

CLAIMS

What is claimed is:

1. An absorbent product comprising:
 - a package having an interior space and an exterior surface; and
 - a plurality of disposable absorbent articles disposed within the interior space of the package, each of the disposable absorbent articles having a topsheet; a backsheet; a substantially cellulose free absorbent core located between the topsheet and the backsheet; a first waist region; a second waist region; a crotch region extending longitudinally between the first and second waist regions; and a fastening member extending laterally outward from the second waist region and adapted to releasably connect with a landing zone located in the first waist region;wherein the absorbent product exhibits an In-Bag Stack Height of less than about 80 mm as measured according to an In-Bag Stack Height Test.
2. The absorbent product according to claim 1, wherein the absorbent product exhibits an In-Bag Stack Height of less than about 78 mm.
3. The absorbent product according to claim 1, wherein the absorbent product exhibits an In-Bag Stack Height of from about 72 mm to about 80 mm.
4. The absorbent product according to any of the preceding claims, wherein the absorbent product exhibits a calculated Bag Utilization Factor of less than about $0.030 \text{ m}^2/\text{pad}/\text{m}$.
5. The absorbent product according to any of claims 1-3, wherein the absorbent product exhibits a calculated Bag Utilization Factor of from about $0.027 \text{ m}^2/\text{pad}/\text{m}$ to about $0.030 \text{ m}^2/\text{pad}/\text{m}$.
6. The absorbent product according to any of the preceding claims, wherein the absorbent core consists essentially of first and second substrates, absorbent particulate polymer material, and thermoplastic adhesive material.
7. The absorbent product according to any of the preceding claims, wherein the absorbent particulate polymer material is present in the absorbent core in an amount greater than about 80% by weight of the absorbent core.
8. The absorbent product according to any of the preceding claims, wherein the disposable absorbent articles exhibit a longitudinal bending stiffness of less than about 355 N/m as measured according to a Stiffness Test Method.

9. The absorbent product according to any of claims 1-7, wherein the disposable absorbent articles exhibit a longitudinal bending stiffness of less than about 325 N/m as measured according to a Stiffness Test Method.
10. The absorbent product according to any of claims 1-7, wherein the disposable absorbent articles exhibit a longitudinal bending stiffness of from about 285 N/m to about 355 N/m as measured according to a Stiffness Test.

CLAIMS

1. An absorbent product comprising:

a package having height, width and depth dimensions, an interior space and an exterior surface, the package comprising a film;

a plurality of disposable absorbent articles, which are bi-folded and arranged to form a stack of disposable absorbent articles, wherein the stack of disposable absorbent articles is compressed along a compression axis and disposed within the interior space of the package such that the compression axis of the stack of disposable absorbent articles is oriented substantially along the width dimension of the package, each of the folded disposable absorbent articles comprising a topsheet, a liquid impervious backsheet, a substantially cellulose free absorbent core located between the topsheet and the backsheet, a first waist region, a second waist region, and a crotch region extending longitudinally between the first and second waist regions, and a fastening member-adapted to releasably connect with a landing zone;

wherein the backsheet comprises a thermoplastic film having an inner facing surface and an outer facing surface;

wherein the substantially cellulose free absorbent core comprises a nonwoven substrate having first and second surfaces, an absorbent particulate polymer material disposed on the second surface of the nonwoven substrate and a thermoplastic composition applied to the absorbent particulate material, wherein the first surface of the nonwoven substrate faces the inner facing surface of the thermoplastic film;

wherein more than 60% of the absorbent particulate polymer is disposed in a front half of each of the absorbent articles;

wherein the absorbent product exhibits an In-Bag Stack Height from 72 mm to 80 mm wherein the In-Bag Stack Height is the width of the package divided by the number of the disposable articles per stack and then multiplied by ten; and

wherein the disposable absorbent articles exhibit a longitudinal bending stiffness of less than 355 N/m upon removal from the package.

2. The absorbent product of claim 1, wherein the absorbent product exhibits an In-Bag Stack Height of from 74 mm to 78 mm.
3. The absorbent product of claim 1, wherein the absorbent core consists essentially of first and second substrates, absorbent particulate polymer material, and thermoplastic adhesive material.
4. The absorbent product of claim 3, wherein the absorbent particulate polymer material is present in the absorbent core in an amount greater than 80% by weight of the absorbent core.
5. The absorbent product of claim 1, wherein the disposable absorbent articles exhibit a longitudinal bending stiffness of less than 325 N/m upon removal from the package.
6. The absorbent product of claim 1, wherein the disposable absorbent articles exhibit a longitudinal bending stiffness of from 285 N/m to less than 355 N/m upon removal from the package.
7. The absorbent product of claim 6, wherein the disposable absorbent articles exhibit a longitudinal bending stiffness of from 295 N/m to 345 N/m upon removal from the package.
8. The absorbent product of claim 1, wherein the disposable absorbent articles further comprise an acquisition system.
9. The absorbent product of claim 1, wherein the backsheet has a thickness of from 0.012 mm to 0.051 mm.
10. The absorbent product of claim 9, wherein the disposable absorbent articles comprise an acquisition system, wherein the acquisition system comprises the absorbent core in contact with an acquisition layer.
11. The absorbent product of claim 10, wherein the acquisition layer has a maximum uptake of 10 g/g.
12. The absorbent product of claim 11, wherein the acquisition layer has a minimum median desorption pressure (MDP) of greater than 5 cm.
13. The absorbent product of claim 12, wherein the acquisition layer has a median desorption pressure (MDP) of less than 20.5 cm.

