CLAIMS

1. A method of making a disposable absorbent article, said method comprising:

conveying a first fabric into position to receive superabsorbent particles (SAP);

depositing superabsorbent particles on said first fabric to provide discrete aggregates of SAP free of an absorbent matrix;

~~conveying a second fabric of a bulky nonwoven;~~

conveying a second fabric such that the second fabric is moved toward the first fabric, and wherein the first fabric or the second fabric is bulky nonwoven, wherein the bulky nonwoven is a pulpless, open, fibrous network of non-absorbent and hydrophilic fibers;

positioning the second fabric relative to said first fabric such that fibers of said bulky nonwoven entangle particles ~~in a top layer of particles~~ of said SAP aggregate, thereby securing, at least partly, the SAP aggregate; and

bonding said first and second fabric at a network of bond sites to form a pulpless ~~an~~ elongated absorbent core laminate having a plurality of pockets of SAP aggregate, whereby each pocket is defined ~~by bond sites positioned~~ about an aggregate of SAP ~~aggregate and securing the second fabric to the first fabric~~;

conveying the elongated absorbent core laminate, whereby said bulky nonwoven and said pockets inhibit SAP particle migration from said pockets;

situating the elongated absorbent core laminate between a topsheet and a backsheet, thereby forming a core envelope of said topsheet, backsheet, and elongated absorbent core laminate, the topsheet and backsheet further providing a chassis supporting said elongated absorbent core laminate;

forming leg holes in said chassis; and

joining end regions of said chassis to form a disposable absorbent article, whereby said bulky nonwoven and said pockets inhibit SAP ~~particle~~ migration from said pockets.

2. The method of claim 1, wherein said conveying said fabric is preceded by applying an adhesive pattern on said first fabric.

3. The method of claim 2, wherein said applying adhesive includes applying adhesive in a continuous open pattern having enclosed open regions free of adhesive, and wherein said open regions have an average width smaller than an average width of said pockets.

4. The method of claim 1, wherein said bonding includes bonding said fabrics using arrangements of bond points about said aggregates of SAP ~~aggregates~~ to produce said pockets bounded by spaced apart bond points with gaps therebetween for fluid passage.

5. The method of claim ~~1~~4, wherein the arrangements of bond points form a grid characterized by lines through the bond points directed generally laterally toward side margins of the elongated absorbent core laminate at angles less that ninety degrees from a longitudinal centerline of said elongated absorbent core laminate.

6. The method of claim 1, wherein the first fabric is the bulky nonwoven.

7. The method of claim 1, wherein the second fabric is the bulky nonwoven.

8. The method of claim 1, wherein said bulky nonwoven has a thickness between 1,000 μm to 5,000 μm, a density between 0.01 g/cc and 0.08 g/cc, a basis weight between 30 g/m^2 and 80 g/m^2, and an effective pore diameter greater than 300 μm.

9. The method of claim 1, wherein at least some of said SAP is positioned between said first and second fabrics.

10. The method of claim 1, wherein the first and second fabrics are two discrete fabrics of the elongated absorbent core laminate.

~~6. An absorbent composite comprising:~~

~~a bulky nonwoven substrate;~~

~~a top fabric bonded with said bulky nonwoven substrate; and~~

~~a layer of superabsorbent particles (SAP) secured therebetween, including hot melt adhesive interspersed with said SAP to mutually secure said SAP with said bulky nonwoven substrate and said top fabric.~~

~~7. The absorbent composite of claim 6, wherein said top fabric is a tissue layer.~~

~~8. The absorbent composite of claim 6, wherein said SAP is disposed along a plane between said bulky nonwoven substrate and said top fabric.~~

~~9. The absorbent composite of claim 6, wherein bonding between said bulky nonwoven substrate and said top fabric define a bonding pattern of geometric enclosures surrounding SAP.~~

~~10~~11. A method of manufacturing an absorbent composite, said method comprising:

conveying a first substrate ~~of a nonwoven material~~;

delivering a mixture of superabsorbent particles (SAP) with hot melt adhesive particles onto the conveyed first substrate;

as the first substrate with said mixture is conveyed, applying heat to the first substrate, thereby activating the hot melt adhesive particles and bonding the SAP with the hot melt particles and the first substrate; and

applying a second substrate atop the first substrate and SAP layer bonded therewith to form a pulpless absorbent composite, wherein one of said first and second substrates is a bulky non-woven, wherein said bulky non-woven is a pulpless, open, fibrous network of non-absorbent and hydrophilic fibers including fibers entangling at least some of said SAP.

