SUMMARY

In an aspect, a method for establishing a fouling-release coating system on a surface of a substrate is provided, which comprises the sequential steps of;

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;

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 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 particular 2,2,6,6-tetraalkyl piperidine derivatives.

In another aspect, a fouling-release coating system obtained by this method as defined above is also provided. In another aspect, a fouling-release coating system is also provided which comprises:

a. a substrate,
b. optionally one or more primer layers,
c. at least one silicone-containing tie-coat layer
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,

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.

Further details of the disclosure are set out in the dependent claims and the following description.

DETAILED DISCLOSURE

In a first aspect, a method is provided for establishing a fouling-release coating system on a surface of a substrate.

The term "substrate" is intended to mean a solid material onto which a coating composition may be applied. The substrate typically comprises a metal such as steel, iron, aluminium, or a glass-fibre. In the most interesting embodiments, the substrate is a metal substrate, in particular a steel substrate. In an alternative embodiment, the substrate is a glass-fibre substrate.

The term "surface" is used in its normal sense, and refers to the exterior boundary of an object upon which the fouling-release coating system of the invention is applied. As such, the surface of the substrate may either be the "native" surface (e.g. the steel surface). However, the substrate is typically coated, e.g. with an anticorrosive coating, so that the surface of the substrate is constituted by such a coating. Alternatively, the substrate may carry a paint coat, e.g. a worn-out antifouling coat or similar. When present, the anticorrosive coat is typically applied in a total dry film thickness of 100-600 µm, such as 150-450 µm, e.g. 200-400 µm.

Particular examples of surfaces suitable for coating according to the invention are surfaces of vessels (including but not limited to boats, yachts, motorboats, motor launches, ocean liners, tugboats, tankers, container ships and other cargo ships, submarines, and naval vessels of all types), pipes, shore and off-shore machinery, constructions and objects of all types such as piers, pilings, bridge substructures, water-power installations and structures, underwater oil well structures, nets and other aquatic culture installations, and buoys, etc.

Primer coating

In a first optional step, the method comprises the applying one or more layers of a primer composition onto the surface of said substrate and allowing said layer(s) to cure, thereby