

DESCRIPTION
CONTINUOUS PACKAGE BODY OF ABSORBENT ARTICLES

TECHNICAL FIELD

The present invention relates to a continuous package body of absorbent articles, made up of a plurality of package bodies aligned continuously in which absorbent articles are packaged respectively and are separable per package body.

BACKGROUND ART

Absorbent articles such as sanitary napkins are generally sold in a form that a certain number of absorbent articles are packed into a wrapped package formed of an exterior sheet such as a resin film.

Absorbent articles in a form of continuous package body are also widely sold in developing or emerging countries, in which the package bodies each of which packages the absorbent article individually are continuously aligned in a longitudinal direction. According to marketing in such a form, consumers can purchase the absorbent articles only as many as needed, by separating the package body. Furthermore, since the plurality of package bodies, which are continuously aligned in a longitudinal direction, can be suspended for sale in a suitable location in a store, it is convenient for the store having a small space.

Known as a structure for such a continuous package body of absorbent articles is that upon separation of a single package body, the exterior sheet for packaging the absorbent articles is also torn off along perforation formed in the exterior sheet thereby to open the package body (see International Publication No. WO02/094678).

However, the conventional structure of the continuous package body described above has a following problem. That is, the exterior sheet is torn off together when separating a single package body, thereby opening the package body. Therefore, the packaged absorbent article easily falls just as it is opened.

There exists a problem that the absorbent article, which fell on a floor, a ground, or the like, gets unsanitary condition due to soil, thereby becoming unusable. Further, in a case of the conventional continuous package body described above, there is another problem that the absorbent article is misaligned to easily cause deformation inside the package body due to vibration or the like during transportation.

The present invention has an objective to provide a continuous package body of absorbent articles which can prevent an absorbent article from falling at the time of separation or from deforming inside a package body in a case where package bodies in which absorbent articles are packaged respectively are aligned continuously and separable per package body.

SUMMARY OF THE INVENTION

The feature of the present invention is summarized in that a continuous package body of absorbent article (sanitary napkin 10) which has a plurality of package bodies (package bodies 2) aligned continuously in which the absorbent articles are individually packaged with an exterior sheet (exterior sheet 3) and are separable per package body along a tear-off line (tear-off line 4) formed on the package bodies, wherein at least part of the absorbent article is fixed to an inner face of the exterior sheet.

BRIEF DESCRIPTION OF THE DRAWINGS

[FIG. 1] FIG. 1 is an overall perspective view of a continuous package body 1 according to an embodiment of the present invention.

[FIG. 2] FIG. 2 is a perspective view showing a package body 2 according to the embodiment of the present invention.

[FIG. 3] FIG. 3 is a cross-sectional view of the package body 2 along the line A-A in FIG. 2.

[FIG. 4] FIG. 4 is a perspective view showing the package body 2 in a condition that an opening separation line 8 is separated, according to the embodiment of the present

invention.

[FIG. 5] FIG. 5 is a perspective view showing the package body 2 which is unfolded in a folding direction according to the embodiment of the present invention.

[FIG. 6] FIG. 6 is a cross-sectional view of the package body 2 along the line B-B in FIG. 5, according to the embodiment of the present invention.

[FIG. 7] FIG. 7 is a view illustrating a method of manufacturing the continuous package body 1 according to the embodiment of the present invention.

[FIG. 8] FIG. 8 is a view illustrating the method of manufacturing the continuous package body 1 according to the embodiment of the present invention.

DESCRIPTION OF THE EMBODIMENTS

Next, an embodiment of a continuous package body 1 of sanitary napkins according to the present invention will be described with reference to the drawings. Note that, in the following description of the drawings, the same or similar numerals denote the same or similar portions. In addition, it should be noted that the drawings are schematic and ratios of dimensions and the like are different from actual ones.

Therefore, specific dimensions and the like should be determined in consideration of the following description. Moreover, the drawings also may include portions having different dimensional relationships and ratios from each other.

(1) Schematic Configuration of Continuous Package Body 1 of Sanitary Napkins (hereinafter, referred to as Continuous Package Body 1)

FIG. 1 is an overall perspective view of the continuous package body 1 according to this embodiment of the present invention.

