

AUXILIARY ABSORBENT ARTICLE

BACKGROUND OF THE INVENTION

5 Various auxiliary absorbent articles for use, e.g., with
disposable diapers are currently being manufactured and
sold. Most of these auxiliary absorbent articles,
commonly called booster pads, comprise wood pulp pads with
various facing layers. For example Weyerhaeuser
10 manufactures the Revco Diaper Doubler, comprising a 100%
wood pulp pad with a polyester facing and a bulk of
220 mils, as well as a booster pad comprising a 100% wood
pulp pad with a rayon facing and a bulk of 323 mils.
Though both of these booster pads have absorbent capacity
15 and wicking ability, the absorbent capacity is achieved at
the expense of the bulk of the pad, and the high degree of
absorption by the booster pad holds fluid from the diaper.
The bulk of these commercially available pads may be
contrasted to the approximate 70 to 130 mils of the
20 auxiliary absorbent article of the present invention.

U. S. Patent 3,886,941 describes a booster pad containing
superabsorbent material and an elaborate construction for
the facing or bottom sheet involving valves formed by
25 embossing or dimpling a slit sheet of fluid impermeable
material into the pad. This booster pad construction is
alleged to have a high degree of initial absorption and
wicking properties. This booster pad construction has not
been commercialized and booster pad constructions in
30 general containing superabsorbent materials have had the
disadvantage that when initially wetted the superabsorbent
material swells quickly and blocks the further absorption
of fluid as the superabsorbent is unable to wick the fluid
further or allow it through the block.

Our copending European patent application No. 84303162.6 describes an absorbent article containing superabsorbent layers provided with an internal wicking means to move the fluid to the superabsorbent layers.

5

SUMMARY OF THE INVENTION

The present invention comprises an auxiliary absorbent article for use in conjunction with a primary absorbent article such as a diaper. The auxiliary absorbent article comprises an upper facing layer, a superabsorbent layer and an undersurface. The superabsorbent layer comprises a superabsorbent material dispersed in a matrix such that fluid passes the auxiliary absorbent article and may be absorbed by the primary absorbent article. The auxiliary absorbent article adds to the absorbent capacity of the primary absorbent article while adding a minimum of bulk and does not interfere with the absorption by the primary absorbent article by allowing fluid to flow through the superabsorbent layer and by using the wicking ability of the primary absorbent article to move the fluid to remote regions from the initial wetting of the auxiliary absorbent article. The auxiliary absorbent article may be provided with intermittent adhesive along the undersurface thereof for fastening to the primary absorbent article. In the preferred construction, the facing layer encircles the superabsorbent layer and forms the undersurface of the auxiliary absorbent article. In another preferred embodiment, the superabsorbent layer comprises superabsorbent material in a tissue layer. The auxiliary absorbent article may be rectangular, or in a preferred embodiment may be T-shaped.

10

15

20

25

30

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a cross-sectional view of the auxiliary absorbent article according to the present invention atop a primary absorbent article, a diaper.

Figure 2 is a cross-sectional view of a preferred embodiment of the auxiliary absorbent article of the present invention.

Figure 3 is a schematic top plan view of a prior art booster pad disposed on a diaper.

Figure 4 is a schematic top plan view of an auxiliary absorbent article according to the present invention disposed on a diaper.

Figure 5 is a schematic top plan view of another embodiment of the auxiliary absorbent article of the present invention disposed on a diaper.

DETAILED DESCRIPTION OF THE INVENTION

Figure 1 discloses an auxiliary absorbent article according to the present invention shown generally at 10 as used atop a primary absorbent article such as a diaper shown generally at 12. The diaper comprises a facing layer 14, an absorbent pad 16, a backing layer 18 and tape tabs 20. The auxiliary absorbent article comprises a facing layer 22, a superabsorbent layer 24 and an undersurface 26. In use the auxiliary absorbent article is placed atop the primary absorbent article bringing the undersurface 26 of the auxiliary absorbent article in contact with the facing or upper surface of the diaper. The facing layer 22 of the auxiliary absorbent article may comprise any moisture-pervious nonwoven fabric, including

