WHAT IS CLAIMED IS:

1. A composition for a coating, comprising:

epoxy-functional monomers;

a diluent; and

a sufficient amount of a hydrophobicity-modifying additive that is reactive in an epoxide polymerization to provide a coating formed from the composition having a contact angle of at least 90° when measured with an Ossila Goniometer following ASTM D7334 - 08(2013).

2. The composition of claim 1, further comprising:

a sufficient amount of a wear-inhibiting additive to provide a coating formed from the composition having improved corrosion resistance of at least 1000 hours when measured by salt fog resistance, an increased mechanical strength with a D-shore hardness of at least 40D, or a bending strength of at least 10 mm when measured by a cylindrical bed test; and/or a sufficient amount of an amphiphilicity-modifying additive to provide a coating formed from the composition having a wet coefficient of friction of ≤ 0.2 when measured using an ASM 925 COF meter following ASTM D2047.

3. The composition of claim 1 or 2, further comprising at least one:

dispersant for dispersing the wear-inhibiting additive in the composition;

defoamer; and/or

rheological additive.

4. The composition of any one of claims 1 to 3, wherein the epoxy-functional monomers comprise:

bisphenol diglycidyl ethers;

epoxy-functional epoxide-siloxane monomers;

a reaction product of epichlorohydrin and one or more of hydroxyl-functional aromatics, alcohols, thiols, acids, acid anhydrides, cycloaliphatics and aliphatics, polyfunctional amines, and amine functional aromatics;

a reaction product of the oxidation of unsaturated cycloaliphatics; or

a combination thereof.

5. The composition of claim 4, wherein the epoxy-functional epoxide-siloxane monomers comprise an epoxide backbone comprising siloxane or polysiloxane side-chains.

6. The composition of claim 5, wherein:

the epoxide backbone is a polyether backbone;

the siloxane or polysiloxane side-chains are linear, branched, or crosslinked; and/or

at least one of the siloxane or polysiloxane side-chains is a cross-linked silicone resin.

7. The composition of any one of claims 4 to 6, wherein the epoxy-functional epoxide-siloxane monomers comprise:

a reaction product of isocyanate and/or polyurethane oligomers, silane oligomers, and epoxy oligomers;

an epoxy-functional epoxide-siloxane pre-polymer;

a 3-ethylcyclohexylepoxy copolymer modified with dimethylsiloxane side-chains, an epoxy bisphenol A (2,2-Bis(4'-glycidyloxyphenyl)propane) modified with the poly-dimethylsiloxane side-chains, a siloxane modified hybrid epoxy resin, a siliconeepoxide resin, an epoxy-functional epoxide-backbone functionalized with a crosslinked silicone resin comprising terminal alkoxy groups, or a combination thereof; and/or

Silikopon® ED, Silikopon® EF, EPOSIL Resin 5550®, or a combination thereof.

8. The composition of any one of claims 1 to 7, wherein the diluent comprises a reactive diluent that is reactive in an epoxide polymerization, a diluent that is reactive as a curing catalyst; a non-reactive diluent, or a combination thereof.

9. The composition of claim 8, wherein the reactive diluent comprises the hydrophobicity-modifying additive, poly[(phenyl glycidyl ether)-co-formaldehyde], alkyl (C12-C14) glycidyl ether, phenyl glycidyl ether, butyl glycidyl ether, 2-ethylhexyl glycidyl ether, o-cresol glycidyl ether, cycloaliphatic glycidyl ether, dipropylene glycol n-propyl ether, dipropylene glycol dimethyl ether, or a combination thereof.

10. The composition of claim 8 or 9, wherein the non-reactive diluent comprises xylene, methyl acetate, methyl ethyl ketone, nonyl phenol, cyclohexanedimethanol, n-butyl alcohol, benzyl alcohol, isopropyl alcohol, propylene glycol, phenol, or a combination thereof.