As shown in FIG. 1, the continuous package body 1 is made up of sanitary napkins 10 and an exterior sheet 3 to package the sanitary napkins 10. The exterior sheet 3 is formed in a

continuous sheet shape, in which the sanitary napkins 10 are packaged in a pouched form. Examples of material for the exterior sheet 3 include polypropylene, polyester, polyethylene, and polyvinyl alcohol, or nonwoven fabric or fabric, and composite material of these, each of which has a thickness from 5 to 50 μ m. It is desirable that the exterior sheet 3 be prepared with the inner side processed with a separating process using a separating agent or the like so as to be directly fixed to an adhesive for preventing misalignment of the sanitary napkins 10. More specifically, an example includes a method for fixing the releasing paper with an adhesive to the inner side of a polyethylene film with a thickness of 40 μ m.

The continuous package body 1 is provided with seal processing portions 5 configured to divide the sanitary napkins 10 covered with the exterior sheet 3, one by one. The seal processing portion 5 is formed by bonding the exterior sheet 3 by means of thermal seal fusion, biting emboss, an adhesive, adhesive tape, or the like. The seal processing portions 5 form the plurality of package bodies 2 in which the sanitary napkins 10 are packaged respectively. In this embodiment, the single continuous package body 1 is made up of five package bodies which are continuously aligned.

Further, in this embodiment, each of the seal processing portions 5 is provided with a tear-off line 4 which has been subjected to a perforation process so that the package body 2 can be separated from the continuous package body 1 depending on the required number of sanitary napkins 10.

(2) Configuration of Package Body

FIG. 2 is a perspective view showing the package body 2 which has been separated from the continuous package body 1. FIG. 3 is a cross-sectional view of the package body 2 along the line A-A in FIG. 2.

As shown in FIGS. 2 and 3, the package body 2 is provided so that a back face 6B as a clothing contact surface of the sanitary napkin 1 and an inner face 7 of the exterior sheet 3

face each other while being folded together.

Specifically, the exterior sheet 3 is arranged in a side of the back face 6B of the sanitary napkin 10 so that at least part of the back face 6B of the sanitary napkin 10 is fixed to the inner face 7 of the exterior sheet 3. In this embodiment, the back face 6B of the sanitary napkin 10 and the inner face 7 of the exterior sheet 3 are fixed to each other through adhesive portions 14, 15. The sanitary napkin 10 and the exterior sheet 3 fixed to each other by the adhesive portions 14, 15 are folded in three together toward a side of a top face 6A as a skin contact surface of the sanitary napkin 10, in a folding direction D1. Detailed configuration of the sanitary napkin 10 including the adhesive portions 14, 15 will be described later.

With respect to each of the exterior sheet 3 and the sanitary napkin 10, on the condition that ends in the folding direction D1 which are formed in outer sides with the package body 2 being folded are set to ends 3A, 10A while ends in the folding direction D1 which are formed in inner sides with the package body 2 being folded are set to ends 3B, 10B, the end 10B is formed so as to be exposed without being covered with the end 3B while the end 10A is formed so as to be covered with the end 3A on the condition that the package body 2 is unfolded in the folding direction D1.

The sanitary napkin 10 and the exterior sheet 3 are folded together, thereby causing the ends 3A, 3B to overlap one another, resulting in formation of an overlapping area 21.

The package body 2 is provided with an opening separation line 8 in a different position from the adhesive portions 14, 15 in which the back face 6B of the sanitary napkin 10 and the inner face 7 of the exterior sheet 3 are fixed to each other. In this embodiment, the opening separation line 8 is formed by perforating the overlapping area 21 in a continuous direction D2.

The overlapping area 21 is partially provided with a joint area 22 in which the ends 3A, 3B are jointed together. The joint area 22 is formed in an inner side in the folding direction D1

with respect to an outer end 3A1 as the outmost side of the end 3A. The joint area 22 is formed by bonding by means of thermal seal fusion, biting emboss, an adhesive, adhesive tape, or the like. Further, it is more desirable to apply the joint area 22 with a bonding method using such as pressure sensitive hot melt adhesives or lead tape which allows reunion, since upon disposal after use, the sanitary napkin 10 can be repackaged in the exterior sheet 3 so as to hide the inside from view.

