Claims :

1. A package system for maintaining the physicochemical integrity of the contents of the package system, the package system having a first end and a second end and comprising:

an outer bag having a first compartment and formed from a gas and/or moisture impermeable polymer material and having an interior, a side wall, a first end and a second end;

a discharge port having an exterior wall that defines an interior passage, wherein the interior passage provides access to the interior of the outer bag;

a removable cap for closing the discharge port and sealingly isolating the interior of the outer bag from the exterior environment;

an inner bag formed from a layer of a gas and/or moisture permeable material and having a first end, a second end and opposing side edges, wherein the side edges are sealingly attached to the side wall on the interior of the outer bag from the second end of the outer bag, and wherein the first end of the inner bag is attached to the interior of the outer bag at a point intermediate the first and second ends of the outer bag or to the exterior wall of the discharge port to form a second compartment; and

at least one desiccant or gas scavenging material,

wherein the first end of the outer bag is sealingly attached around the exterior wall of the discharge port, wherein the at least one desiccant or gas scavenging material is disposed in the inner bag and the second end of the inner bag is sealed closed, and wherein the second end of the outer bag is sealed closed to isolate the interior from an environment exterior to the package system.

2. The package system according to claim 1 further comprising a pressure equalizing port located near the second end of the package system having a passage extending between the interior of the outer bag and the environment exterior to the package system.

3. The package system according to claim 2, wherein the passage of the pressure equalizing port contains one or more filter materials that comprise at least one desiccant or gas scavenging material.

4. The package system according to claim 1 further comprising a handle attached to the second end of the package system.

5. The package system according to claim 1, wherein the layer of gas and/or moisture permeable material is formed from continuous and very fine fibers of randomly distributed and non-directional high-density polyethylene.

6. The package system according to claim 1, wherein the gas and/or moisture impermeable material of the outer bag comprises a low density or a high density polyethylene.

7. The package system according to claim 6, wherein the gas impermeable material comprises at least three layers with a middle layer formed from a gas barrier material.

8. The package system according to claim 7, wherein the gas barrier material of the middle layer is an ethylene/vinyl alcohol copolymer or polychlorotrifluoroethene.

9. The package system according to claim 1, wherein the side edges of the inner fused to the side wall on the interior of the outer bag.

10. The package system according to claim 1 further comprising an over bag having an outer wall comprising a gas and/or moisture impermeable material, an open first end, a sealed second end and an interior, wherein the outer bag is placed inside the over bag through the first end and the first end of the over bag is sealingly closed.

11. The package system according to claim 10, wherein the over bag comprises two or more layers and one of the two or more layers is a gas and/or moisture barrier layer.

12. The package system according to claim 1, wherein the inner bag has a perimetrical edge extending along the first end, the second end and two or more sides that are contiguous to the first and second ends, wherein the outer bag has a perimetrical edge extending along the first end, the second end and two or more sides that are contiguous to the first and second ends, wherein the perimetrical edge along at least one of the first or second ends or one of the contiguous sides of the inner bag is fused to the perimetrical edge along at least one of the first or second ends or one of the contiguous sides of the outer bag.

13. The package system according to claim 1, wherein the desiccant clay, molecular sieves or silica, and wherein the ratio of desiccant to package system contents is at least 0.4 units desiccant per kilogram contents.

14. The package system according to claim 1, wherein the inner bag is made from a cloth or a layer formed using continuous and very fine fibers of high-density polyethylene that are randomly distributed and non-directional.

15. The package system according to claim 1, wherein the packed material includes inorganic salts, organic compounds, amino acids and buffer materials.

16. A package system for maintaining the physicochemical integrity of the contents of the package system, the package system having a first end and a second end and comprising:

an outer bag having an interior and a side wall comprising a layer of gas and/or moisture impermeable polymeric materials in the form of a tube or first and second sheets, wherein the tube has a continuous outer side wall, wherein the first and second sheets have perimetrical edges, wherein the perimetrical edges are in registration and sealingly attached and wherein the outer bag has first and second ends and interior and exterior surfaces;

a discharge port having an exterior surface, wherein the discharge port is located near the second end of the package system and has an interior passage, wherein the interior passage provides access to the interior of the outer bag;

a removable cap for closing the discharge port and sealingly isolating the interior of the outer bag from the exterior environment;

an inner bag comprising a gas and/or moisture permeable layer disposed in the outer bag, wherein the permeable layer has first and second ends, first and second sides, a perimetrical edge and inner and outer surfaces, wherein the first end of the permeable layer is aligned with the first end of the outer bag, wherein the sides edges of the permeable layer are sealingly attached to the interior surface of the outer bag, and wherein the second end of the permeable layer is sealingly attached to the exterior wall of the discharge port or the interior surface of the outer bag intermediate the first and second ends to form a compartment;

a pressure equalizing port located near the first end of the package system and connected to a filter system having a passage extending between the interior of the outer bag and an environment exterior to the package system; and

at least one desiccant or gas scavenging material disposed in the compartment, wherein the second end of the outer bag is sealingly attached around the exterior surface of the discharge port, and wherein the desiccant or gas scavenging material is separated from the first compartment by the gas and/or moisture permeable layer and the interior of the outer bag and the compartment are isolated from the environment exterior to the package system.

17. The package system according to claim 16, wherein the side wall comprises multiple layers of polymeric material.

18. The package system according to claim 17, wherein at least one layer of the multiple layers is a moisture barrier layer.

19. The package system according to claim 16, wherein the side wall comprises a low density or a high density polyethylene and the gas and/or moisture permeable layer is formed from continuous and very fine fibers of randomly distributed and non-directional high-density polyethylene or cloth.