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.

3. The composition of claim 1 or 2,; and/or further comprising 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.

43. The composition of claim 2 1 or 32, further comprising at least one:

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

5. The composition of any one of claims 1 to 4, further comprising at least one defoamer.

6. The composition of any one of claims 1 to 5, further comprising; and/or at least one rheological additive.

74. The composition of any one of claims 1 to 63, 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.

~~8. The composition of any one of claims 1 to 7, wherein the epoxy-functional monomers comprise:~~

~~bisphenol diglycidyl ethers;~~

~~epoxy-functional epoxide-siloxane monomers; or~~

~~a combination thereof.~~

~~9. The composition of claim 7 or 8, wherein the bisphenol diglycidyl ethers are derived from bisphenol A, bisphenol F, bisphenol S, or a combination thereof.~~

~~10~~5. The composition of ~~any one of claims 7 to 9~~claim 4, wherein the epoxy-functional epoxide-siloxane monomers comprise an epoxide backbone comprising siloxane or polysiloxane side-chains.

~~11~~6. The composition of claim ~~10~~5, wherein:

the epoxide backbone is a polyether backbone~~.~~

~~12. The composition of claim 10 or 11, wherein;~~

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

~~13. The composition of any one of claims 10 or 12, wherein~~

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

~~14~~7. The composition of any one of claims ~~7~~ 4 to ~~13~~6, wherein the epoxy-functional epoxide-siloxane monomers comprise:

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

~~15. The composition of any one of claims 7 to 14, wherein the epoxy-functional epoxide-siloxane monomer comprises;~~

~~-~~an epoxy-functional epoxide-siloxane pre-polymer~~.~~

~~16. The composition of any one of claims 7 to 15, wherein the epoxy-functional epoxide-siloxane monomer comprises;~~

~~-~~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~~.~~

~~17. The composition of any one of claims 7 to 16, wherein the epoxy-functional epoxide-siloxane monomer comprises~~; and/or

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

~~18~~8. The composition of any one of claims 1 to ~~17~~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.

~~19. The composition of claim 18, wherein the diluent is reactive as a curing catalyst.~~

~~20~~9. The composition of claim ~~18 or 19~~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.

~~21. The composition of claim 20, wherein the reactive diluent comprises poly[(phenyl glycidyl ether)-co-formaldehyde],alkyl (C12-C14) glycidyl ether, or a combination thereof.~~

~~22. The composition of any one of claims 18 to 21, wherein the reactive diluent comprises the hydrophobicity-modifying additive.~~

~~23~~10. The composition of ~~any one of claims 18 to 22~~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.

~~24. The composition of claim 23, wherein the non-reactive diluent comprises benzyl alcohol, xylene, methyl acetate, methyl ethyl ketone, or a combination thereof.~~

~~25~~11. The composition of any one of claims 1 to ~~24~~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.

~~26. The composition of any one of claims 1 to 25, wherein the hydrophobicity-modifying additive comprises at least one Si-based additive, at least one maleimide-based additive, or a combination thereof.~~

~~27. The composition of claim 25 or 26, wherein the hydrophobicity-modifying additive comprises a bis-maleimide oligomer, an epoxy-functional silane, an epoxy-functional polydialkylsiloxane, or a combination thereof.~~

~~28~~12. The composition of claim ~~27~~11, wherein the hydrophobicity-modifying additive comprises an epoxy-functional silane, an epoxy-functional polydialkylsiloxane, or a combination thereof.

~~29. The composition of claim 27 or 28, wherein the hydrophobicity-modifying additive comprises an epoxy-functional polydialkylsiloxane.~~

~~30. The composition of any one of claims 25 to 29, wherein the bis-maleimide oligomer comprises BMI 689, BMI 737, BMI 1100, BMI 1400, BMI 1500, BMI 1700, or a combination thereof.~~

~~31. The composition of any one of claims 25 to 30, wherein the bis-maleimide oligomer comprises BMI 1400, BMI 1500, BMI 1700, or a combination thereof.~~

~~32. The composition of claim 31, wherein the BMI 1400, BMI 1500, or BMI 1700 is present in a range of about 10 wt% to about 20 wt%.~~

~~33~~13. The composition of ~~any one of claims 25 to 32~~claim 12, wherein the epoxy-functional silane comprises glycidoxypropyltrimethoxysilane~~.~~

~~34. The composition of claim 33, wherein the glycidoxypropyltrimethoxysilane~~ optionally ~~is present~~ in a range of about 0 wt% to about 6 wt%, or in a range of about 1 wt% to about 2 wt%.

~~35~~14. The composition of ~~any one of claims 25 to 34~~claim 12 or 13, wherein the epoxy-functional polydialkylsiloxane comprises epoxy-functional polydimethylsiloxane~~.~~

~~36. The composition of claim 35, wherein the epoxy-functional polydimethylsiloxane is~~ optionally ~~present~~ 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%.

~~37. The composition of any one of claims 25 to 36, wherein the at least one fluoro-based additive comprises poly(3,3,3-trifluoropropylmethylsiloxane), or a fluoroalkylated acrylate oligomer, or a combination thereof.~~

~~38. The composition of claim 37, wherein the fluoroalkylated acrylate oligomer comprises Sartomer® CN4002.~~

~~39. The composition of claim 37 or 38, wherein the fluoroalkylated acrylate oligomer is present in a range of about 0.05 wt% to about 5 wt%, or about 0.05 wt% to about 3 wt%.~~

~~40~~15. The composition of any one of claims ~~25~~ 11 to ~~39~~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°.

~~41~~16. The composition of claim 2, or any one of claims 3 to ~~40~~ 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.

