CLAIMS

1. A system, comprising:

a liquid container, wherein the liquid container comprises a metal material;

a plurality of discrete, pre-fabricated, multi-layer self-sealing panels connected to the liquid container, wherein the plurality of discrete, multi-layer self-sealing panels are field mountable to and substantially cover an exterior surface of the liquid container, and wherein at least one of the plurality of discrete, pre-fabricated, multi-layer self-sealing panels comprises:

a first self-sealing layer comprising an elastomeric self-sealing material;

a first barrier layer portion comprising a polyurethane material, wherein the first barrier layer is connected to the liquid container;

a first fabric layer between the first self-sealing layer and the first barrier layer portion, wherein the first fabric layer comprises an ultra-high molecular weight polyethylene material;

a second barrier layer portion;

a second self-sealing layer between the second barrier layer portion and the first self-sealing layer; and

a second fabric layer between the second barrier layer portion and the second-self-sealing layer; and

a cap member connected to at least two of the plurality of discrete, multi-layer self-sealing panels, wherein the cap member covers at least one of the following:

one or more portions of the exterior surface of the liquid container; and

an exterior surface of each of the at least two of the plurality of discrete, multi-layer self-sealing panels.

2. The system of claim 1, wherein the at least one of the plurality of discrete, multi-layer self-sealing panels is an encapsulated self-sealing panel.

3. The system of claim 1, wherein the at least one of the plurality of discrete, multi-layer self-sealing panels is a flexible self-sealing panel.

4. The system of claim 1, wherein the at least one of the plurality of discrete, multi-layer self-sealing panels comprises a laminate structure.

5. The system of claim 4, wherein the laminate structure further comprises an adhesive material positioned between the first self-sealing layer and the second self-sealing layer.

6. The system of claim 1, wherein the cap member is a flexible cap member.

7. The system of claim 1, wherein the cap member is a rigid cap member.

8. The system of claim 1, wherein the cap member is a self-sealing cap member.

9. The system of claim 1, wherein the cap member comprises a laminate structure.

10. The system of claim 9, wherein the laminate structure comprises:
a barrier layer; and
a self-sealing layer.

11. The system of claim 10, wherein the laminate structure further comprises a second self-sealing layer positioned between the barrier layer and the self-sealing layer.

12. The system of claim 11, wherein the laminate structure further comprises a third self-sealing layer, wherein the self-sealing layer is positioned between the second and third self-sealing layers.

13. The system of claim 12, wherein the laminate structure further comprises an adhesive material positioned between the self-sealing layer and the second self-sealing layer.

14. The system of claim 10, wherein the laminate structure further comprises a fabric layer positioned between the self-sealing layer and the barrier layer.

15. The system of claim 10, wherein the laminate structure further comprises a second barrier layer, wherein the self-sealing layer is positioned between the barrier layer and the second barrier layer.

16. The system of claim 15, wherein the laminate structure further comprises a fabric layer positioned between the second barrier layer and the self-sealing layer.

17. The system of claim 1, wherein the cap member is connected to each of the at least two of the plurality of discrete, multi-layer self-sealing panels by an adhesive material.

18. The system of claim 1, wherein the cap member is connected to each of the at least two of the plurality of discrete, multi-layer self-sealing panels by a fastener.

19. The system of claim 1, wherein the cap member defines a discontinuity between two adjacent portions of the cap member.

20. The system of claim 1, further comprising an adhesive material applied on a surface of the at least one of the plurality of discrete, multi-layer self-sealing panels.

21. The system of claim 1, further comprising:

an adhesion promoter applied on a surface of the at least one of the plurality of discrete, multi-layer self-sealing panels; and

an adhesive material applied on the adhesion promoter.

22. The system of claim 1, further comprising a grommet, wherein the grommet covers at least one of the following:

at least one of the one or more portions of the exterior surface of the liquid container; and

at least a portion of the exterior surface of each of the at least two of the plurality of discrete, multi-layer self-sealing panels.

23. The system of claim 1, further comprising a filler material, wherein the filler material covers at least one of the following:

at least one of the one or more portions of the exterior surface of the liquid container; and

at least a portion of each of the exterior surface of the at least two of the plurality of discrete, multi-layer self-sealing panels.

24. A method, the method comprising:

substantially covering an exterior surface of a liquid container with one or more self-sealing panels wherein at least one of the one or more self-sealing panels comprises:

a first self-sealing layer comprising an elastomeric self-sealing material;

a first barrier layer portion comprising a polyurethane material, wherein the first barrier layer is connected to the liquid container;

a first fabric layer between the first self-sealing layer and the first barrier layer portion, wherein the first fabric layer comprises an ultra-high molecular weight polyethylene material;

a second barrier layer portion;

a second self-sealing layer between the second barrier layer portion and the first self-sealing layer; and

a second fabric layer between the second barrier layer portion and the second-self sealing layer; and

covering at least one of the following with a cap member:

one or more portions of the exterior surface of the liquid container; and

an exterior surface of at least one of the one or more self-sealing panels.

25. The method of claim 24, wherein covering the exterior surface of the liquid container with the one or more self-sealing panels comprises connecting at least one of the one or more self-sealing panels to the exterior surface of the liquid container.

26. The method of claim 24, wherein covering the exterior surface of the at least one of the one or more self-sealing panels comprises connecting the cap member to the at least one of the one or more self-sealing panels.

27. The method of claim 24, further comprising covering at least one of the one or more portions of the exterior surface of the liquid container with one or more grommets.

28. The method of claim 24, further comprising covering at least one of the one or more portions of the exterior surface of the liquid container with a filler material.