Claims

We claim:

1. A liner-based system comprising:

an overpack; and

a liner provided within the overpack, the liner comprising a mouth and a liner wall forming an interior cavity of the liner and having a thickness such that the liner is substantially self-supporting in an expanded state, but is collapsible at a pressure of less than about 20 psi.

2. The liner-based system of claim 1, wherein the liner is configured to collapse away from an interior wall of the overpack upon the introduction of a gas or liquid into an annular space between the liner and the overpack, thereby dispensing contents of the liner.

3. The liner-based system of claim 2, wherein at least one of the liner or overpack comprises one or more surface features for controlling the collapse of the liner.

4. The liner-based system of claim 3, wherein the one or more surface features comprise a plurality of rectangular-shaped panels spaced around the circumference of the at least one of the liner or overpack.

5. The liner-based system of claim 4, wherein the liner and overpack are coblowmolded.

6. The liner-based system of claim 5, wherein the one or more surface features for controlling the collapse of the liner are configured to maintain integrity between the liner and overpack when not in active dispense.

7. The liner-based system of claim 3, further comprising a chime coupled to the exterior of the overpack.

8. The liner-based system of claim 7, wherein the chime is coupled to the overpack by snap fit, the chime substantially entirely covering the one or more surface features.

9. The liner-based system of claim 2, wherein at least one of the liner or overpack are configured to control the collapse of the liner such that the liner collapses substantially evenly circumferentially away from the interior wall of the overpack.

10. The liner-based system of claim 2, further comprising a liquid selected from the group consisting of: acids, solvents, bases, photoresists, phosphorescent dopants, ink jet inks, slurries, detergents or cleaning formulations, dopants, inorganic, organic, metalorganics, TEOS, or biological solutions, DNA or RNA solvents or reagents, pharmaceuticals, hazardous waste, radioactive chemicals, nanomaterials, sol-gels, ceramics, liquid crystals, coating materials, paints, polyurethanes, food, soft drinks, cooking oils, agrochemicals, industrial chemicals, cosmetic chemicals, petroleum, lubricants, adhesives, sealants, health or oral hygiene products, and toiletry products.

11. The liner-based system of claim 8, wherein the chime comprises a barrier coating for protecting contents of the liner.

12. The liner-based system of claim 2, further comprising means for preventing choke-off.

13. The liner-based system of claim 2, further comprising a liquid within the interior cavity of the liner and wherein at least some of the headspace gas has been removed.

14. The liner-based system of claim 2, wherein at least one of the liner or overpack comprises a plurality of wall layers.

15. The liner-based system of claim 2, wherein at least one of the liner or overpack are comprise of a biodegradable material.

16. The liner-based system of claim 2, further comprising a sensor for measuring dispense of the contents of the liner.

17. The liner-based system of claim 2, further comprising a device for tracking at least one of liner contents or liner usage.

18. The liner-based system of claim 2, further comprising a dessicant between the liner and overpack.

19. The liner-based system of claim 1, further comprising a cap adapted for coupling with the mouth of the liner.

20. The liner-based system of claim 19, further comprising a connector for at least one of filling the liner or dispensing contents from the liner, the connector adapted for coupling with the cap of the liner.

21. The liner-based system of claim 20, wherein the connector is configured for substantially aseptic filling or dispense.

22. The liner-based system of claim 20, wherein the connector comprises a diptube probe that partially extends into the liner for dispensing the contents of the liner.

23. The liner-based system of claim 22, wherein the connector is further adapted for recirculation of the contents of the liner.

24. The liner-based system of claim 2, wherein the liner wall in an expanded shape is substantially cylindrical.

25. The liner-based system of claim 2, wherein the liner wall in an expanded shape has a substantially rectangular or square cross-section.

26. The liner-based system of claim 1, wherein the liner comprises a plurality of predetermined fold lines that allow the liner to be collapsed in a predetermined manner, and wherein the liner is provided within the overpack by collapsing the

liner in the predetermined manner, inserting the collapsed liner into a mouth of the overpack, and expanding the liner inside the overpack.

27. The liner-based system of claim 1, wherein the overpack comprises two interconnecting portions.

28. A liner comprising:

a polymeric liner wall forming an interior cavity of the liner, the liner wall having a thickness of between about 0.1 mm to about 3 mm such that the liner is substantially free-standing; and

a mouth configured for coupling with a pump dispense connector having a diptube.