~~42. The composition of claim 41, wherein the wear-inhibiting additive comprises unmodified graphene nanoplatelets, unmodified graphite flakes, titanium dioxide, aluminum oxide, Ca magnesium silicate, or a combination thereof.~~

~~43~~17. The composition of claim ~~41 or 42~~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

~~44. The composition of any one of claims 41 to 43, wherein the unmodified graphene nanoplatelets~~

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

~~45~~18. The composition of ~~any one of claims 41 to 44~~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~~.~~

~~46. The composition of any one of claims 41 to 45, wherein the unmodified graphite flakes~~; and/or

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

~~47~~19. The composition of any one of claims ~~41~~ 16 to ~~46~~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%.

~~48~~20. The composition of any one of claims ~~41~~ 16 to ~~47~~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.

~~49~~21. The composition of claim ~~3~~2, or any one of claims ~~4~~ 3 to ~~48~~ 20 when dependent on claim ~~3~~2, wherein the amphiphilicity-modifying additive comprises a polyether, a polysiloxane, a polyelectrolyte, a polyatomic alcohol, or a combination thereof.

~~50. The composition of claim 49, wherein the polyether comprises a polyalkylene glycol.~~

~~51. The composition of claim 50, wherein the polyalkylene glycol is present in a range of about 0.5 wt% to about 10 wt%, or about 1 wt% to about 5 wt%.~~

~~52. The composition of claim 50 or 51, wherein the polyalkylene glycol comprises polyethylene glycol, polyethylene glycol 400, LIPOXOL® 400, or a combination thereof.~~

~~53~~22. The composition of ~~any one of claims 49 to 52~~claim 21, wherein the polysiloxane comprises:

~~-~~a hydroxyl-functionalized polysiloxane, a hydroxyalkyl-functionalized polysiloxane, a fluorohydroxyalkyl-functionalized polysiloxane, or a combination thereof~~.~~

~~54. The composition of claim 53, wherein the polysiloxane is present~~, optionally in a range of about 1 wt% to about 20 wt%, or about 5 wt% to about 15 wt%~~.~~

~~55. The composition of claim 53 or 54, wherein the polysiloxane comprises~~; and/or

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

~~56~~23. The composition of ~~any one of claims 49 to 55~~claim 21 or 22, wherein the polyelectrolyte comprises an ammonium-functionalized polysiloxane~~.~~

~~57. The composition of claim 56, wherein the ammonium-functionalized polysiloxane. comprises~~, a dialkyl quaternary ammonium modified-polysiloxane, and/or Silquat®3180~~.~~

~~58. The composition of claim 56 or 57, wherein the polyelectrolyte is present.~~;

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

~~59. The composition of any one of claims 56 to 58, wherein the polyelectrolyte comprises Silquat®3180.~~

~~60. The composition of any one of claims 49 to 59, wherein the polyatomic alcohol comprises glycerol.~~

~~61. The composition of claim 60, wherein the polyatomic alcohol is present in a range of about 0.5 wt% to about 10 wt%, or about 1 wt% to about 5 wt%.~~

~~62~~24. The composition of any one of claims ~~49~~ 21 to ~~61~~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.

~~63~~25. The composition of claim ~~4~~3, or any one of claims ~~5~~ 4 to ~~62~~ 24 when dependent on claim ~~4~~3, wherein the ~~at least one~~ dispersant is a polymeric dispersant.

~~64~~26. The composition of claim ~~63~~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%.

~~65. The composition of claim 63 or 64, wherein the polymeric dispersant is present in a range of about 0.1 wt% to about 5 wt%.~~

~~66~~27. The composition of claim ~~5~~3, or any one of claims ~~6~~ 4 to ~~65~~ 26 when dependent on claim ~~5~~3, wherein the defoamer comprises a silicone-modified defoamer.

~~67~~28. The composition of claim ~~66~~27, wherein the silicone-modified defoamer comprises Additol VXW 6210N, BYK-A 530, Tego Airex 900® or a combination thereof.

~~68. The composition of claim 67, wherein the silicone-modified defoamer comprises Additol VXW 6210N.~~

~~69. The composition of claim 67 or 68, wherein the Additol VXW 6210N is present in a range of about 0.5 wt% to about 6 wt%.~~

~~70~~29. The composition of ~~any one of claims 67 to 69~~claim 28, wherein the silicone-modified defoamer comprises Tego Airex 900®~~.~~

~~71. The composition of claim 70, wherein the Tego Airex 900® is~~ , optionally present in a range of about 0.05 wt% to about 2 wt%.

~~72~~30. The composition of claim ~~6~~3, or any one of claims ~~7~~ 4 to ~~71~~ 29 when dependent on claim ~~6~~3, wherein the ~~at least one~~ 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%.

~~73. The composition of claim 72, wherein the castor oil derivative, bentonite, montmorillonite, modified montmorillonite clay, or combination thereof is present in a range of about 0.01 wt% to about 3 wt%.~~

~~74~~31. The composition of claim ~~72 or 73~~30, wherein the castor oil derivative is Thixatrol ST®.

~~75~~32. The composition of any one of claims 1 to ~~74~~31, further comprising a hardener, the hardener being reactive in curing the composition to form a coating.

~~76~~33. The composition of claim ~~75~~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.

~~77~~34. The composition of claim 33~~75 or 76~~, 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~~.~~

~~78. The composition of any one of claims 75 to 77, wherein the amine hardener comprises~~, or

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

~~79. The composition of claim 75 or 76, wherein the hardener comprises;~~

~~an silamine hardener.~~

~~80. The composition of claim 79, wherein;~~

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~~.~~;

~~81. The composition of any one of claims 75 to 80, wherein the hardener comprises a low-temperature hardener.~~

~~82. The composition of claim 81, wherein~~

the low-temperature hardener comprises ~~-~~phenalkamine~~.~~

~~83. The composition of any one of claims 75 to 82, wherein the hardener further comprises a curing catalyst.~~

~~84. The composition of claim 83, wherein the curing catalyst comprises a low-temperature curing catalyst.~~

~~85. The composition of claim 83 or 84, wherein~~; 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.

