Claims:

1. A method of assembling a joint, comprising:

depositing a first coating on a first pipe comprising a male threaded coupling at an end of the first pipe, wherein the first coating comprises:

a first adhesion promotion layer positioned on at least a portion of the threads of the first pipe;

a second semi-elastic layer positioned over at least a portion of the first layer, the second layer comprising anti-corrosion pigments; and

a third hydrophilic, deformable layer positioned over at least a portion of the second layer;

depositing a second coating on a second pipe comprising a female threaded coupling at an end of the second pipe, the female threaded coupling configured to receive the male threaded coupling of the first pipe, wherein the second coating comprises;

a first adhesion promotion layer positioned over at least a portion of the threads of the second pipe;

a second semi-elastic layer different from the second semi-elastic layer of the first coating positioned over at least a portion of the first layer, the second layer comprising particles of solid lubricant;

a third hydrophilic, deformable layer positioned over at least a portion of the second layer.

2. The method of claim 1, wherein neither of the first and second pipes comprise a torque shoulder.

3. The method of claim 1, wherein the first pipe and the second pipe are assembled to form a joint and the assembled joint does not comprise a dope or grease.

4. The method of claim 1, wherein the wherein a thickness of each of the first layers of the first and second pipe is within the range between about 4 μm to about 10 μm.

5. The method of claim 1, wherein a thickness of each of the second layers of the first and second pipes is within the range between about 25 μm to about 50 μm.

6. The method of claim 1, wherein a thickness of the third layers of each of the first and second pipes is within the range between about 12 μm to about 15 μm.

7. The method of claim 1, wherein the first layers of the first and second pipes are manganese phosphate or zinc phosphate, the second layers of the first and second pipes each comprise an epoxy, and the third layers of the first and second pipes each comprise a wax.

8. The method of claim 1, wherein a pitch diameter of the threads of each of the first and second pipes is within approximately +/-0.0078".

9. The method of claim 8, wherein the pitch diameter of the threads of each of the first and second pipes is within approximately +/-0.004".

10. The method of claim 1, wherein a thread taper of the threads of each of the first and second pipes is approximately 0.060/0.0677.

11. The method of claim 10, wherein the thread taper of the threads of each of the first and second pipes is approximately 0.060/0.065.

12. The method of claim 1, wherein a thread ovality of the threads of each of the first and second pipes is less than or equal 0.010".

13. A method of assembling a joint, comprising:

depositing a first coating on at least a portion of male threads of a first pipe, the first coating comprising:

a first layer comprising manganese phosphate or zinc phosphate, wherein a thickness of the first layer is between about 4 μm to about 10 μm;

a second layer positioned over at least a portion of the first layer, the second layer comprising an epoxy and anti-corrosion pigments, wherein a thickness of the second layer is between about 25 μm to about 50 μm; and

a third layer positioned over at least a portion of the second layer, the third layer comprising a wax, wherein a thickness of the third layer is between about 12 μm to about 15 μm;

depositing a second coating on at least a portion of female threads of a second pipe, the second coating comprising:

a first layer comprising manganese phosphate or zinc phosphate, wherein a thickness of the first layer is between about 4 μm to about 10 μm;

a second layer different from the second layer of the first coating positioned over at least a portion of the first layer, the second layer comprising an epoxy with particles of solid lubricant, wherein a thickness of the second layer is between about 25 μm to about 50 μm; and

a third layer positioned over at least a portion of the second layer, the third layer comprising a wax, wherein a thickness of the third layer is between about 12 μm to about 15 μm;

wherein substantially no leakage is obtained when tested according to API 5C1 under internal pressure of about 7800 psi and time duration of about 60 minutes.

14. The method of claim 13, wherein a pitch diameter of the threads of each of the first and second pipe is within approximately +/-0.0078".

15. The method of claim 14, wherein the pitch diameter of the threads of each of the first and second pipe is within approximately +/-0.004".