~~11~~12. The method of claim ~~10~~11, further comprising:

bonding the first substrate with the second substrate to produce an absorbent composite laminate.

~~12~~13. The method of claim ~~11~~12, wherein said bonding includes using heat embossing to create a bonding pattern on the absorbent composite laminate.

~~13~~14. The method of claim ~~10~~11, wherein the first substrate is a bulky nonwoven material.

~~14~~15. The method of claim ~~10~~11, wherein said ~~hot melt particles and said SAP are mixed at a ratio between~~mixture comprises from 1 to 10% hot melt adhesive by weight.

~~15. A disposable absorbent article, comprising:~~

~~a chassis body defined by a first end margin and a second end margin longitudinally spaced from the first end margin, the end margins partially defining front and back waist regions that are fastenable about a waist of a user;~~

~~a topsheet;~~

~~a backsheet; and~~

~~an absorbent composite disposed between the topsheet and backsheet, the absorbent composite including~~

~~a first fabric;~~

~~a second fabric bonded to said first fabric; and~~

~~absorbent particles adhered between said first and second fabric; and~~

wherein the first fabric is intermittently attached to the second fabric to define a plurality of containers situated between the first fabric and the second fabric and containing an aggregate of absorbent particles; and

wherein the absorbent composite includes regions of containers of absorbent particles aggregates including a primary region having containers of a first size and a secondary region having a plurality of containers of a second size different from the first size; and

wherein the topsheet and backsheet define longitudinal and lateral margins of the chassis body.

16. The disposable absorbent garment of claim 15, wherein the primary region corresponds a crotch region of the article, said crotch region being located centrally intermediate the longitudinal margins of the chassis body, and wherein the absorbent particles are superabsorbent particles.

17. The disposable absorbent garment of claim 16, wherein containers of the primary region have perimeters that are greater than perimeters of containers in the secondary region.

18. The disposable absorbent garment of claim 17, wherein the containers of the secondary region surround the primary region.

19. The disposable absorbent garment of claim 18, wherein the absorbent composite further includes end regions having containers of a size different from the size of containers in the secondary region; and wherein the secondary region is intermediate the primary region and an end region.

20. The disposable absorbent garment of claim 19, wherein each of the end regions have containers with perimeters that are substantially smaller than the perimeters of containers in the secondary region.

21. A disposable absorbent article, comprising:

a chassis body defined by a first end margin and a second end margin longitudinally spaced from the first end margin, the end margins partially defining front and back waist regions that are fastenable about a waist of a user;

a topsheet;

a backsheet, wherein the topsheet and backsheet define longitudinal and lateral margins of the chassis body; and

an absorbent composite disposed between the topsheet and backsheet, the absorbent composite including a first fabric; a second fabric bonded to said first fabric; and absorbent particles adhered between said first and second fabric;

wherein the first fabric is intermittently attached to the second fabric by bonding patterns to define a plurality of containers situated between the first fabric and the second fabric and containing an aggregate of absorbent particles; and

wherein the first fabric is embossed to the second fabric and said bonding patterns are formed by embossing lines, wherein the containers have perimeters defined by the embossing lines engaging the first fabric with the second fabric, and wherein the first fabric or the second fabric is a bulky non-woven.

22. The disposable absorbent article of claim 21, wherein the embossing lines do not form straight lines from a center region of the absorbent composite to side margins of the absorbent composite, and wherein said bonding patterns are free of direct fluid channels from the center region of the absorbent composite to the side margins of the absorbent composite.