14. The absorbent product of claim 13, wherein the thermoplastic composition is applied to the absorbent particulate polymer material forming a fibrous network over the absorbent particulate polymer material.

15. The absorbent product of claim 1, wherein a first portion of the absorbent particulate polymer material is attached to a second nonwoven substrate.

16. The absorbent product of claim 15, wherein the absorbent particulate polymer material of the nonwoven substrate and of the second nonwoven substrate is combined to form a substantially continuous layer of absorbent particulate polymer material.

17. The absorbent product of claim 1, wherein the absorbent core comprises an auxiliary adhesive.

18. The absorbent product of claim 17, wherein the auxiliary adhesive forms a discontinuous field.

19. The absorbent product of claim 18, wherein the auxiliary adhesive is applied to the absorbent core as wide slots.

20. An absorbent product comprising:

a package having height, width and depth dimensions, an interior space and an exterior surface, the package comprising a film;

a plurality of disposable absorbent articles, which are tri-folded and arranged to form a stack of disposable absorbent articles, wherein the stack of disposable absorbent articles is compressed along a compression axis and disposed within the interior space of the package such that the compression axis of the stack of disposable absorbent articles is oriented substantially along the width dimension of the package, each of the folded disposable absorbent articles comprising a topsheet, a liquid impervious backsheet, a substantially cellulose free absorbent core located between the topsheet and the backsheet, a first waist region, a second waist region, and a crotch region extending longitudinally between the first and second waist regions;

wherein the backsheet comprises a thermoplastic film having an inner facing surface and an outer facing surface;

wherein the substantially cellulose free absorbent core comprises a nonwoven substrate having first and second surfaces and an absorbent particulate polymer material, wherein a first thermoplastic composition is disposed on the second surface of the nonwoven substrate such that the first thermoplastic composition is disposed between the nonwoven substrate and the absorbent particulate polymer material, wherein a second thermoplastic composition is disposed on the absorbent particulate polymer material such that the absorbent particulate polymer material is disposed between the first and second thermoplastic compositions;

wherein more than 60% of the absorbent particulate polymer is disposed in a front half of each of the absorbent articles;

wherein the absorbent product exhibits an In-Bag Stack Height of 72 mm to 80 mm wherein the In-Bag Stack Height is the width of the package divided by the number of the disposable articles per stack and then multiplied by ten; and

wherein the disposable absorbent articles exhibit a longitudinal bending stiffness of 285 N/m to 355 N/m upon removal from the package.

21. The absorbent product of claim 20, wherein the absorbent product exhibits an In-Bag Stack Height of from 74 mm to 78 mm.

22. The absorbent product of claim 20, wherein the absorbent core consists essentially of first and second substrates, absorbent particulate polymer material, and thermoplastic adhesive material.

23. The absorbent product of claim 22, wherein the absorbent particulate polymer material is present in the absorbent core in an amount greater than 80% by weight of the absorbent core.

24. The absorbent product of claim 20, wherein the disposable absorbent articles exhibit a longitudinal bending stiffness of from 295 N/m to 345 N/m upon removal from the package.