~~86~~35. The composition of any one of claims 1 to ~~85~~34, wherein the composition is:

~~-~~a solvent-borne composition~~.~~

~~87. The composition of any one of claims 1 to 86, wherein the composition is~~;

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

~~88. The composition of claim 87, wherein the composition is~~; and/or

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

~~89~~36. A reaction product of the composition of any one of claims 1 to ~~74~~ 31 and ~~86 to 88~~35, and a hardener.

~~90~~37. Use of a composition for a coating of any one of claims 1 to ~~88~~ 35 for forming a coating on a substrate, wherein optionally:

~~.~~

~~91. The use of claim 90, wherein~~ the substrate is a surface of marine equipment, or a marine vessel~~,~~; or

the substrate is a surface of ~~such as~~ a boat or ship.

92. A kit comprising a composition for a coating of any one of claims 1 to 88 and instructions for use.

93. A kit comprising a composition for a coating of any one of claims 1 to 74 and 86 to 89, and instructions for use with a hardener.

94. The kit of claim 93, further comprising a hardener.

95. The kit of claim 94, wherein the hardener comprises an amine hardener, an amide hardener, or a combination thereof; for example, wherein 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.

96. The kit of claim 94 or 95, wherein the amine hardener comprises primary amine-modified phenalkamine, benzyl dimethylamine, N,N-di-(2-hydroxyethyl)aniline, triethanolamine, aminopropyltriethoxysilane, bis(3-triethoxysilylpropyl)amine, or a combination thereof.

97. The kit of claim 94, wherein the hardener comprises an silamine hardener; for example, wherein 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.

98. The kit of any one of claims 94 to 96, wherein the hardener comprises a low-temperature hardener, such as phenalkamine.

99. The kit of any one of claims 94 to 98, wherein the hardener further comprises a curing catalyst.

100. The kit of claim 99, wherein the curing catalyst comprises a low-temperature curing catalyst, such as 2,4,6-tris[(dimethyllamino)methyl]phenol.

~~101~~38. A coating comprising a reaction product of a composition for a coating of any one of claims 1 to ~~74~~ 31 and ~~86 to 88~~35, and a hardener.

~~102~~39. The coating of claim ~~101~~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;

~~for example,~~ 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~~.~~

~~103. The coating of claim 101 or 102, wherein the amine hardener comprises~~, or primary amine-modified phenalkamine, benzyl dimethylamine, N,N-di-(2-hydroxyethyl)aniline, triethanolamine, aminopropyltriethoxysilane, bis(3-triethoxysilylpropyl)amine, or a combination thereof~~.~~

~~104. The coating of claim 101, wherein the hardener comprises:~~

~~an silamine hardener;~~

~~for example, wherein~~ 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~~.~~

~~105. The coating of any one of claims 101 to 104, wherein the hardener comprises a~~, the low-temperature hardener~~, such as~~ comprises phenalkamine~~.~~

; and/or

~~106. The coating of any one of claims 101 to 105, wherein the hardener further comprises a curing catalyst.~~

~~107. The coating of claim 106, wherein the curing catalyst comprises a~~the low-temperature curing catalyst~~, such as~~ comprises 2,4,6-tris[(dimethyllamino)methyl]phenol.

~~108~~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); ~~and~~

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~~.~~

~~109. The additives composition of claim 108, further comprising~~ 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.

~~110~~41. The additives composition of claim ~~108 or 109~~40, further comprising at least one:

dispersant for dispersing the wear-inhibiting additive~~.~~

~~111. The additives composition of any one of claims 108 to 110, further comprising at least one;~~ defoamer~~.~~

~~112. The additives composition of any one of claims 108 to 111, further comprising at least one~~; and/or rheological additive.

~~113~~42. The additives composition of ~~any one of claims 108 to 112~~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.

~~114. The additives composition of any one of claims 108 to 113, wherein the hydrophobicity-modifying additive comprises at least one Si-based additive, at least one maleimide-based additive, or a combination thereof.~~

~~115. The additives composition of claim 113 or 114, wherein the hydrophobicity-modifying additive comprises a bis-maleimide oligomer, an epoxy-functional silane, an epoxy-functional polydialkylsiloxane, or a combination thereof.~~

~~116~~43. The additives composition of claim ~~115~~42, wherein the hydrophobicity-modifying additive comprises an epoxy-functional silane, an epoxy-functional polydialkylsiloxane, or a combination thereof.

~~117. The additives composition of claim 115 or 116, wherein the hydrophobicity-modifying additive comprises an epoxy-functional polydialkylsiloxane.~~

~~118. The additives composition of any one of claims 113 to 117, wherein the bis-maleimide oligomer comprises BMI 689, BMI 737, BMI 1100, BMI 1400, BMI 1500, BMI 1700, or a combination thereof.~~

~~119. The additives composition of any one of claims 113 to 118, wherein the bis-maleimide oligomer comprises BMI 1400, BMI 1500, or BMI 1700, or a combination thereof; for example, in a range of about 10 wt% to about 20 wt%.~~

~~120~~44. The additives composition of ~~any one of claims 113 to 119~~claim 43, wherein:

the epoxy-functional silane comprises glycidoxypropyltrimethoxysilane; ~~for example,~~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~~.~~

~~121. The additives composition of any one of claims 113 to 120, wherein~~

the ~~–~~epoxy-functional polydialkylsiloxane comprises epoxy-functional polydimethylsiloxane~~, for example,~~;

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%.

~~122. The additives composition of any one of claims 113 to 121, wherein the at least one fluoro-based additive comprises poly(3,3,3-trifluoropropylmethylsiloxane), a fluoroalkylated acrylate oligomer, or a combination thereof.~~

~~123. The additives composition of claim 122, wherein the fluoroalkylated acrylate oligomer comprises Sartomer® CN4002; for example, in a range of about 0.05 wt% to about 5 wt%, or about 0.05 wt% to about 3 wt%.~~

~~124. The additives composition of any one of claims 108 to 122, 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°.~~

~~125~~45. The additives composition of any one of claims ~~108~~ 40 to ~~124~~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.