11. The composition of any one of claims 1 to 10, wherein the hydrophobicity-modifying additive comprises at least one Si-based additive, at least one fluoro-based additive, at least one maleimide-based additive, or a combination thereof.

12. The composition of claim 11, wherein the hydrophobicity-modifying additive comprises an epoxy-functional silane, an epoxy-functional polydialkylsiloxane, or a combination thereof.

13. The composition of claim 12, wherein the epoxy-functional silane comprises glycidoxypropyltrimethoxysilane optionally in a range of about 0 wt% to about 6 wt%, or in a range of about 1 wt% to about 2 wt%.

14. The composition of claim 12 or 13, wherein the epoxy-functional polydialkylsiloxane comprises epoxy-functional polydimethylsiloxaneoptionally in a range of about 0.05 wt% to about 10 wt%, or in a range of about 0.5 wt% to about 8 wt%.

15. The composition of any one of claims 11 to 14, wherein the sufficient amount of the hydrophobicity-modifying additive provides a coating formed from the composition having a contact angle of about 90° to about 130°, or about 90° to about 120°, about 95° to about 120°, about 100° to about 120°, or about 100° to about 115°.

16. The composition of claim 2, or any one of claims 3 to 15 when dependent on claim 2, wherein the wear-inhibiting additive comprises unmodified graphene nanoplatelets, unmodified graphite flakes, carbon black, fullerene, titanium dioxide, aluminum oxide, Ca magnesium silicate, zinc oxide, or a combination thereof.

17. The composition of claim 16, wherein the unmodified graphene nanoplatelets:

have a flake size of at least 3 µm, or about 3 µm to about 50 µm, or about 5 µm to about 10 µm; and/or

are present in a range of about 0.05 wt% to about 5 wt%; or about 0.3 wt%.

18. The composition of claim 16 or 17, wherein the unmodified graphite flakes:

have a flake size of at least 3 µm; or about 3 µm to about 50 µm; or about 10 µm to about 20 µm; and/or

are present in a range of about 0.1 wt% to about 10 wt%; or about 5 wt%.

19. The composition of any one of claims 16 to 18, wherein the titanium dioxide, aluminum oxide, or Ca magnesium silicate, or combination thereof are present in a range of about 5 wt% to about 30 wt%; or about 10 wt% to about 25 wt%; or about 5 wt% to about 10 wt%.

20. The composition of any one of claims 16 to 19, wherein the sufficient amount of the wear-inhibiting additive provides a coating formed from the composition having improved corrosion resistance of about 1500 hours to about 8500 hours, or about 4000 hours to about 7000 hours when measured by salt fog resistance; or an increased mechanical strength with a D-shore hardness of about 65D to about 90D, or about 65D to about 85D, or about 70D to about 80D.

21. The composition of claim 2, or any one of claims 3 to 20 when dependent on claim 2, wherein the amphiphilicity-modifying additive comprises a polyether, a polysiloxane, a polyelectrolyte, a polyatomic alcohol, or a combination thereof.

22. The composition of claim 21, wherein the polysiloxane comprises:

a hydroxyl-functionalized polysiloxane, a hydroxyalkyl-functionalized polysiloxane, a fluorohydroxyalkyl-functionalized polysiloxane, or a combination thereof, optionally in a range of about 1 wt% to about 20 wt%, or about 5 wt% to about 15 wt%; and/or

Silmer® OHT Di-10, Silmer® OHT Di-50, Silmer® OHT Di-100, Silmer® OHFB10, or a combination thereof.

23. The composition of claim 21 or 22, wherein the polyelectrolyte comprises an ammonium-functionalized polysiloxane, a dialkyl quaternary ammonium modified-polysiloxane, and/or Silquat®3180;

optionally in a range of about 0.5 wt% to about 10 wt%, or about 1 wt% to about 5 wt%.

24. The composition of any one of claims 21 to 23, wherein the sufficient amount of the amphiphilicity-modifying additive provides a coating formed from the composition having a wet coefficient of friction when measured using an ASM 925 COF meter following ASTM

D2047 of about 0.05 to about 0.2; or about 0.05 to about 0.15; or about 0.06 to about 0.11; or about 0.08 to about 0.12.