16. The method of claim 13, wherein a thread taper of the threads of each of the first and second pipe is approximately 0.060/0.0677.

17. The method of claim 16, wherein the thread taper of the threads of each of the first and second pipe is approximately 0.060/0.065.

18. The method of claim 13, wherein a thread ovality of the threads of each of the first and second pipe is less than or equal 0.010".

19. The method of claim 13, wherein a pigment volume concentration of the second layers of the first and second coating is about 5% to about 50%.

20. The method of claim 19, wherein the pigment volume concentration is about 15% to about 40%.

21. The method of claim 13, wherein the second layer of the first coating has a higher hardness than the second layer of the second coating.

22. A joint, comprising:

a first pipe comprising a male threaded coupling at an end of the first pipe;

a second pipe comprising a female threaded coupling at an end of the second pipe, the female threaded coupling configured to receive the male threaded coupling of the first pipe;

a first coating on the first pipe, the first coating comprising:

a first layer positioned over at least a portion of the threads of the first pipe, the first layer comprising a phosphate;

a second layer positioned over at least a portion of the first layer, the second layer comprising an epoxy and one or more corrosion inhibiting pigments;

a third layer positioned over at least a portion of the second layer, the third layer comprising a wax; and

a second coating on the second pipe, the second coating comprising:

a first layer positioned over at least a portion of the threads of the second pipe, the first layer comprising a phosphate;

a second layer different from the second layer of the first coating positioned over at least a portion of the first layer, the second layer comprising an epoxy and one or more particles of solid lubricant;

a third layer positioned over at least a portion of the second layer, the third layer comprising a wax;

wherein neither of the first and second pipes comprise a torque shoulder.

23. The joint of claim 22, wherein the joint does not comprise a dope or grease.

24. The joint of claim 22, wherein the phosphate comprises one of manganese phosphate or zinc phosphate.

25. The joint of claim 24, wherein a thickness of the first phosphate layers of each of the first and second pipe is within the range between about 4 μm to about 10 μm.

26. The joint of claim 22, wherein a thickness of the second epoxy layers of each of the first and second pipes is within the range between about 25 μm to about 50 μm.

27. The joint of claim 22, wherein a concentration of the pigment is about 5% to about 50% of the total volume of the second layers of the first and second pipes.

28. The joint of claim 22, wherein the wax comprises an oxidized, microcrystalline wax.

29. The joint of claim 28, wherein a thickness of the third wax layer of the first and second pipes is within the range between about 12 μm to about 15 μm.

30. The joint of claim 22, wherein a pitch diameter of the threads of each of the first and second pipe are within approximately +/-0.0078".

31. The joint of claim 30, wherein the pitch diameter of the threads of each of the first and second pipe are within approximately +/-0.004".

32. The joint of claim 22, wherein a thread taper of the threads of each of the first and second pipe is approximately 0.060/0.0677.

33. The joint of claim 32, wherein the thread taper of the threads of each of the first and second pipe is approximately 0.060/0.065.

34. The joint of claim 22, wherein a thread ovality of the threads of each of the first and second pipe is less than or equal 0.010".

35. The joint of claim 22, wherein substantially no leakage is obtained when tested according to API 5C1 under internal pressure of about 7800 psi and time duration of about 60 minutes.

36. The joint of claim 22, wherein substantially no galling occurs after at least five assembly and disassembly operations of the joint.

37. The joint of claim 22, wherein the second layer of the second pipe comprises a single-component epoxy and exhibits substantially no corrosion under exposure to saline fog for at least 300 hours when tested according to ASTM B117.

