receptacle. The applicator device may also include a flexible lid configured to sealingly enclose the packet within the receptacle and configured to deflect in response to application of exterior pressure, enabling application of the exterior pressure to the packet when disposed within the receptacle to thereby compress the packet to release the fluid from the packet. The base may be located at the distal end of the handle and may include a distal opening. The base may be configured to direct flow of the released fluid and may include a distal opening in the base. In addition, the applicator pad may be configured to be coupled to the base, in fluid communication with an interior portion of the receptacle via the distal opening in the base.

[008] In some aspects, the present disclosure is directed to a system for applying a fluid. The system may include a packet containing a fluid and comprising first and second opposing packet sides defining therebetween a sealed space containing the fluid. The packet may further comprise a frangible area configured to rupture upon compressing the packet to release the fluid from the packet. The packet may also include a collapsibility feature enabling the first packet side of the packet to invert from a convex position to a concave position upon compressing the packet such that the formerly sealed space is collapsed. The system may also include an applicator device comprising a handle and an applicator pad. The handle may include a proximal end and a distal end, and may comprise a receptacle at the proximal end of the handle, the receptacle being configured to receive the packet of the fluid and facilitate expulsion of the fluid from the packet. The handle may also comprise a flexible lid configured to sealingly enclose the packet within the receptacle. The handle may further comprise a base disposed at the distal end of the handle and configured to direct flow of the released fluid. The base may include a distal opening. The applicator pad may be configured to be coupled to the base, in fluid communication with an interior portion of the receptacle via the distal opening of the base.

[009] In certain aspects, the present disclosure is directed to a method for applying a fluid to a surface. The method may include applying pressure to a flexible outer surface of a handle at a proximal end of an applicator

device to thereby exert pressure on a fluid-filled packet disposed within the handle to compress a flexible portion of the packet, wherein said pressure may cause a frangible area of the packet to rupture to release the fluid from the packet. In some embodiments of the method, the released fluid may flow through the handle through a distal opening in a base at a distal end of the applicator device to an applicator pad attached to the base. In certain embodiments of the method, the applicator pad may be inserted within the distal opening in the base and wrapped around an outer portion of the distal opening of the base. The method may also include contacting the applicator pad of the applicator device to a surface to transfer the fluid from the applicator pad to the surface.

[009a] In some aspects, the present disclosure is directed to a method of attaching an applicator pad to a base of an applicator device, comprising: holding a handle of the applicator device in a fixture with a base of the applicator device facing up; placing the applicator pad on top of the base; bringing an ultrasonic horn of an ultrasonic welding apparatus down over both the applicator pad and the base to thereby create an welds the surface of applicator pad to an edge of the base.

BRIEF DESCRIPTION OF THE DRAWINGS

[010] Fig. 1 illustrates an exploded view of an applicator system according to an exemplary disclosed embodiment;

[011] Fig. 2A illustrates a cross-sectional side view of a packet for containing fluid, according to certain embodiments;

[012] Fig. 2B illustrates a cross-sectional side view of an assembled applicator system including the packet of Fig. 2A;

[013] Fig. 2C illustrates a cross-sectional side view of the packet of Fig. 2A in a collapsed state;

[014] Fig. 2D illustrates a cross-sectional side view of an assembled applicator system including a collapsed packet;

[015] Fig. 3A is a perspective view of a handle with a receptacle of an applicator device according to an exemplary disclosed embodiment;

[016] Fig. 3B is a perspective view of a lid corresponding to the receptacle shown in Fig. 3A;

[017] Fig. 3C is a cross-sectional view of an assembled applicator system, according to certain embodiments;

[018] Fig. 4A illustrates a perspective front view of an assembled applicator system, according to certain embodiments;

What is claimed is:

1. An applicator device for applying a fluid, comprising: a handle having a proximal end and a distal end, the handle comprising:
a receptacle at the proximal end of the handle, the receptacle configured to receive a packet containing a fluid and facilitate expulsion of the fluid from the packet; and a flexible lid configured to sealingly enclose the packet within the receptacle and configured to deflect in response to application of exterior pressure enabling application of the exterior pressure to the packet when disposed within the receptacle to thereby compress the packet to release the fluid from the packet; a base at the distal end of the handle and configured to direct flow of the released fluid and including a distal opening; and an applicator pad coupled to the base, in fluid communication with an interior portion of the receptacle, wherein a portion of the pad is inserted within the distal opening of the base, and a portion of the pad is wrapped around an exterior portion of the distal opening of the base.

2. The applicator device of claim 1, wherein the receptacle has a round shape.

3. The applicator device of claim 2, wherein a central receptacle axis through the round shape of the receptacle is oriented at an angle relative to an axis perpendicular to a plane including the base.

4. The applicator device of claim 2, wherein the packet has a round shape that is configured to fit within the round shape of the receptacle.

5. The applicator device of claim 1, wherein the handle comprises one or more exterior gripping features.

6. The applicator device of claim 5, wherein the one or more exterior gripping features include one or more protruding gripping members, one or more gripping ribs, or one or more textured gripping strips.

7. The applicator device of claim 1, wherein at least a portion of the applicator device is formed of a transparent or translucent material.

8. The applicator device of claim 1, wherein the base comprises one or more perforations over which the applicator pad is configured to be affixed, the perforations allowing flow of the fluid from the receptacle through the base to the applicator pad.

9. The applicator device of claim 1, wherein the base comprises an inner surface and an outer surface to which the applicator pad is configured to be affixed, the outer surface including one or more channels configured to distribute the fluid to different portions of the applicator pad.

10. The applicator device of claim 1, wherein the base comprises an inner surface and an outer surface to which the applicator pad is configured to be affixed, wherein the outer surface of the base is textured.

11. The applicator device of claim 1, wherein the applicator pad comprises a hydrophilic foam.

12. The applicator device of claim 1, wherein the applicator pad comprises a hydrophobic foam.

13. The applicator device of claim 1, wherein the applicator pad comprises felting.

14. The applicator device of claim 1, wherein the applicator pad comprises reticulation.

15. The applicator device of claim 1, wherein the applicator pad comprises multiple pad materials.

16. The applicator device of claim 13, wherein the applicator pad comprises multiple layers, each layer formed of a different pad material.

17. The applicator device of claim 1, wherein the applicator pad comprises multiple layers, including at least one abrasion layer.

18. The applicator device of claim 17, wherein the at least one abrasion layer comprises at least one of a textured foam and woven material.

19. The applicator device of claim 18, wherein the at least one abrasion layer comprises a gauze material comprising cotton, rayon, nylon, or combinations thereof.

20. The applicator device of claim 1, wherein the applicator pad is coupled to the base using at least one of adhesives, pressure sensitive adhesives, flame lamination, heat staking, ultrasonic welding, and laser welding.

21. The applicator device of claim 1, wherein the applicator pad comprises one or more slits configured to promote flow and distribution of the fluid.

22. The applicator device of claim 21, wherein the applicator pad comprises a pattern of slits.

23. The applicator device of claim 1, wherein the applicator device comprises a venting feature configured to permit air to enter the applicator device as the fluid flows out of the packet and receptacle into the applicator pad.

24. The applicator device of claim 1, wherein the lid is configured to distribute force applied to the lid.

25. The applicator device of claim 24, wherein the lid has a dome shape.

26. An applicator device for applying a fluid, comprising: a handle having a proximal end and a distal end, the handle comprising: a receptacle at the proximal end of the handle, the receptacle configured to receive a packet containing a fluid and facilitate expulsion of the fluid from the packet, the applicator device including at least one venting feature configured to allow air flow into or out of the receptacle; and a flexible lid configured to sealingly enclose the packet within the receptacle and configured to deflect in response to application of exterior pressure, enabling application of the exterior pressure to the packet when disposed within the receptacle to thereby compress the packet to release the fluid from the packet; a base at the distal end of the handle and configured to direct flow of the released fluid and including a distal opening; and an applicator pad configured to be coupled to the base, in fluid communication with an interior portion of the receptacle via the distal opening of the base.