25. The composition of claim 3, or any one of claims 4 to 24 when dependent on claim 3, wherein the dispersant is a polymeric dispersant.

26. The composition of claim 25, wherein the polymeric dispersant is Additol VXW 6208, Soldplus D610, K-Sperse A504, or a combination thereof;

optionally present in a range of about 0.1 wt% to about 5 wt%.

27. The composition of claim 3, or any one of claims 4 to 26 when dependent on claim 3, wherein the defoamer comprises a silicone-modified defoamer.

28. The composition of claim 27, wherein the silicone-modified defoamer comprises Additol VXW 6210N, BYK-A 530, Tego Airex 900® or a combination thereof.

29. The composition of claim 28, wherein the silicone-modified defoamer comprises Tego Airex 900®, optionally present in a range of about 0.05 wt% to about 2 wt%.

30. The composition of claim 3, or any one of claims 4 to 29 when dependent on claim 3, wherein the rheological additive comprises a fumed silica, a castor oil derivative; bentonite, montmorillonite, a modified montmorillonite clay; or a combination thereof;

optionally present in a range of about 0.01 wt% to about 3 wt%.

31. The composition of claim 30, wherein the castor oil derivative is Thixatrol ST®.

32. The composition of any one of claims 1 to 31, further comprising a hardener, the hardener being reactive in curing the composition to form a coating.

33. The composition of claim 32, wherein the hardener comprises:

an amine hardener, an amide hardener, or a combination thereof;

an silamine hardener;

a low-temperature hardener;

a curing catalyst; and/or

a low-temperature curing catalyst.

34. The composition of claim 33, wherein:

the amine hardener, amide hardener, or combination thereof comprises

a reaction product of triethylenetetramine with phenol and formaldehyde and polyethylenepolyamines; polyamide; triethylenetetramine and polyoxypropylenediamine; polyether amine; polyamine; phenalkamine and polyamide; phenalkamine; or a combination thereof, or

primary amine-modified phenalkamine, benzyl dimethylamine, N,N-di-(2-hydroxyethyl)aniline, triethanolamine, aminopropyltriethoxysilane, bis(3-triethoxysilylpropyl)amine, or a combination thereof;

the silamine hardener comprises aminopropyltriethoxysilane (Andisil 1100), bis(3-triethoxysilylpropyl)amine (Dynasylan 1146), or N-2-aminoethyl-3-aminopropyltrimethoxysilane (Dynasylan DAMO), or a combination thereof;

the low-temperature hardener comprises phenalkamine; and/or

the curing catalyst comprises 2,4,6-tris[(dimethyllamino)methyl]phenol, benzyl dimethylamine (BDMA), imidazole, N,N-di-(2-hydroxyethyl)aniline, 2,4,6-tris[(dimethyllamino)methyl]phenol, triethanolamine, or a combination thereof.

35. The composition of any one of claims 1 to 34, wherein the composition is:
a solvent-borne composition;

free of elastomeric monomers, pre-polymers, or resins; and/or epoxy-functional elastomeric monomers, pre-polymers, or resins; and/or

free of elastomeric monomers, pre-polymers, or resins, and/or epoxy-functional elastomeric monomers, pre-polymers, or resins that comprise butenes, polybutenes, butadienes, polybutadienes, nitrites acrylonitiriles, polysulfides, urethanes, urethane-modified resins (for example, urethane-modified epoxy resins), or combinations thereof.

36. A reaction product of the composition of any one of claims 1 to 31 and 35, and a hardener.

37. Use of a composition for a coating of any one of claims 1 to 35 for forming a coating on a substrate, wherein optionally:

the substrate is a surface of marine equipment, or a marine vessel; or
the substrate is a surface of a boat or ship.