23. The disposable absorbent article of claim 21, wherein the embossing lines define containers having diamond shaped perimeters or circle shaped perimeters.

~~24. The disposable absorbent article of claim 23, wherein spaces disposed between the circle shaped perimeters are completely or partially embossed.~~

~~25. The disposable absorbent article of claim 23, wherein spaces disposed between the circle shaped perimeters are not embossed.~~

~~26. The disposable absorbent article of claim 23, wherein spaces disposed between the circle shaped perimeters contain SAP.~~

~~27. The disposable absorbent article of claim 23, wherein spaces disposed between the circle shaped perimeters are free of SAP.~~

~~28. The disposable absorbent article of claim 21, wherein the bulky non-woven comprises a carded PET web, an airthrough bonded nonwoven, a resin bonded nonwoven, or a non-absorbent air-laid structure.~~

~~29. The disposable absorbent article of claim 21, wherein the absorbent particles are entangled within a fibrous network of the bulky non-woven.~~

~~30. The disposable absorbent article of claim 21, wherein the first fabric is the bulky non-woven, and wherein the first fabric is a base layer of the absorbent composite.~~

~~31. The disposable absorbent article of claim 21, wherein the second fabric is the bulky non-woven, and wherein the second fabric is a top layer of the absorbent composite.~~

~~32. The disposable absorbent article of claim 21, wherein the bulky non-woven is characterized by pores of about 2000 microns.~~

~~33~~. ~~A method of forming an absorbent composite comprising:~~

~~applying SAP particles onto a first fabric, the first fabric comprising a sheet or web of bulky non-woven, wherein the SAP particles penetrate into a fibrous network of the bulky non-woven; and~~

~~laminating a second fabric to the first fabric using heat embossing.~~

~~34. The method of claim 33, further comprising using vacuum or vibration to enhance the penetration of the SAP particles into the fibrous network.~~

~~35. A method of forming an absorbent composite comprising:~~

~~mixing a powdered hot melt adhesive with SAP particles;~~

~~distributing the mixture of SAP particles and hot melt adhesive between two nonwoven webs, forming the absorbent composite; and~~

~~activating the hot melt adhesive, wherein the hot melt adhesive bonds the SAP particles and nonwovens webs together, and wherein one of the two nonwoven webs is a bulky non-woven.~~

~~36. The method of claim 35, wherein activating the hot melt adhesive includes passing the absorbent composite through a heating device.~~

~~37. The method of claim 35, wherein the heating device is a heated roller or an infra-red heater.~~

~~38. The method of claim 35, wherein the hot melt adhesive and the SAP particles are mixed at a ratio of 10 to 100 parts SAP particles to 1 part hot melt adhesive by weight.~~

~~39. The method of claim 35, wherein distributing the mixture of SAP particles and hot melt adhesive between two nonwoven webs includes uniformly depositing the mixture on a first of the two nonwoven webs, and then laying a second of the two nonwoven webs on top of the first of the two nonwoven webs, wherein activating the hot melt adhesive is performed after depositing the mixture on the first of the two nonwoven webs, and before laying the second of the two nonwoven webs on top of the first of the two nonwoven webs.~~

~~40. The method of claim 35, further comprising laminating the two nonwoven webs together using heat embossing.~~

~~41. An absorbent core composite for a disposable absorbent article, comprising:~~

~~a first fabric, wherein the first fabric is a nonwoven;~~

~~a body side second fabric, wherein the body side second fabric is a nonwoven;~~

~~a plurality of superabsorbent particles (SAP) situated between the first fabric and the second fabric, wherein a bonding pattern secures the SAP between the first fabric and the second fabric, and wherein the absorbent core composite lacks an absorbent matrix.~~

~~42. The absorbent core composite of claim 41, wherein the body side second fabric is a bulky nonwoven.~~

~~43. The absorbent core composite of claim 41, wherein said first fabric is a bulky nonwoven.~~

~~44. The absorbent core composite of claim 41, wherein said bonding pattern forms pockets in which the SAP is secured.~~