29. The liner of claim 28, wherein the pump dispense connector is that of a conventional glass bottle dispensing system.

30. The liner of claim 29, wherein the liner comprises an overpack layer and an liner layer disposed therein.

31. The liner of claim 30, wherein the liner and overpack are coblowmolded.

32. A method for dispensing the contents of a liner-based system, the method comprising:

providing a liner comprising:

a polymeric liner wall forming an interior cavity of the liner, the liner wall having a thickness of between about 0.1 mm to about 3 mm such that the liner is substantially free-standing; and

a mouth configured for coupling with a pump dispense connector having a diptube, wherein the pump dispense connector is that of a conventional glass bottle dispensing system;

coupling the mouth of the liner to the pump dispense connector; and

dispensing contents of the liner via the pump dispense connector.

33. A method of delivering a material to a downstream process, comprising:

providing a liner comprising a mouth and a liner wall forming an interior cavity of the liner with the material stored therein, the liner having a thickness such that the liner is substantially self-supporting in an expanded state, but is collapsible at a pressure of less than about 20 psi, and the liner having a diptube in the interior for dispensing the material therefrom;

coupling the diptube to a downstream process;

dispensing the material from the container via the diptube and delivering the material to the downstream process.

CLAIMS

We claim:

1. A liner-based system comprising:

an overpack; and

a liner provided within the overpack, the liner comprising a mouth and a liner wall forming an interior cavity of the liner and having a thickness such that the liner is substantially self-supporting in an expanded state, but is collapsible at a pressure of less than about 20 psi.

2. The liner-based system of claim 1, wherein the overpack and the liner have substantially the same form.

3. The liner-based system of claim 1, wherein the liner is configured to collapse away from an interior wall of the overpack upon the introduction of a gas or liquid into an annular space between the liner and the overpack, thereby dispensing contents of the liner.

4. The liner-based system of claim 3, wherein at least one of the liner or overpack comprises one or more surface features for controlling the collapse of the liner.

5. The liner-based system of claim 4, wherein the one or more surface features comprise a plurality of rectangular-shaped panels spaced around the circumference of the at least one of the liner or overpack.

6. The liner-based system of claim 5, wherein the liner and overpack are coblowmolded.

7. The liner-based system of claim 6, wherein the one or more surface features for controlling the collapse of the liner are configured to maintain integrity between the liner and overpack when not in active dispense.

8. The liner-based system of claim 3, wherein at least one of the liner or overpack are configured to control the collapse of the liner such that the liner collapses substantially evenly circumferentially away from the interior wall of the overpack.

9. The liner-based system of claim 4, further comprising a chime coupled to the exterior of the overpack, wherein the chime comprises a barrier coating for protecting contents of the liner.

10. The liner-based system of claim 3, wherein at least one of the liner or overpack are comprise of a biodegradable material.

11. The liner-based system of claim 3, further comprising at least one of a sensor for measuring dispense of the contents of the liner and a device for tracking at least one of liner contents or liner usage.

12. The liner-based system of claim 3, further comprising a dessicant between the liner and overpack.

13. The liner-based system of claim 1, further comprising a connector for at least one of filling the liner or dispensing contents from the liner.

14. The liner-based system of claim 13, wherein the connector is configured for substantially aseptic filling or dispense.

15. The liner-based system of claim 13, wherein the connector is configured for at least one of direct pressure dispense, indirect pressure dispense, pump dispense, pressure assisted pump dispense, gravity dispense and pressure assisted gravity dispense.

16. The liner-based system of claim 13, wherein the connector comprises a diptube probe that partially extends into the liner for dispensing the contents of the liner.

17. The liner-based system of claim 16, wherein the connector is further adapted for recirculation of the contents of the liner.

18. The liner-based system of claim 1, wherein the overpack comprises two interconnecting portions.

19. The liner-based system of claim 13, wherein the connector is that of a conventional glass bottle dispensing system.

20. A method of delivering a material to a downstream process, the method comprising:

providing a liner comprising a mouth and a liner wall forming an interior cavity of the liner with the material stored therein, the liner having a thickness such that the liner is substantially self-supporting in an expanded state, but is collapsible at a pressure of less than about 20 psi, and the liner having a diptube in the interior for dispensing the material therefrom;

coupling the diptube to a downstream process; and

dispensing the material from the container via the diptube and delivering the material to the downstream process.