38. A coating comprising a reaction product of a composition for a coating of any one of claims 1 to 31 and 35, and a hardener.

39. The coating of claim 38, wherein the hardener comprises:
an amine hardener, an amide hardener, or a combination thereof,
an silamine hardener,
a low-temperature hardener,
a curing catalyst, and/or
a low-temperature curing catalyst;
wherein optionally:
the amine hardener, amide hardener, or combination thereof comprises a reaction product of triethylenetetramine with phenol and formaldehyde and polyethylenepolyamines; polyamide; triethylenetetramine and olyoxypropylenediamine; polyether amine; polyamine; phenalkamine and polyamide; phenalkamine; or a combination thereof, or
primary amine-modified phenalkamine, benzyl dimethylamine, N,N-di-(2-hydroxyethyl)aniline, triethanolamine, aminopropyltriethoxysilane, bis(3-triethoxysilylpropyl)amine, or a combination thereof;

the silamine hardener comprises aminopropyltriethoxysilane (Andisil 1100), bis(3-triethoxysilylpropyl)amine (Dynasylan 1146), or N-2-aminoethyl-3-aminopropyltrimethoxysilane (Dynasylan DAMO), or a combination thereof,
the low-temperature hardener comprises phenalkamine; and/or

the low-temperature curing catalyst comprises 2,4,6-tris[(dimethyllamino)methyl]phenol.

40. An additives composition for use in forming a coating, the composition comprising
a sufficient amount of a hydrophobicity-modifying additive that is reactive in an epoxide polymerization for forming a coating having a contact angle of at least 90° when measured with an Ossila Goniometer following ASTM D7334 - 08(2013);

a sufficient amount of a wear-inhibiting additive for forming a coating having improved corrosion resistance of at least 1000 hours when measured by salt fog resistance, an increased mechanical strength with a D-shore hardness of at least 40D, or a bending strength of at least 10 mm when measured by a cylindrical bed test; and optionally a sufficient amount of an amphiphilicity-modifying additive to provide a coating formed from the composition having a wet coefficient of friction of ≤ 0.2 when measured using an ASM 925 COF meter following ASTM D2047.

41. The additives composition of claim 40, further comprising at least one:

dispersant for dispersing the wear-inhibiting additive; defoamer; and/or rheological additive.

42. The additives composition of claim 40 or 41, wherein the hydrophobicity-modifying additive comprises at least one Si-based additive, at least one fluoro-based additive, at least one maleimide-based additive, or a combination thereof.

43. The additives composition of claim 42, wherein the hydrophobicity-modifying additive comprises an epoxy-functional silane, an epoxy-functional polydialkylsiloxane, or a combination thereof.

44. The additives composition of claim 43, wherein:

the epoxy-functional silane comprises glycidoxypropyltrimethoxysilane; optionally in a range of about 0 wt% to about 6 wt%, or in a range of about 1 wt% to about 2 wt%; and/or

the epoxy-functional polydialkylsiloxane comprises epoxy-functional polydimethylsiloxane; optionally in a range of about 0.05 wt% to about 10 wt%, or in a range of about 0.5 wt% to about 8 wt%.

45. The additives composition of any one of claims 40 to 44, wherein the wear-inhibiting additive comprises unmodified graphene nanoplatelets, unmodified graphite flakes, carbon black, fullerene, titanium dioxide, aluminum oxide, Ca magnesium silicate, zinc oxide, or a combination thereof.

46. The additives composition of claim 45, wherein:

the unmodified graphene nanoplatelets have a flake size of at least 3 μm; or about 3 μm to about 50 μm; or about 5 μm to about 10 μm, and optionally present in a range of about 0.05 wt% to about 5 wt%; or about 0.3 wt%; and/or

the unmodified graphite flakes have a flake size of at least 3 μm; or about 3 μm to about 50 μm; or about 10 μm to about 20 μm, and optionally are present in a range of about 0.1 wt% to about 10 wt%; or about 5 wt%.

