroxy-functional polysiloxanes, C₁-C₄ alkoxy-functional polysiloxanes, amino-functional
25 polysiloxanes and epoxy-functional polysiloxanes.

10. The method according to any one of the preceding claims, wherein said tie-coat composition comprises 3-90%, preferably 10-80%, more preferably 20-60%, even more preferably 3-15%, or more preferably more than 40% of said one or more cross-linkable polysiloxanes, by wet weight of the total tie-coat composition.

30 11. The method according to any one of the preceding claims, wherein said tie-coat composition additionally comprises one or more hydrolysable silanes having two or more hydrolysable groups.

12. The method according to claim 10, wherein said tie-coat composition comprises up to 30% of said one or more hydrolysable silanes having two or more hydrolysable groups, by wet weight of the total tie-coat composition.
13. The method according to any one of the preceding claims, wherein said tie-coat
5 composition comprises one or more epoxy-functional polymers.
14. The method according to any one of the preceding claims, wherein said primer composition is an epoxy-based primer composition.
15. The method according to any one of the preceding claims, wherein the sterically hindered amine(s), in particular 2,2,6,6-tetraalkyl piperidine derivative(s), are present in a
10 total amount of 0.05-10 % by dry weight of said topcoat composition.
16. The method according to any one of the preceding claims, wherein the sterically hindered amine(s), in particular 2,2,6,6-tetraalkyl piperidine derivative(s), are immobilized, e.g. by covalent attachment, to the condensation-curable polysiloxane-based binder matrix or to a filler, e.g. silica.
- 15 17. The method according to any one of the preceding claims, wherein the poly(oxyalkylene) chains have a number average molecular weight (M_n) in the range of 200-50,000 g/mol.
18. The method according to any one of the preceding claims, wherein the constituent having poly(oxyalkylene) chains is selected from poly(oxyalkylene)-modified polysiloxane
20 oils.
19. The method according to any one of the preceding claims, wherein the poly(oxyalkylene) chains are covalently attached to the polysiloxane-based binder matrix.
20. The method according to any one of the preceding claims, wherein said tie-coat comprises one or more poly(oxyalkylene)-modified polysiloxane oils.
- 25 21. The method according to any one of the preceding claims, wherein said tie-coat comprises one or more sterically hindered amines as defined in any one of claims 1-5.
22. A fouling-release coating system obtained by the method of any of the preceding claims.

23. A fouling-release coating system comprising:
- a. a substrate,
 - b. optionally one or more primer layers,
 - c. at least one silicone-containing tie-coat layer
- 5 d. a fouling-release layer comprising a condensation-cured polysiloxane-based binder matrix constituting at least 40 % by dry weight of said coat, wherein more than 65 % by weight of said binder matrix is represented by polysiloxane parts, said coat comprising constituents having poly(oxyalkylene) chains,
- 10 wherein said tie-coat layer and/or said fouling-release layer further comprises one or more sterically hindered amines, in particular 2,2,6,6-tetraalkyl piperidine derivatives.
24. The coating system according to claim 23, wherein said tie-coat layer comprises one or more poly(oxyalkylene)-modified polysiloxane oils
25. The coating system according to any one of claims 23-24, wherein said tie-coat layer
- 15 comprises one or more sterically hindered amines as defined in any one of claims 1-5.
26. The coating system according to claim 25, wherein hindered amine moieties, in particular 2,2,6,6-tetraalkyl piperidine moieties, are present in the tie-coat layer in an amount of 0.003-0.5 mol/kg of the layer.