27. The applicator device of claim 26, wherein the venting feature comprises an area at a junction between the lid and the receptacle that is left unsealed.

28. The applicator of claim 26, wherein the receptacle further comprises a three-sided channel configured to direct flow of the fluid to the distal opening of the base.

29. A system for applying a fluid, comprising: a packet containing a fluid, the packet comprising: first and second opposing packet sides defining therebetween a sealed space containing the fluid; a frangible area configured to rupture upon compressing the packet to release the fluid from the packet; and a collapsibility feature enabling the first packet side of the packet to invert from a convex position to a concave position upon compressing the packet so that the formerly sealed space is collapsed; and an applicator device comprising: a handle having a proximal end and a distal end, the handle comprising a receptacle at the proximal end of the handle, the receptacle configured to receive the packet of the fluid and facilitate expulsion of the fluid from the packet; a base disposed at the distal end of the handle and configured to direct flow of the released fluid and including a distal opening; and an applicator pad configured to be coupled to the base, in fluid communication with an interior portion of the receptacle via the distal opening of the base.

30. The system of claim 29, wherein the receptacle has a round shape.

31. The system of claim 30, wherein a central receptacle axis through the round shape of the receptacle is oriented at an angle relative to an axis perpendicular to a plane including the base.

32. The system of claim 31, wherein the angle is 90 degrees.

33. The system of claim 31, wherein the packet has a round shape that is configured to fit concentrically within the round shape of the receptacle.

34. The system of claim 33, wherein the receptacle and the packet have corresponding orienting features that orient the packet with respect to the receptacle.

35. The system of claim 34, wherein the orienting features comprise a structure on the receptacle that deviates from the round shape of the receptacle and a corresponding structure on the packet that deviates from the round shape of the packet.

36. The system of claim 35, wherein the orienting features comprise corresponding protrusions on the receptacle and the packet.

37. The system of claim 36, wherein the protrusion on the receptacle is configured to orient the packet with the protrusion of the packet positioned toward the base.

38. The system of claim 37, wherein the protrusion on the packet comprises the frangible area of the packet.

39. The system of claim 33, wherein the first packet side comprises a first central portion and a first peripheral portion, and the second packet side includes a second central portion and a second peripheral portion; wherein the first and second packet sides of the packet are sealed to each other at a junction between the first peripheral portion and the second peripheral portion; and wherein the first central portion has a smaller diameter than the second peripheral portion, thereby forming the collapsibility feature.

40. The system of claim 29, further comprising a flexible lid configured to sealingly enclose the packet within the receptacle, wherein the lid is configured to deflect in response to the application of exterior pressure, enabling application of the exterior pressure to the packet when disposed within the receptacle to thereby compress the packet to release the fluid from the packet.

41. The system of claim 40, wherein the lid is sealingly attached to a rim of the receptacle using an ultrasonic weld.

42. The system of claim 29, wherein the applicator device comprises at least one venting feature configured to allow air flow into or out of the receptacle.

43. The system of claim 42, the applicator further comprising a lid configured to sealingly enclose the packet within the receptacle, wherein the venting feature comprises an area at a junction between the lid and the receptacle that is left unsealed.

44. The system of claim 29, wherein the packet contains a fluid comprising a topical antiseptic.

45. The system of claim 44, wherein the topical antiseptic comprises at least one active ingredient chosen from ethanol, isopropyl alcohol, other alcohols, and combinations thereof; benzalkonium chloride; benzethonium chloride; chlorhexidine gluconate; chloroxylenol; cloflucarban; flourosalan; hexachlorophene; hexylresorcinols; iodine containing compounds; biguanide derivatives (or a salt thereof); povidone iodine; povidone iodine with alcohol, ethanol, isopropyl alcohol, other alcohols, and combinations thereof.