38. A joint, comprising:

a first pipe comprising a male threaded coupling at an end of the first pipe;

a second pipe comprising a female threaded coupling at an end of the second pipe, the female threaded coupling configured to receive the male threaded coupling of the first pipe;

a first coating on the first pipe, the first coating comprising:

a first layer positioned over at least a portion of the threads of the first pipe, the first layer comprising a phosphate;

a second layer positioned over at least a portion of the first layer, the second layer comprising an epoxy and one or more corrosion inhibiting pigments, the epoxy comprising a composition of:

a first part comprising:

about 20% epoxy resin;

about 2% xylene;

about 25% barium sulfate;

about 5% zinc oxide;

about 0.39% bentone;

about 0.65% dioctyl phthalate;

about 9% abestine; and

about 0.6% aerosol; and

a second component comprising:

about 6% polyamide;

about 5% xylene;

about 20% bitumen;

about 8% barium sulfate;

about 0.56% aerosol;

about 0.56% bentone; and

about 0.5 catalyst;

wherein the amounts of each component of the composition are on the basis of the weight of the composition and wherein the ratio of the first and second parts of the composition is about 1:1+/-5% by volume;

a third layer positioned over at least a portion of the second layer, the third layer comprising a wax; and

a second coating on the second pipe, the second coating comprising:

a first layer positioned over at least a portion of the threads of the second pipe, the first layer comprising a phosphate;

a second layer different from the second layer of the first coating positioned over at least a portion of the first layer, the second layer comprising an epoxy and one or more particles of solid lubricant;

a third layer positioned over at least a portion of the second layer, the third layer comprising a wax;

wherein neither of the first and second pipes comprise a torque shoulder.

WHAT IS CLAIMED IS:

1. A method of assembling a joint, comprising:

depositing a first coating on a first pipe comprising a male threaded coupling at an end of the first pipe, wherein the first coating comprises:

a first adhesion promotion layer positioned over at least a portion of the threads of the first pipe;

a second semi-elastic layer positioned over at least a portion of the first layer, the second layer having anti-corrosion properties; and

a third hydrophilic, deformable layer positioned over at least a portion of the second layer;

depositing a second coating on a second pipe comprising a female threaded coupling at an end of the second pipe, the female threaded coupling configured to receive the male threaded coupling of the first pipe, wherein the second coating comprises;

a first adhesion promotion layer positioned over at least a portion of the threads of the second pipe;

a second semi-elastic layer positioned over at least a portion of the first layer, the second layer having lubricating properties; and

a third hydrophilic, deformable layer positioned over at least a portion of the second layer; and

positioning the threads of the second pipe at a selected position with respect to the first pipe within the assembled joint;

wherein thread parameters of the first and second pipe are within selected parameter ranges.

2. The method of Claim 1, wherein neither of the first and second pipes comprises a torque shoulder.

3. The method of any of Claims 1 or 2, wherein the assembled joint does not comprise a dope or grease.

4. The method of any of Claims 1-3, wherein a thickness of each of the first layers of the first and second pipes is independently selected within the range between 4 μm to 10 μm.

5. The method of any of Claims 1-4, wherein a thickness of each of the second layers of the first and second pipes is independently selected within the range between 25 μm to 50 μm.

6. The method of any of Claims 1-5, wherein a thickness of the third layers of each of the first and second pipes is independently selected within the range between 12 μm to 15 μm.

7. The method of any of Claims 1-6, wherein the first layers of the first and second pipes are independently selected from manganese phosphate and zinc phosphate, wherein the second layers of the first and second pipes each comprises an epoxy, and wherein the third layers of the first and second pipes each comprise a wax.

8. The method of any of Claims 1-7, wherein a pitch diameter of the threads of each of the first and second pipes is within +/- 0.0078" of a selected value.

9. The method of Claim 8, wherein the pitch diameter of the threads of each of the first and second pipes is within +/- 0.004" of the selected value.

10. The method of any of Claims 1-9, wherein a thread taper of the threads of each of the first and second pipes is 0.060 / 0.0677.

11. The method of Claim 10, wherein the thread taper of the threads of each of the first and second pipes is 0.060 / 0.065.