~~45. The absorbent core composite of claim 44, wherein the bonding pattern forms a combination of small pockets with small capillary pores and large pockets with large capillary pores.~~

~~46. The absorbent core composite of claim 44, wherein an adhesive pattern secures the SAP to the first fabric.~~

~~47. The absorbent core composite of claim 46, wherein said adhesive pattern includes a plurality of intersecting loops of adhesive defining open regions free of adhesive.~~

~~48. The absorbent core composite of claim 47, wherein said open regions free of adhesive generally have a width or diameter less than a width or diameter of said pockets situated on said adhesive pattern.~~

~~49. The absorbent core composite of claim 44, wherein said bonding pattern forms a plurality intersecting lines defining a grid of diamond shaped pockets.~~

~~50. The absorbent core composite of claim 44, wherein said bond sites are intermittent bond points.~~

~~51. The absorbent core composite of claim 44, wherein the bonding pattern includes a grid that is free of any direct straight line paths to the side margins of the absorbent core composite.~~

~~52. The absorbent core composite of claim 44, wherein said bonding pattern forms circular shaped pockets.~~

~~53. The absorbent core composite of claim 44, wherein said bonding pattern intermittently attaches the first fabric to the second body side fabric.~~

~~54. The absorbent core composite of claim 44, wherein said bonding pattern defines containers containing SAP.~~

~~55. The absorbent core composite of claim 54, wherein the containers include containers of a first size and containers of a second size different from the first size.~~

~~56. The absorbent core composite of claim 55, wherein the containers of the second size are positioned to fill voids between adjacent containers of the first size.~~

~~57. The absorbent core composite of claim 41, further comprising hot melt adhesive interspersed with said SAP to mutually secure said SAP with said first and second fabrics.~~

~~58. The absorbent core composite of claim 41, wherein the absorbent core composite includes SAP-free margins.~~

~~59. The absorbent core composite of claim 41, wherein the bonding pattering is formed of spaced apart bond sites.~~

~~60. The absorbent core composite of claim 41, wherein the absorbent core composite is a multilayer laminate, including:~~

~~the first fabric, forming a base layer of the multilayer laminate;~~

~~a first layer of SAP secured to the first fabric; and~~

~~a second layer of SAP secured above the first layer of SAP to the second body side fabric.~~

~~61. The absorbent core composite of claim 60, wherein an adhesive pattern including loops of adhesive secures the first layer of SAP to the first fabric, and another adhesive pattern including loops of adhesive secures the second layer of SAP to the second body side fabric.~~

16. A method of manufacturing an absorbent composite laminate for use in a disposable absorbent article, the method comprising:

conveying a first fabric into position to receive superabsorbent particles (SAP);

depositing SAP on said first fabric to provide discrete aggregates of SAP on the first fabric;

conveying a second fabric;

applying the second fabric onto said first fabric such that said discrete aggregates of SAP are positioned between said first and second fabrics to form a pulpless absorbent composite laminate; and

wherein one of said first and second fabrics is a bulky non-woven, wherein said bulky non-woven is a pulpless, open, fibrous network of non-absorbent and hydrophilic fibers including fibers entangling at least some of said SAP.

17. The method of claim 16, further comprising pockets defined between said first and second fabrics, wherein said discrete aggregates of SAP are positioned within said pockets, and said bulky non-woven includes fibers extending into said pockets and entangling at least some of said SAP within said pockets.

18. The method of claim 16, wherein said second fabric is the bulky non-woven, said bulky non-woven entangling particles in a top layer of particles of the aggregates of SAP, thereby securing, at least partly, the aggregates of SAP between the first and second fabrics.

19. The method of claim 16, wherein said first fabric is the bulky non-woven.

20. The method of claim 16, wherein said bulky nonwoven has a thickness between 1,000 μm to 5,000 μm, a density between 0.01 g/cc and 0.08 g/cc, a basis weight between 30 g/m^2 and 80 g/m^2, and an effective pore diameter greater than 300 μm.

21. The method of claim 16, wherein said aggregates of SAP are pulpless and free of an absorbent matrix.