46. The system of claim 44, wherein the fluid further comprises a polyoxyethylene (POE)-based nonionic surfactant.

47. The system of claim 46, wherein the nonionic surfactant is at least one surfactant selected from Poloxamer 124, POE (9) lauryl ether, and POE (10) lauryl ether.

48. The system of claim 44, wherein the topical antiseptic comprises a biguanide derivative or a salt thereof.

49. The system of claim 48, wherein the biguanide derivative or salt thereof is olanexidine [1- (3,4-dichlorobenzyl)-5-octylbiguanide] or a salt thereof.

50. The system of claim 49, wherein the topical antiseptic comprises olanexidine gluconate.

51. The system of claim 48, wherein the biguanide derivative or a salt thereof is present at a concentration of 0.05 to 5.0 % (w/v of biguanide base).

52. The system of claim 44, wherein the fluid further comprises a polyoxyethylene-based nonionic surfactant at a concentration of 0.05 to 16 % (w/v).

53. The system of claim 29, wherein the applicator device is provided in ready to use form, wherein the packet is sealed within the receptacle and the applicator pad is attached to the base.

54. A method for applying a fluid to a surface, comprising: applying pressure to a flexible outer surface of a handle at a proximal end of an applicator device to thereby exert pressure on a fluid-filled packet disposed within the handle to compress a

flexible portion of the packet, causing a frangible area of the packet to rupture to release the fluid from the packet; allowing the fluid to flow through the handle through a distal opening in a base at a distal end of the applicator device to an applicator pad attached to the base, the applicator pad being inserted within the distal opening in the base and wrapped around an outer portion of the distal opening of the base; and contacting the applicator pad of the applicator device to a surface to transfer the fluid from the applicator pad to the surface.

55. The method of claim 54, wherein the fluid comprises a topical antiseptic.

56. The method of claim 55, wherein the topical antiseptic comprises at least one active ingredient chosen from ethanol, isopropyl alcohol, other alcohols, and combinations thereof; benzalkonium chloride; benzethonium chloride; chlorhexidine gluconate; chloroxylenol; cloflucarban; flourosalan; hexachlorophene; hexylresorcinols; iodine containing compounds; biguanide derivatives (or a salt thereof); povidone iodine; povidone iodine with alcohol, ethanol, isopropyl alcohol, other alcohols, and combinations thereof.

57. The method of claim 55, wherein the fluid further comprises a polyoxyethylene (POE)-based nonionic surfactant.

58. The method of claim 57, wherein the nonionic surfactant is at least one surfactant selected from Poloxamer 124, POE (9) lauryl ether, and POE (10) lauryl ether.

59. The method of claim 55, wherein the topical antiseptic comprises a biguanide derivative or a salt thereof.

60. The method of claim 59 wherein the biguanide derivative or salt thereof is olanexidine [1- (3,4-dichlorobenzyl)-5-octylbiguanide] or a salt thereof.

61. The method of claim 60, wherein the topical antiseptic comprises olanexidine gluconate.

62. The method of claim 59, wherein the biguanide derivative or a salt thereof is present at a concentration of 0.05 to 5.0 % (w/v of biguanide base)

63. The method of claim 55, wherein the fluid further comprises a polyoxyethylene-based nonionic surfactant present at a concentration of 0.05 to 16 % (w/v).

64. A method of attaching an applicator pad to a base of an applicator device, comprising: holding a handle of the applicator device in a fixture with a base of the applicator device facing up; placing the applicator pad on top of the base; bringing an

ultrasonic horn of an ultrasonic welding apparatus down over both the applicator pad and the base to thereby create an welds the surface of applicator pad to an edge of the base.