carded, random-laid or spunbond fibers of 100% polyester, rayon, polypropylene fibers or blends thereof, or a combination of wood pulp and fusible fibers such as described in European patent application No. 82303605.8(publication No. 0 070 163). The superabsorbent layer 24 comprises a superabsorbent material dispersed in a matrix such that fluid passes through the auxiliary absorbent article to the primary absorbent article. This is accomplished by well dispersing small particles of superabsorbent material in the matrix. The auxiliary absorbent article makes use of the wicking ability of the primary absorbent article and therefore requires little wicking ability of its own. In use fluid passes through the auxiliary absorbent article at least on first wetting and is wicked by the primary absorbent article to remote regions 28 where it may be absorbed by the superabsorbent layer of the auxiliary absorbent article. This is to be contrasted to most uses of superabsorbents where fluid is brought to the area of the superabsorbent, is absorbed, and stays there. In the auxiliary absorbent article of the present invention, the superabsorbent material throughout the superabsorbent layer may be utilized even if the superabsorbent layer has little inherent wicking ability. In addition by letting fluid pass initially through the superabsorbent layer into the primary absorbent article, the auxiliary absorbent article of the present invention uses the absorbent capacity and wicking properties of the primary absorbent article to not only move fluid but to allow time for the superabsorbent material to swell. The auxiliary absorbent article of the present invention is easy to construct, inexpensive to manufacture and may be made from commercially available materials. One such material for use as a superabsorbent layer is the Akucell fabric, an air laid nonwoven comprising wood pulp and particulate superabsorbent manufactured by Akzo. By using superabsorbent materials, the auxiliary absorbent article of the present invention

can be made with much less bulk and weight than traditional booster pads comprising wood pulp. In addition superabsorbent materials are superior to wood pulp pads in that they retain fluid well under pressure and don't break up in the manner of pulp pads or panels.

Figure 2 discloses a preferred embodiment of the auxiliary absorbent article of the present invention shown generally at 40. In this embodiment the facing layer 42 encircles the superabsorbent layer 44 thereby forming the under-surface 46 of the auxiliary absorbent article. This auxiliary absorbent article is also provided with intermittent adhesive 48 on the undersurface for fastening to the upper surface or facing layer of the primary absorbent article.

In the chart below the auxiliary absorbent article of the present invention is compared to the booster pads currently available on the market. Each of the booster pads was tested in conjunction with a commercially available diaper and the figures for the absorbent capacity and leakage of the diaper alone comprise an average of three samples of the commercially available diaper. The figures for the Revco Diaper Doublers comprise an average of two test trials with the same commercially available diaper. The figures for the auxiliary absorbent article of the present invention comprise an average of two samples of auxiliary absorbent article, also tested in conjunction with the commercially available diaper, wherein the superabsorbent layer comprised two plies of Akucell.

In the test method used, the diaper or diaper with booster pad is fastened in place on a life-size doll constructed so as to be able to void into the diaper to simulate actual use. The test liquid is a 1.59 percent saline solution containing a red dye. The test solution is

(17)

5 poured through the doll into the diaper in 90ml increments, with a ten minute wait between increments. The test is stopped at the first indication of a leak of the liquid out of the diaper. The test is carried out with the doll placed on an absorbent underpad of known weight so that the amount of leaked fluid can be determined. The diapers and booster pads are also weighed before and after the tests so that the amount of liquid absorbed by the diaper or booster pad can be determined.

TABLE

	I	II	III	IV	V	VI
DIAPER TYPE TESTED	DIAPER GRAMS	UNDER PAD GRAMS	BOOSTER PAD TESTED	BOOSTER GRAMS	FLUID INTRODUCED	CAPACITY
Commercial Diaper	Net Weight 209.67 Dry Weight 37.67 Total Increase ----- In Weight 172.00	17.03 10.05 ----- 6.98		-----	180 CC	164.92 GMS
Commercial Diaper	Net Weight 202.00 Dry Weight 38.07 Total Increase ----- In Weight 163.93	27.56 10.02 ----- 17.54	Revco Diaper Doublers	106.0 17.25 ----- 88.75	270 CC	235.2 GMS
Commercial Diaper	Net Weight 237.90 Dry Weight 37.15 Total Increase ----- In Weight 200.75	16.11 10.04 ----- 6.07	Auxiliary Absorbent Article	73.5 9.0 ----- 64.5	270 CC	259.15 GMS

As may be noted in the chart, the auxiliary absorbent article of the present invention increases the overall absorbent capacity of the diaper listed in the last column of the table. As may also be noted in Column I, the flow through abilities of the auxiliary absorbent article of the present invention allow the underlying absorbent article or diaper to achieve its full absorbent capacity as contrasted with conventional booster pads which absorb immediately and prevent the underlying diaper from achieving its full absorbent capacity.

Although the superabsorbent layer in the above tested auxiliary absorbent article comprised two plies of an Akucell fabric, other commercially available products may be used to form the superabsorbent layer, such as the Henkel superabsorbent fibrous layer and the Dow laminate. In constructing this superabsorbent layer of the auxiliary absorbent article of the present invention, it is necessary only that the superabsorbent material be well dispersed so that the fluid passes through the auxiliary absorbent article on initial wetting.