25. The absorbent product of claim 20, wherein the disposable absorbent articles further comprise an acquisition system.

26. The absorbent product of claim 20, wherein the backsheet has a thickness of from 0.012 mm to 0.051 mm.

27. The absorbent product of claim 26, wherein the disposable absorbent articles comprise an acquisition system, wherein the acquisition system comprises the absorbent core in contact with an acquisition layer.
28. The absorbent product of claim 27, wherein the acquisition layer has a maximum uptake of 10 g/g.
29. The absorbent product of claim 28, wherein the acquisition layer has a minimum median desorption pressure (MDP) of greater than 5 cm.
30. The absorbent product of claim 29, wherein the acquisition layer has a median desorption pressure (MDP) of less than 20.5 cm.
31. The absorbent product of claim 30, wherein the second thermoplastic composition forms a fibrous network over the absorbent particulate polymer material.
32. The absorbent product of claim 20, wherein a first portion of the absorbent particulate polymer material is attached to a second nonwoven substrate.
33. The absorbent product of claim 32, wherein the absorbent particulate polymer material of the nonwoven substrate and of the second nonwoven substrate is combined to form a substantially continuous layer of absorbent particulate polymer material.
34. The absorbent product of claim 20, wherein the first thermoplastic composition comprises an auxiliary adhesive.
35. The absorbent product of claim 34, wherein the auxiliary adhesive forms a discontinuous field.
36. The absorbent product of claim 35, wherein the auxiliary adhesive is applied to the nonwoven substrate as wide slots.
37. A process for packaging a plurality of disposable absorbent articles, the process comprising:

providing a plurality of disposable absorbent articles, each of the disposable absorbent articles comprising a topsheet, a liquid impervious backsheet, a substantially cellulose free absorbent core located between the topsheet and the backsheet, a first waist region, a second waist region, a crotch region extending longitudinally between the first and second waist regions, and wherein the backsheet comprises a thermoplastic film having an

inner facing surface and an outer facing surface and wherein the substantially cellulose free absorbent core comprises a nonwoven substrate having first and second surfaces, an absorbent particulate polymer material disposed on the second surface of the nonwoven substrate and a thermoplastic composition disposed on the absorbent particulate material, wherein the first surface of the nonwoven substrate faces the inner facing surface of the thermoplastic film;

bi-folding each disposable absorbent article of the plurality of disposable absorbent articles to form a plurality of folded disposable absorbent articles;

arranging the plurality of folded disposable absorbent articles to form a stack of folded disposable absorbent articles;

compressing the stack of folded disposable absorbent articles along a compression axis to form a compressed stack of folded disposable absorbent articles;

placing the compressed stack of folded disposable absorbent articles in an interior space of a package comprising a film, the package having height, width and depth dimensions, and an exterior surface, wherein the compressed stack of folded disposable absorbent articles is placed in the interior space of the package such that the compression axis of the stack of folded disposable absorbent articles is oriented substantially along the width dimension of the package; and

closing the package such that the package exhibits an In-Bag Stack Height from 72 to 80 mm wherein the In-Bag Stack Height is the width of the package divided by the number of the disposable articles per stack and then multiplied by ten, and such that upon removal from the package, the disposable absorbent articles exhibit a longitudinal bending stiffness of less than 355 N/m.

38. The process of claim 37, wherein the package exhibits an In-Bag Stack Height of from about 74 mm to 78 mm.

39. The process of claim 37, wherein the absorbent core consists essentially of first and second substrates, absorbent particulate polymer material, and thermoplastic adhesive material.

40. The process of claim 39, wherein the absorbent particulate polymer material is present in the absorbent core in an amount greater than 80% by weight of the absorbent core.

41. The process of claim 37, wherein the disposable absorbent articles exhibit a longitudinal bending stiffness of less than 325 N/m upon removal from the package.
42. The process of claim 37, wherein the disposable absorbent articles exhibit a longitudinal bending stiffness of from 285 N/m to less than 355 N/m upon removal from the package.
43. The process of claim 37, wherein the disposable absorbent articles exhibit a longitudinal bending stiffness of from 295 N/m to 345 N/m upon removal from the package.
44. The process of claim 37, wherein the disposable absorbent articles further comprise an acquisition system.
45. The process of claim 37, wherein the backsheet has a thickness of from 0.012 mm to 0.051 mm.
46. The process of claim 45, wherein the disposable absorbent articles comprise an acquisition system, wherein the acquisition system comprises the absorbent core in contact with an acquisition layer.
47. The process of claim 46, wherein the acquisition layer has a maximum uptake of 10 g/g.
48. The process of claim 46, wherein the acquisition layer has a minimum median desorption pressure (MDP) of greater than 5 cm.
49. The process of claim 48, wherein the acquisition layer has a median desorption pressure (MDP) of less than 20.5 cm.
50. The process of claim 49, wherein the thermoplastic composition is applied to the absorbent particulate polymer material forming a fibrous network over the absorbent particulate polymer material.
51. The process of claim 37, wherein a first portion of the absorbent particulate polymer material is attached to a second nonwoven substrate.
52. The process of claim 51, wherein the absorbent particulate polymer material of the nonwoven substrate and of the second nonwoven substrate is combined to form a substantially continuous layer of absorbent particulate polymer material.

53. The process of claim 37, wherein the absorbent core comprises an auxiliary adhesive.
54. The process of claim 53, wherein the auxiliary adhesive forms a discontinuous field.
55. The process of claim 54, wherein the auxiliary adhesive is applied to the absorbent core as wide slots.