12. The method of any of Claims 1-11, wherein a thread ovality of the threads of each of the first and second pipes is less than or equal to 0.010".

13. A joint, comprising:

a first pipe comprising a male threaded coupling at an end of the first pipe;

a second pipe comprising a female threaded coupling at an end of the second pipe, the female threaded coupling configured to receive the male threaded coupling of the first pipe;

a first coating on the first pipe, the first coating comprising:

a first layer positioned over at least a portion of the threads of the first pipe, the first layer comprising a phosphate;

a second layer positioned over at least a portion of the first layer, the first layer comprising an epoxy and one or more corrosion inhibiting additives;

a third layer positioned over at least a portion of the second layer, the third layer comprising a wax; and

a second coating on the second pipe, the second coating comprising:

a first layer positioned over at least a portion of the threads of the second pipe, the first layer comprising a phosphate;

a second layer positioned over at least a portion of the first layer, the second layer comprising an epoxy and one or more lubricating additives;

a third layer positioned over at least a portion of the second layer, the third layer comprising a wax;

wherein neither of the first and second pipes comprises a torque shoulder;

wherein thread parameters of the first and second pipes are within selected parameter ranges; and

wherein the second pipe is positioned at a selected position with respect to the first pipe within the joint.

14. The joint of Claim 13, wherein the joint does not comprise a dope or grease.

15. The joint of any of Claims 13 and 14, wherein the phosphate comprises one of manganese phosphate and zinc phosphate.

16. The joint of Claim 15, wherein the thickness of the first phosphate layers of the first and second pipe is independently selected within the range between 4 μm to 10 μm.

17. The joint of any of Claims 13-16, wherein the thickness of the second epoxy layers of the first and second pipes is independently selected within the range between 25 μm to 50 μm.

18. The joint of Claim 13, wherein the epoxy of the first pipe comprises a composition of:

a first part comprising:

20 % epoxy resin;

2 % xylene;

25 % barium sulfate;

5 % zinc oxide;

0.39 % bentone;

0.65 % dioctyl pthalate;

9 % abestine;

0.6 % aerosil; and

a second component comprising:

6% polyamide;

5 % xylene;

20 % bitumen;

8% barium sulfate;

0.56 % aerosil;

0.56 % bentone; and

0.5 catalyst;

wherein the amounts of each component of the composition are on the basis of the weight of the composition and wherein the ratio of the first and second parts of the composition is 1:1 +/- 5 % by volume.

19. The joint of Claim 13, wherein a concentration of the pigment is 5 % to 50% of the total volume of the second layers of the first and second pipes.

20. The joint of Claim 13, wherein the wax comprises an oxidized, microcrystalline wax.

21. The joint of Claim 20, wherein a thickness of the third wax layers of the first and second pipes is selected within the range between 12 μm to 15 μm.

22. The joint of Claim 13, wherein a pitch diameter of the threads of each of the first and second pipe is within +/- 0.0078" of a selected value.

23. The joint of Claim 22, wherein the pitch diameter of the threads of each of the first and second pipe is within +/- 0.004" of the selected value.

24. The joint of Claim 13, wherein a thread taper of the threads of each of the first and second pipe is 0.060 / 0.0677.

25. The joint of Claim 24, wherein the thread taper of the threads of each of the first and second pipe is 0.060 / 0.065.

26. The joint of Claim 13, wherein a thread ovality of the threads of each of the first and second pipe is less than or equal to 0.010".

27. The joint of Claim 13, wherein no leakage is obtained when tested according to API 5C1 under internal pressure less than or equal to 7800 psi and time durations less than or equal to 60 minutes.

28. The joint of Claim 13, wherein no galling occurs after at least five assembly and disassembly operations of the joint.

29. The joint of Claim 13, wherein the second layer of the second pipe comprises a single-component epoxy and exhibits no corrosion under exposure to saline fog for at least 300 hours when tested according to ASTM B117.