~~126. The additives composition of claim 125, wherein the wear-inhibiting additive comprises unmodified graphene nanoplatelets, unmodified graphite flakes, titanium dioxide, aluminum oxide, Ca magnesium silicate, or a combination thereof.~~

~~127~~46. The additives composition of claim ~~125 or 126~~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~~.~~

~~128. The additives composition of any one of claims 125 to 127, wherein the unmodified graphene nanoplatelets; are~~, and optionally present in a range of about 0.05 wt% to about 5 wt%; or about 0.3 wt%~~.~~

~~129. The additives composition of any one of claims 125 to 128, wherein~~; 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.

130. The additives composition of any one of claims 125 to 129, wherein the unmodified graphite flakes , and optionally are present in a range of about 0.1 wt% to about 10 wt%; or about 5 wt%.

13147. The additives composition of any one of claims 125 to 130claim 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%.

132. The additives composition of any one of claims 108 to 131, wherein 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.

13348. The additives composition of claim 109, or any one of claims 110 to 132 when dependent on claim 109any 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.

134. The additives composition of claim 133, wherein the polyether comprises a polyalkylene glycol; for example, in a range of about 0.5 wt% to about 10 wt%, or about 1 wt% to about 5 wt%.

135. The additives composition of claim 133 or 134, wherein the polyalkylene glycol comprises polyethylene glycol, polyethylene glycol 400, LIPOXOL® 400, or a combination thereof.

13649. The additives composition of any one of claims 133 to 135claim 48, wherein:

the polysiloxane comprises :

a hydroxyl-functionalized polysiloxane, a hydroxyalkyl-functionalized polysiloxane, a fluorohydroxyalkyl-functionalized polysiloxane, or a combination thereof~~; for example, in a range of about 1 wt% to about 20 wt%, or about 5 wt% to about 15 wt%.~~

~~137. The additives composition of claim 136, wherein the polysiloxane comprises ,~~: 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%~~.~~

~~138. The additives composition of any one of claims 133 to 137, wherein~~ ; and/or

the polyelectrolyte comprises

an ammonium-functionalized polysiloxane~~;~~, ~~for example,~~ a dialkyl quaternary ammonium modified-polysiloxane~~;~~, and/or

Silquat®3180~~.~~

~~139. The additives composition of claim 138, wherein the polyelectrolyte is present~~,

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

~~140. The additives composition of claim 138 or 139, wherein the polyelectrolyte comprises Silquat®3180.~~

~~141. The additives composition of any one of claims 133 to 140, wherein the polyatomic alcohol comprises glycerol; for example, in a range of about 0.5 wt% to about 10 wt%, or about 1 wt% to about 5 wt%.~~

~~142~~50. The additives composition of claim ~~133~~ 40 to ~~141~~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.

14351. The additives composition of claim 11041, or any one of claims 111 42 to 142 50 when dependent on claim 11041, wherein:

the at least one dispersant is a polymeric dispersant, ; for example, wherein optionally

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

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

144. The additives composition of claim 111, or any one of claims 112 to 143 when dependent on claim 111, wherein the defoamer comprises a silicone-modified defoamer, ; for example,wherein optionally

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

.

145. The additives composition of claim 144, wherein the silicone-modified defoamer comprises Additol VXW 6210N; for example, in a range of about 0.5 wt% to about 6 wt%.

146. The additives composition of claim 144 or 145, wherein the silicone-modified defoamer comprises Tego Airex 900®, for example, present in a range of about 0.05 wt% to about 2 wt%; and/or.

~~147. The additives composition of claim 112, or any one of claims 113 to 146 when dependent on claim 112, wherein~~ the at least one rheological additive comprises a fumed silica, a castor oil derivative~~, such as Thixatrol ST®~~; bentonite, montmorillonite, or a modified montmorillonite clay; or combination thereof~~;~~, wherein optionally

~~for example,~~ 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®.

~~148. A kit comprising the additives composition of any one of claims 108 to 147 and instructions for adding said additives to a composition for a coating.~~

~~149. The kit of claim 148, wherein the composition for a coating comprises epoxy-functional monomers and a diluent.~~

~~150. The kit of claim 149, 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.~~

~~151. The kit of claim 149 or 150, wherein the epoxy-functional monomers comprise bisphenol diglycidyl ethers, such as bisphenol diglycidyl ethers derived from bisphenol A, bisphenol F, bisphenol S, or a combination thereof; epoxy-functional epoxide-siloxane monomers, such as epoxy-functional epoxide-siloxane monomers that comprise an epoxide backbone comprising siloxane or polysiloxane side-chains; or a combination thereof.~~

~~152. The kit of claim 151, wherein the epoxide backbone is a polyether backbone; and/or the siloxane or polysiloxane side-chains are linear, branched, or crosslinked.~~

153. The kit of claim 151 or 152, wherein at least one of the siloxane or polysiloxane side-chains is a cross-linked silicone resin.

154. The kit of any one of claims 150 to 153, wherein the epoxy-functional epoxide-siloxane monomers comprise a reaction product of isocyanate and/or polyurethane oligomers, silane oligomers, and epoxy oligomers.

155. The kit of any one of claims 150 to 154, wherein the epoxy-functional epoxide-siloxane monomers comprise an epoxy-functional epoxide-siloxane pre-polymer.

156. The kit of any one of claims 150 to 155, wherein the epoxy-functional epoxide-siloxane monomers comprise 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.

157. The kit of any one of claims 149 to 156, wherein the epoxy-functional monomers do not comprise elastomeric monomers, pre-polymers, or resins; and/or epoxy-functional elastomeric monomers, pre-polymers, or resins; such as butenes, polybutenes, butadienes, polybutadienes, nitrites acrylonitiriles, polysulfides, urethanes, urethane-modified resins (for example, urethane-modified epoxy resins), or combinations thereof.