47. The additives composition of claim 45 or 46, wherein the titanium dioxide, aluminum oxide, or Ca magnesium silicate, or combination thereof are present in a range of about 5 wt% to about 30 wt%; or about 10 wt% to about 25 wt%; or about 5 wt% to about 10 wt%.

48. The additives composition of any one or claims 40 to 47, wherein when the additives composition comprises the amphiphilicity-modifying additive, the amphiphilicity-modifying additive comprises a polyether, a polysiloxane, a polyelectrolyte, a polyatomic alcohol, or a combination thereof.

49. The additives composition of claim 48, wherein:

the polysiloxane comprises

a hydroxyl-functionalized polysiloxane, a hydroxyalkyl-functionalized polysiloxane, a fluorohydroxyalkyl-functionalized polysiloxane, or a combination thereof, and/or

Silmer® OHT Di-10, Silmer® OHT Di-50, Silmer® OHT Di-100, Silmer® OHFB10, or a combination thereof,

optionally in a range of about 1 wt% to about 20 wt%, or about 5 wt% to about 15 wt%; and/or

the polyelectrolyte comprises

an ammonium-functionalized polysiloxane, a dialkyl quaternary ammonium modified-polysiloxane, and/or

Silquat®3180,

optionally in a range of about 0.5 wt% to about 10 wt%, or about 1 wt% to about 5 wt%.

50. The additives composition of claim 40 to 49, wherein:

the sufficient amount of the hydrophobicity-modifying additive is sufficient for forming a coating having a contact angle of about 90° to about 130°, or about 90° to about 120°, about 95° to about 120°, or about 100° to about 120°, or about 100° to about 115°;

the sufficient amount of the wear-inhibiting additive is sufficient for forming a coating having improved corrosion resistance of about 1500 hours to about 8500 hours, or about 4000 hours to about 7000 hours when measured by salt fog resistance; or an increased mechanical strength with a D-shore hardness of about 65D to about 90D, or about 65D to about 85D, or about 70D to about 80D; and/or

when the additives composition comprises the amphiphilicity-modifying additive, the sufficient amount of the amphiphilicity-modifying additive provides a coating formed from the composition having a wet coefficient of friction when measured using an ASM 925 COF meter following ASTM D2047 of about 0.05 to about 0.2; or about 0.05 to about 0.15; or about 0.06 to about 0.11; or about 0.08 to about 0.12.

51. The additives composition of claim 41, or any one of claims 42 to 50 when dependent on claim 41, wherein:

the at least one dispersant is a polymeric dispersant, wherein optionally

the polymeric dispersant is Additol VXW 6208, Soldplus D610, K-Sperse A504, or a combination thereof, and/or

the polymeric dispersant is present in a range of about 0.1 wt% to about 5 wt%;

the defoamer comprises a silicone-modified defoamer, wherein optionally

the silicone-modified defoamer is Additol VXW 6210N, BYK-A 530, Tego Airex 900®, or a combination thereof; or

the silicone-modified defoamer comprises Tego Airex 900® present in a range of about 0.05 wt% to about 2 wt%; and/or

the at least one rheological additive comprises a fumed silica, a castor oil derivative; bentonite, montmorillonite, or a modified montmorillonite clay; or combination thereof, wherein optionally

the at least one rheological additive is present in a range of about 0.01 wt% to about 3 wt%; and/or

the at least one rheological additive comprises Thixatrol ST®.

52. The composition of claim 1, further comprising:

a sufficient amount of a wear-inhibiting additive to provide a coating formed from the composition having improved corrosion resistance of at least 1000 hours when measured by salt fog resistance, an increased mechanical strength with a D-shore hardness of at least 40D, or a bending strength of at least 10 mm when measured by a cylindrical bed test;

at least one dispersant for dispersing the wear-inhibiting additive in the composition;

a sufficient amount of an amphiphilicity-modifying additive to provide a coating formed from the composition having a wet coefficient of friction of ≤ 0.2 when measured using an ASM 925 COF meter following ASTM D2047;

at least one defoamer; and/or

at least one rheological additive.