Figure 3 shows a schematic representation of observation made while testing the commercial Revco Diaper Doublers in conjunction with the commercial diaper, the results of which are set forth in the Table. In Figure 3, the commercial diaper is represented at 50 and the Revco Diaper Doubler at 52. When the booster pad and diaper were observed following the introduction and absorption of each increment of fluid, it was noted that the fluid was absorbed by the booster pad and wicked through the booster pad as shown by the arrow. It may be assumed that fluid was absorbed by the diaper from the undersurface of the booster pad.

The absorption dynamics of the booster pad and diaper may be contrasted with that observed with the auxiliary absorbent article of the present invention and the commercial diaper, set out schematically in Figure 4. In Figure 4, the commercially available diaper is represented at 54 and the auxiliary absorbent article shown generally at 56. As was observed in connection with the use of the auxiliary absorbent article according to the present invention, the area of initial wetting 58 in Figure 4 remained small. While the area of initial wetting remained small, it was noted that the fluid was being rapidly absorbed by the diaper and wicked by the diaper. It was also noted that with the passage of time, fluid was being re-absorbed by the auxiliary absorbent article as shown by the arrows thus making use of the absorbent capacity of the auxiliary absorbent article in area 60 remote from the initial wetting of the auxiliary absorbent article. These observations correlate with the test results achieved which indicate that with the use of the auxiliary absorbent article according to the present invention, full absorbent capacity of the underlying diaper is used. However, with the use of the Revco Booster Pad, full absorbent capacity of the underlying diaper is not achieved.

Figure 5 illustrates schematically a preferred embodiment of the auxiliary absorbent article according to the present invention. In Figure 5, the diaper is shown at 70 and the T-shaped auxiliary absorbent article disposed upon the diaper at 72 or alternatively at 74. In this particular embodiment of the auxiliary absorbent article, the article is shaped to maximize the absorbent capacity of the auxiliary absorbent article for use in diapering a male or female child. The orientation of the diaper is shown by the location of the tape tabs 76 along the back

waistband portion as is common in commercial diapers. When the auxiliary absorbent article is disposed on the diaper as at 72, it provides the maximum enhanced absorbent capacity for use with a female child. When the auxiliary absorbent article is disposed as shown at 74, the maximum enhanced absorbent capacity is achieved when the diaper and auxiliary absorbent article are worn by a male infant. T-shaped disposable diapers are disclosed in U.S. Patent 3,768,479.

10

The foregoing description and drawings are illustrative but are not to be taken as limiting. Other variations and modifications are possible without departing from the ambit of the present invention.

The invention includes, in addition to the auxiliary absorbent article described, a composite absorbent article comprising in combination a primary absorbent article having absorbent capacity and wicking ability and an auxiliary absorbent article according to the invention; and it further includes a process for producing this composite absorbent article wherein the auxiliary absorbent article is fastened to the primary absorbent article with its undersurface in juxtaposition with the latter.



Claims:

1. An auxiliary absorbent article for use atop a primary absorbent article having absorbent capacity and wicking ability, said auxiliary absorbent article enhancing the absorptive capacity of the primary absorbent article, said auxiliary absorbent article comprising a superabsorbent layer, an upper facing layer, and an undersurface, said superabsorbent layer comprising a superabsorbent material dispersed in a matrix such that fluid passes through said auxiliary absorbent article and may be absorbed by the primary absorbent article, wicked along the undersurface of the auxiliary absorbent article, and absorbed in remote regions from the initial wetting of the auxiliary absorbent article.
2. The auxiliary absorbent article of claim 1 wherein said article is T-shaped.
3. The auxiliary absorbent article of claim 1 or claim 2 with intermittent adhesive disposed on the undersurface thereof for fastening to the primary absorbent article.
4. The auxiliary absorbent article of any one of claims 1 to 3 wherein said superabsorbent layer comprises a superabsorbent material in a tissue layer.
5. The auxiliary absorbent article of any one of claims 1 to 4 said facing layer encircles said superabsorbent layer and forms the undersurface of the auxiliary absorbent article.



22

6. In combination, a primary absorbent article having absorbent capacity and wicking ability, and an auxiliary absorbent article according to any one of claims 1 to 5 having its undersurface in juxtaposition with the primary absorbent article.
7. An auxiliary absorbent article, substantially as hereinbefore described with reference to any one of Figures 1,2,4 and 5.
8. In combination, a primary absorbent article and an auxiliary absorbent article, substantially as hereinbefore described with reference to any one of Figures 1,4 and 5.
9. A process for producing a composite absorbent article wherein an auxiliary absorbent article as claimed in claim 1, 2, 3, 4, 5 or 7 is fastened to a primary absorbent article having absorbent capacity and wicking ability, the undersurface of the auxiliary absorbent article being in juxtaposition with the primary absorbent article.
10. A process as claimed in claim 9, wherein the auxiliary absorbent article is as claimed in claim 3 and the intermittent adhesive disposed on its undersurface is utilized for fastening to the primary absorbent article.