158. The kit of any one of claims 148 to 157, wherein the diluent comprises a reactive diluent that is reactive in an epoxide polymerization, a non-reactive diluent, or a combination thereof; and/or the diluent is reactive as a curing catalyst.

159. The kit of claim 158, wherein the reactive diluent comprises 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; wherein the reactive diluent preferably comprises poly[(phenyl glycidyl ether)-co-formaldehyde],alkyl (C12-C14) glycidyl ether, or a combination thereof.

160. The kit of any one of claims 148 to 159, 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; wherein the non-reactive diluent preferably comprises benzyl alcohol, xylene, methyl acetate, methyl ethyl ketone, or a combination thereof.

161. The kit of any one of claims 148 to 160, wherein the composition for a coating further comprises a hardener.

162. The kit of claim 161, wherein the hardener comprises an amine hardener, an amide hardener, or a combination thereof; for example, wherein 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.

163. The kit of claim 161 or 162, wherein the amine hardener comprises primary amine-modified phenalkamine, benzyl dimethylamine, N,N-di-(2-hydroxyethyl)aniline, triethanolamine, aminopropyltriethoxysilane, bis(3-triethoxysilylpropyl)amine, or a combination thereof.

164. The kit of claim 161, wherein the hardener comprises an silamine hardener; for example, wherein 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.

165. The kit of any one of claims 161 to 164, wherein the hardener comprises a low-temperature hardener; such as, phenalkamine.

166. The kit of any one of claims 161 to 165, wherein the hardener further comprises a curing catalyst, such as 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.

~~167. The kit of claim 166, wherein the curing catalyst comprises a low-temperature curing catalyst; such as 2,4,6-tris[(dimethyllamino)methyl]phenol.~~

~~168. A method of forming a composition for a coating, comprising:~~

~~mixing a hydrophobicity-modifying additive into a first mixture comprising epoxy-functional monomers and a diluent; and~~

~~forming the composition for a coating.~~

~~169. The method of claim 168, further comprisingmixing a wear-inhibiting additive and a dispersant into the first mixture.~~

~~170. The method of claim 168 or 169, further comprising mixing an amphiphilicity-modifying additive into the first mixture.~~

~~171. The method of any one of claims 168 to 170, further comprisingmixing a rheological additive and/or a defoamer into the first mixture.~~

~~172. The method of claim 169, wherein mixing the hydrophobicity-modifying additive, the wear-inhibiting additive, and the dispersant into the first mixture comprises:~~

~~mixing the dispersant into the first mixture to form a second mixture;~~

~~mixing the wear-inhibiting additive into the second mixture to form a third mixture; and~~

~~mixing the hydrophobicity-modifying additive into the third mixture to form a fourth mixture.~~

~~173. The method of claim 172, further comprisingmixing a rheological additive into the second mixture or the third mixture.~~

~~174. The method of claim 172 to 173, further comprising mixing an amphiphilicity-modifying additive into the third mixture or the fourth mixture.~~

~~175. The method of claim 172, wherein mixing the hydrophobicity-modifying additive, the wear-inhibiting additive, and the dispersant into the first mixture comprises:~~

~~mixing a first hydrophobicity-modifying additive into the first mixture to form a second mixture;~~

~~mixing the dispersant into the second mixture to form a third mixture;~~

~~mixing the wear-inhibiting additive into the third mixture to form a fourth mixture;~~

~~mixing a defoamer into the fourth mixture to form a fifth mixture; and~~

~~mixing a second hydrophobicity-modifying additive into the fifth mixture to form a sixth mixture.~~

~~176. The method of claim 175, further comprising mixing an amphiphilicity-modifying additive into the first mixture or the second mixture.~~

~~177. The method of claim 175 or 176, further comprising mixing an amphiphilicity-modifying additive into the fifth mixture or the sixth mixture.~~

~~178. The method of any one of claims 175 to 177, further comprising mixing a rheological additive into the third mixture or the fourth mixture.~~

~~179. The method of any one of claims 168 to 178, further comprising mixing a defoamer into the first mixture.~~

~~180. A method of forming a composition for a coating, comprising:~~

~~mixing a dispersant into a first mixture comprising a first epoxy-functional monomer and diluent to form a second mixture;~~

~~mixing a wear-inhibiting additive into the second mixture to form a third mixture;~~

~~mixing a rheological additive into the third mixture to form a fourth mixture;~~

~~optionally mixing a first amphiphilicity-modifying additive into the fourth mixture;~~

~~mixing a hydrophobicity-modifying additive into the fourth mixture to form a fifth mixture;~~

~~mixing a second amphiphilicity-modifying additive into the fifth mixture to form a sixth mixture;~~

~~optionally mixing a defoamer into the first or second mixture, or optionally mixing a defoamer into the fifth or sixth mixture;~~

~~optionally mixing a mixture comprising a second epoxy-functional monomer and diluent into the the fifth or sixth mixture; and~~

~~forming the composition for a coating.~~

~~181. A method of forming a composition for a coating, comprising:~~

mixing epoxy-functional monomers and a diluent to form a first mixture;

mixing into the first mixture

a hydrophobicity-modifying additive,

a wear-inhibiting additive,

a dispersant,

an amphiphilicity-modifying additive,

a defoamer, and/or

a rheological additive; and

forming the composition for a coating.

182. The method of any one of claims 168 to 181, wherein mixing the hydrophobicity-modifying additive comprises adding a sufficient amount of the hydrophobicity-modifying additive 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); for example, the hydrophobicity-modifying additive is added in an amount sufficient to provide 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°, or about 100° to about 120°, or about 100° to about 115°.

183. The method of any one of claims 168 to 182, 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.

184. The method of any one of claims 168 to 183, wherein the hydrophobicity-modifying additive comprises a bis-maleimide oligomer, an epoxy-functional silane, an epoxy-functional polydialkylsiloxane, or a combination thereof.