53. The composition of claim 52, wherein

the epoxy-functional monomers comprise

bisphenol diglycidyl ethers, optionally bisphenol diglycidyl ethers derived from bisphenol A, bisphenol F, bisphenol S, or a combination thereof;

epoxy-functional epoxide-siloxane monomers, optionally a 3-ethylcyclohexylepoxy copolymer modified with dimethylsiloxane side-chains, an epoxy bisphenol A (2,2-Bis(4'-glycidyloxyphenyl)propane) modified with the poly-dimethylsiloxane side-chains, a siloxane modified hybrid epoxy resin, a siliconeepoxide resin, an epoxy-functional epoxide-backbone functionalized with a crosslinked silicone resin comprising terminal alkoxy groups, Silikopon® ED, Silikopon® EF, EPOSIL Resin 5550®, or a combination thereof;

a reaction product of epichlorohydrin and one or more of hydroxyl-functional aromatics, alcohols, thiols, acids, acid anhydrides, cycloaliphatics and aliphatics, polyfunctional amines, and amine functional aromatics;

a reaction product of the oxidation of unsaturated cycloaliphatics;

or a combination thereof;

the diluent comprises a reactive diluent, optionally the hydrophobicity-modifying additive, poly[(phenyl glycidyl ether)-co-formaldehyde], alkyl (C12-C14) glycidyl ether, butyl glycidyl ether, or a combination thereof; non-reactive diluent, optionally xylene, methyl acetate, methyl ethyl ketone, nonyl phenol, cyclohexanedimethanol, n-butyl alcohol, benzyl alcohol, isopropyl alcohol, propylene glycol, phenol, or a combination thereof; or a combination thereof; and/or

the hydrophobicity-modifying additive comprises an epoxy-functional silane, optionally glycidoxypropyltrimethoxysilane; an epoxy-functional polydialkylsiloxane, such as epoxy-functional polydimethylsiloxane; or a combination thereof.

54. The composition of claim 52 or 53, wherein

the wear-inhibiting additive comprises unmodified graphene nanoplatelets, unmodified graphite flakes, carbon black, fullerene, titanium dioxide, aluminum oxide, Ca magnesium silicate, zinc oxide, or a combination thereof;

the at least one dispersant is a polymeric dispersant, optionally Additol VXW 6208, Soldplus D610, K-Sperse A504, or a combination thereof;

the amphiphilicity-modifying additive comprises a polyether, a polysiloxane, a polyelectrolyte, a polyatomic alcohol, or a combination thereof,

wherein the amphiphilicity-modifying additive optionally comprises a polyalkylene glycol a polysiloxane comprising a hydroxyl-functionalized polysiloxane, a hydroxyalkyl-functionalized polysiloxane, a fluorohydroxyalkyl-functionalized polysiloxane, or a combination thereof; an ammonium-functionalized polysiloxane; or a combination thereof;

the defoamer comprises a silicone-modified defoamer, optionally Additol VXW 6210N, Tego Airex 900®, or a combination thereof; and/or

the at least one rheological additive comprises a fumed silica, a castor oil derivative; bentonite, montmorillonite; or a modified montmorillonite clay, or a combination thereof.

55. The composition of any one of claims 52 to 54, further comprising

an silamine hardener, wherein the silamine hardener optionally comprises aminopropyltriethoxysilane (Andisil 1100), bis(3-triethoxysilylpropyl)amine (Dynasylan 1146), or N-2-aminoethyl-3-aminopropyltrimethoxysilane (Dynasylan DAMO), or a combination thereof; and/or

a curing catalyst, optionally 2,4,6-tris[(dimethyllamino)methyl]phenol, benzyl dimethylamine (BDMA), imidazole, N,N-di-(2-hydroxyethyl)aniline, 2,4,6-tris[(dimethyllamino)methyl]phenol, triethanolamine, or a combination thereof.