185. The method of claim 183 or 184, wherein the bis-maleimide oligomer comprises BMI 689, BMI 737, BMI 1100, BMI 1400, BMI 1500, BMI 1700, or a combination thereof; wherein the bis-maleimide oligomer preferably comprises BMI 1400, BMI 1500, BMI 1700, or a combination thereof, optionally in an amount of about 10 wt% to about 20 wt%.

186. The method of any one of claims 183 to 185, wherein the epoxy-functional silane comprises glycidoxypropyltrimethoxysilane, wherein the glycidoxypropyltrimethoxysilane is

optionally added in an amount of about 0 wt% to about 6 wt%, or in a range of about 1 wt% to about 2 wt%.

187. The method of any one of claims 183 to 186, wherein the epoxy-functional polydialkylsiloxane comprises epoxy-functional polydimethylsiloxane wherein the epoxy-functional polydimethylsiloxane is optionally added in an amount of about 0.05 wt% to about 10 wt%, or in a range of about 0.5 wt% to about 8 wt%.

188. The method of any one of claims 183 to 187, wherein the at least one fluoro-based additive comprises poly(3,3,3-trifluoropropylmethylsiloxane), a fluoroalkylated acrylate oligomer, or a combination thereof.

189. The method of claim 188, wherein the fluoroalkylated acrylate oligomer comprises Sartomer® CN4002; for example, in a range of about 0.05 wt% to about 5 wt%, or about 0.05 wt% to about 3 wt%.

190. The method of any one of claims 169 to 189, wherein mixing the wear-inhibiting additive comprises adding a sufficient amount of the 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.

191. The method of claim 190, wherein the wear-inhibiting additive is added in an amount sufficient to provide a coating formed from the coating 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.

192. The method of any one of claims 169 to 191, 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; wherein the wear-inhibiting additive preferably comprises unmodified

~~graphene nanoplatelets, unmodified graphite flakes, titanium dioxide, aluminum oxide, Ca magnesium silicate, or a combination thereof.~~

~~193. The method of claim 192, 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.~~

~~194. The method of claim 192 or 193, wherein the unmodified graphene nanoplatelets are added in an amount of about 0.05 wt% to about 5 wt%; or about 0.3 wt%.~~

~~195. The method of any one of claims 192 to 194, 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.~~

~~196. The method of any one of claims 192 to 195, wherein the unmodified graphite flakes are added in an amount of about 0.1 wt% to about 10 wt%; or about 5 wt%.~~

~~197. The method of any one of claims 192 to 196, 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%.~~

~~198. The method of any one of claims 170 to 197, wherein mixing the amphiphilicity-modifying additive comprises adding a sufficient amount of the 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.~~

~~199. The method of claim 198, wherein the amphiphilicity-modifying additive is added in an amount suficient to provide 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.~~

~~200. The method of any one of claims 170 to 199, wherein the amphiphilicity-modifying additive comprises a polyether, a polysiloxane, a polyelectrolyte, a polyatomic alcohol, or a combination thereof.~~

~~201. The method of claim 200, wherein the polyether comprises a polyalkylene glycol; for example, in a range of about 0.5 wt% to about 10 wt%, or about 1 wt% to about 5 wt%.~~

~~202. The method of claim 201, wherein the polyalkylene glycol comprises polyethylene glycol, polyethylene glycol 400, LIPOXOL® 400, or a combination thereof.~~

~~203. The method of any one of claims 200 to 202, wherein the polysiloxane comprises a hydroxyl-functionalized polysiloxane, a hydroxyalkyl-functionalized polysiloxane, a fluorohydroxyalkyl-functionalized polysiloxane, or a combination thereof; for example, in a range of about 1 wt% to about 20 wt%, or about 5 wt% to about 15 wt%.~~

~~204. The method of claim 203, wherein the polysiloxane comprises Silmer® OHT Di-10, Silmer® OHT Di-50, Silmer® OHT Di-100, Silmer® OHFB10, or a combination thereof.~~

~~205. The method of any one of claims 200 to 204, wherein the polyelectrolyte comprises an ammonium-functionalized polysiloxane; for example, a dialkyl quaternary ammonium modified-polysiloxane.~~

~~206. The method of claim 205, wherein the polyelectrolyte is present in a range of about 0.5 wt% to about 10 wt%, or about 1 wt% to about 5 wt%.~~

~~207. The method of claim 205 or 206, wherein the polyelectrolyte comprises Silquat®3180.~~

~~208. The method of any one of claims 200 to 207, wherein the polyatomic alcohol comprises glycerol; for example, in a range of about 0.5 wt% to about 10 wt%, or about 1 wt% to about 5 wt%.~~

~~209. The method of any one of claims 168 to 208, wherein the dispersant is a polymeric dispersant; for example, wherein the polymeric dispersant is Additol VXW 6208, Soldplus D610, K-Sperse A504, or a combination thereof.~~

~~210. The method of claim 209, wherein the polymeric dispersant is added in an amount of about 0.1 wt% to about 5 wt%.~~

211. The method of any one of claims 168 to 210, 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.

212. The method of claim 211, wherein the epoxy-functional monomers comprise bisphenol diglycidyl ethers, such as bisphenol diglycidyl ethers derived from bisphenol A, bisphenol F, bisphenol S, or a combination thereof; epoxy-functional epoxide-siloxane monomers, such as epoxy-functional epoxide-siloxane monomers that comprise an epoxide backbone comprising siloxane or polysiloxane side-chains; or a combination thereof.

213. The method of claim 212, wherein the epoxide backbone is a polyether backbone; and/or the siloxane or polysiloxane side-chains are linear, branched, or crosslinked.

214. The method of claim 212 or 213, wherein at least one of the siloxane or polysiloxane side-chains is a cross-linked silicone resin.

215. The method of any one of claims 211 to 214, wherein the epoxy-functional epoxide-siloxane monomer comprises a reaction product of isocyanate and/or polyurethane oligomers, silane oligomers, and epoxy oligomers.

216. The method of any one of claims 211 to 215, wherein the epoxy-functional epoxide-siloxane monomer comprises an epoxy-functional epoxide-siloxane pre-polymer.

217. The method of any one of claims 211 to 216, wherein the epoxy-functional epoxide-siloxane monomers comprise 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.

218. The method of any one of claims 168 to 217, wherein the epoxy-functional monomers do not comprise elastomeric monomers, pre-polymers, or resins; and/or epoxy-functional elastomeric monomers, pre-polymers, or resins; such as butenes, polybutenes, butadienes, polybutadienes, nitrites acrylonitiriles, polysulfides, urethanes, urethane-modified resins (for example, urethane-modified epoxy resins), or combinations thereof.

219. The method of any one of claims 168 to 218, wherein the diluent comprises a reactive diluent that is reactive in an epoxide polymerization, a non-reactive diluent, or a combination thereof; and/or the diluent is reactive as a curing catalyst.

220. The method of claim 219, wherein the reactive diluent comprises 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; wherein the reactive diluent preferably comprises poly[(phenyl glycidyl ether)-co-formaldehyde], alkyl (C12-C14) glycidyl ether, or a combination thereof.

221. The method of claim 219 or 220, 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; wherein the non-reactive diluent preferably comprises benzyl alcohol, xylene, methyl acetate, methyl ethyl ketone, or a combination thereof.

222. The method of any one of claims 168 to 221, wherein the defoamer comprises a silicone-modified defoamer; for example, Additol VXW 6210N, BYK-A 530, Tego Airex 900®, or a combination thereof.

223. The method of claim 222, wherein the Additol VXW 6210N is added in an amount of about 0.5 wt% to about 6 wt%.

224. The method of claim 222 or 223, wherein the silicone-modified defoamer comprises Tego Airex 900®, for example, in a range of about 0.05 wt% to about 2 wt%.

225. The method of any one of claims 168 to 224, wherein 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; for example, in a range of about 0.01 wt% to about 3 wt%.

226. The method of claim 225, wherein the castor oil derivative is Thixatrol ST®.

227. The method of any one of claims 168 to 226, further comprising mixing a hardener into the formed composition for a coating.

228. The method of claim 227, wherein the hardener comprises an amine hardener, an amide hardener, or a combination thereof; for example, wherein 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.

229. The method of claim 227 or 228, wherein the amine hardener comprises primary amine-modified phenalkamine, benzyl dimethylamine, N,N-di-(2-hydroxyethyl)aniline, triethanolamine, aminopropyltriethoxysilane, bis(3-triethoxysilylpropyl)amine, or a combination thereof.

230. The method of claim 227, wherein the hardener comprises an silamine hardener; for example, wherein 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.

231. The method of claim 227, wherein the hardener comprises a low-temperature hardener; such as phenalkamine.

232. The method of any one of claims 227 to 231, wherein the hardener further comprises a curing catalyst, such as 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.

233. The method of claim 232, wherein the curing catalyst comprises a low-temperature curing catalyst; such as 2,4,6-tris[(dimethyllamino)methyl]phenol.

234. The method of any one of claims 168 to 233, wherein the formed composition for a coating is solvent-borne.

235. The method of claim 168, further comprising mixing a hardener into the formed composition for a coating.

236. The method of claim 235, wherein the hardener comprises:

an amine hardener, an amide hardener, or a combination thereof; for example, wherein 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;

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

an silamine hardener; for example, wherein 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; or

a low-temperature hardener; such as phenalkamine.

237. The method of claim 235 or 236, wherein the hardener further comprises a curing catalyst,such as 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; wherein, for example, the curing catalyst comprises a low-temperature curing catalyst, such as 2,4,6-tris[(dimethyllamino)methyl]phenol.

238. The method of any one of claims 235 to 237, wherein mixing a hardener into the formed composition for a coating comprises mixing into the hardener:

a wear-inhibiting additive comprising unmodified graphene nanoplatelets, unmodified graphite flakes, or a combination thereof;

an amphiphilicity-modifying additive comprising a polyether, a polysiloxane, a polyelectrolyte, a polyatomic alcohol, or a combination thereof,

such as a polyalkylene glycol (for example, polyethylene glycol, polyethylene glycol 400, LIPOXOL® 400, or a combination thereof); a polysiloxane comprising a hydroxyl-functionalized polysiloxane, a hydroxyalkyl-functionalized polysiloxane, a fluorohydroxyalkyl-functionalized polysiloxane, or a combination thereof (for example, Silmer® OHT Di-10, Silmer® OHT Di-50, Silmer® OHT Di-100, Silmer® OHFB10, or a combination thereof); an ammonium-functionalized polysiloxane (for example, Silquat®3180); glycerol; or a combination thereof;

a dispersant comprising a polymeric dispersant such as Additol VXW 6208, Soldplus D610, K-Sperse A504, or a combination thereof;

a diluent comprising dipropylene glycol n-propyl ether, dipropylene glycol dimethyl ether, or a combination thereof; or a non-reactive diluent such as xylene, methyl acetate, methyl ethyl ketone, nonyl phenol, cyclohexanedimethanol, n-butyl alcohol, benzyl alcohol, isopropyl alcohol, propylene glycol, phenol, or a combination thereof;

a defoamer comprising a silicone-modified defoamer such as Additol VXW 6210N, BYK-A 530, Tego Airex 900®, or a combination thereof; and/or

at least one rheological additive comprising a fumed silica, a castor oil derivative (for example, Thixatrol ST®); bentonite, montmorillonite, a modified montmorillonite clay, or a combination thereof; and

mixing the hardener into the formed composition for a coating.

239. The method of any one of claims 235 to 238, wherein mixing a hydrophobicity-modifying additive into the first mixture comprises mixing the hydrophobicity-modifying additive into the hardener and then mixing the hardener into the formed composition for a coating, wherein the hydrophobicity-modifying additive comprises at least one fluoro-based additive, at least one maleimide-based additive, or a combination thereof; for example, wherein the hydrophobicity-modifying additive comprises a bis-maleimide oligomer such as BMI 689, BMI 737, BMI 1100, BMI 1400, BMI 1500, BMI 1700, or a combination thereof, and/or wherein the at least one fluoro-based additive comprises poly(3,3,3-

~~trifluoropropylmethylsiloxane), a fluoroalkylated acrylate oligomer (such as Sartomer® CN4002), or a combination thereof.~~

~~240. 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, such as a sufficient amount of unmodified graphene nanoplatelets, unmodified graphite flakes, carbon black, fullerene, titanium dioxide, aluminum oxide, Ca magnesium silicate, zinc oxide, or a combination thereof;~~

~~at least one dispersant for dispersing the wear-inhibiting additive in the composition; and/or~~

~~at least one defoamer.~~

~~241. The composition of claim 240, wherein~~

~~the epoxy-functional monomers comprise bisphenol diglycidyl ethers, such as bisphenol diglycidyl ethers derived from bisphenol A, bisphenol F, bisphenol S, 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, such as poly[(phenyl glycidyl ether)-co-formaldehyde], alkyl (C12-C14) glycidyl ether, or a combination thereof; a non-reactive diluent such as 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 a bis-maleimide oligomer, such as BMI 689, BMI 737, BMI 1100, BMI 1400, BMI 1500, BMI 1700, or a combination thereof; an epoxy-functional silane, such as glycidoxypropyltrimethoxysilane; an epoxy-functional polydialkylsiloxane, such as epoxy-functional polydimethylsiloxane; or a combination thereof.~~

~~242. The composition of claim 241, wherein~~

~~the epoxy-functional monomers comprise bisphenol diglycidyl ethers derived from bisphenol A, bisphenol F, bisphenol S, or a combination thereof;~~
~~the diluent comprises a poly[(phenyl glycidyl ether)-co-formaldehyde], alkyl (C12-C14) glycidyl ether, benzyl alcohol; or a combination thereof; and/or~~
~~the hydrophobicity-modifying additive comprises a BMI 689, BMI 737, BMI 1100, BMI 1400, BMI 1500, BMI 1700, or a combination thereof; glycidoxypropyltrimethoxysilane; epoxy-functional polydimethylsiloxane; or a combination thereof.~~

~~243. The composition of any one of claims 240 to 242, wherein~~
~~the wear-inhibiting additive comprises unmodified graphene nanoplatelets, unmodified graphite flakes, or a combination thereof;~~
~~the at least one dispersant is a polymeric dispersant, such as Additol VXW 6208, Soldplus D610, K-Sperse A504, or a combination thereof; and/or~~
~~the defoamer comprises a silicone-modified defoamer, such as Additol VXW 6210N, BYK-A 530, or a combination thereof.~~

~~244. The composition of any one of claims 240 to 243, further comprising~~
~~an amine hardener, an amide hardener, or a combination thereof; for example, 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; and optionally a curing catalyst, such as 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.~~

~~245~~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~~, such as a sufficient amount of unmodified graphene nanoplatelets, unmodified graphite flakes, carbon black, fullerene, titanium dioxide, aluminum oxide, Ca magnesium silicate, zinc oxide, or a combination thereof~~;

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. ~~246.~~ The composition of claim ~~245~~52, wherein

the epoxy-functional monomers comprise

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

epoxy-functional epoxide-siloxane monomers, ~~such as~~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, ~~such as~~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, ~~such as~~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, ~~such as~~optionally glycidoxypropyltrimethoxysilane; an epoxy-functional polydialkylsiloxane, such as epoxy-functional polydimethylsiloxane; or a combination thereof.

~~247. The composition of claim 246, wherein~~

~~the epoxy-functional monomers comprise~~

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

~~epoxy-functional epoxide-siloxane monomers comprising 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;~~

~~or a combination thereof;~~

~~the diluent comprises alkyl (C12-C14) glycidyl ether, butyl glycidyl ether, xylene, methyl acetate, methyl ethyl ketone, benzyl alcohol, or a combination thereof; and/or~~

~~the hydrophobicity-modifying additive comprises glycidoxypropyltrimethoxysilane; epoxy-functional polydimethylsiloxane; or a combination thereof.~~

~~248~~54. The composition of ~~any one of claims 245 to 247~~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~~unmodified graphene nanoplatelets, unmodified graphite flakes, titanium dioxide, aluminum oxide, Ca magnesium silicate, or a combination thereof~~;

the at least one dispersant is a polymeric dispersant, ~~such as~~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,

~~such as~~wherein the amphiphilicity-modifying additive optionally comprises a polyalkylene glycol ~~(for example, polyethylene glycol, polyethylene glycol 400, LIPOXOL® 400, or a combination thereof);~~ a polysiloxane comprising a hydroxyl-functionalized polysiloxane, a hydroxyalkyl-functionalized polysiloxane, a fluorohydroxyalkyl-functionalized polysiloxane, or a combination thereof ~~(for example, Silmer® OHT Di-10, Silmer® OHT Di-50, Silmer® OHT Di-100, Silmer® OHFB10, or a combination thereof)~~; an ammonium-functionalized polysiloxane ~~(for example, Silquat®3180); glycerol~~; or a combination thereof;

the defoamer comprises a silicone-modified defoamer, optionally ~~such as~~ 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 ~~(such as Thixatrol ST®)~~; bentonite, montmorillonite; or a modified montmorillonite clay, or a combination thereof.

~~249~~55. The composition of any one of claims ~~245~~ 52 to ~~248~~54, further comprising

an silamine hardener, ~~such as~~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

~~optionally~~ a curing catalyst, ~~such as , such as~~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.