The both ends in the continuous direction D2 of the package body 2 are the seal processing portions 5 described above. The exterior sheet 3 is bonded at each of the seal processing portions 5, thereby keeping the package body 2 in a sealed sanitary condition.

FIG. 4 is a perspective view showing the package body 2 in a condition that the opening separation line 8 is separated.

As shown in FIG. 4, before using the sanitary napkin 10, a wearer tears along the opening separation line 8 on the package body 2 first and then unfolds it toward the both ends in the folding direction D1. The package body 2 unfolded by the wearer is brought in a condition shown in FIG. 5. It should be noted that in FIG. 5, the end 10A side of the sanitary napkin 10 is folded toward the top face 6A side of the sanitary napkin 10 for the convenience in explaining the package body 2.

FIG. 5 is a perspective view showing the package body 2 which is unfolded in the folding direction. FIG. 6 is a cross-sectional view of the package body 2 along the line B-B in FIG. 5.

As shown in FIGS. 5 and 6, this embodiment is configured so as to position the sanitary napkin 10, peeling paper 16, and the exterior sheet 3 in order from the top in a case where the package body 2 is unfolded toward both sides in the folding direction D1 with the top face 6A of the sanitary napkin 10 being set as the upper side.

The sanitary napkin 10 according to this embodiment is made up of a liquid-permeable topsheet 11 formed in a side of the top face 6A as a skin contact surface; a liquid-impermeable

backsheet 12 formed in a side of the back face 6B as a clothing contact surface; and a liquid-retentive absorber 13 formed between the topsheet 11 and the backsheet 12.

It should be noted that the sanitary napkin 10 according to this embodiment is manufactured by the known art.

In this embodiment, the back face 6B side of the backsheet 12 is provided with a back face adhesive portion 17 configured to fix the sanitary napkin 10 to clothing or the like.

Examples of materials used for the back face adhesive portion 17 include a pressure-sensitive adhesive mainly having synthetic rubber such as styrene-butadiene-styrene copolymer (SBS), a heat-sensitizing adhesive mainly having synthetic rubber such as EVA; or a mechanical fastener or a nonslip agent of styrene series.

In this embodiment, the peeling paper 16 is provided between the backsheet 12 and the exterior sheet 3. The peeling paper 16 is provided in order to protect the back face adhesive portion 17 of the backsheet 12. The peeling paper 16 is fixed in a separable manner to the backsheet 12 through the back face adhesive portion 17.

The peeling paper 16 is fixed to the exterior sheet 3 through the adhesive portions 14, 15. The adhesive portions 14, 15 are formed by bonding by means of thermal seal fusion, biting emboss, an adhesive, adhesive tape, or the like.

More specifically, before the wearer separates the sanitary napkin 10 from the exterior sheet 3, the sanitary napkin 10, the peeling paper 16, and the exterior sheet 3 are kept in a condition that all of three are fixed to each other by each of the adhesive portions.

(3) Method of Manufacturing Continuous Package Body of Absorbent Articles

A method of manufacturing the continuous package body 1 according to this embodiment will be described next. Especially, a method of manufacturing the continuous package body 1 is mainly explained hereinafter. Note that other parts such as the sanitary napkin 10, the peeling paper 16, and the

exterior sheet 3 can be manufactured by the widely known manufacturing method.

FIGS. 7 and 8 schematically illustrate a step of manufacturing the continuous package body 1. As shown in FIGS. 7 and 8, a step of manufacturing the continuous package body 1 includes an absorbent article placing step S10, a first folding step S20, a second folding step S30, an exterior sheet joining step S40, a seal processing step S50, and a tear-off line processing step S60.

In the absorbent article placing step S10, the sanitary napkins 10 which are jointed to the peeling paper 16 and aligned continuously in a conveyance direction are fixed in this conveyance direction MD at predetermined intervals, onto the exterior sheet 3 provided beforehand with the opening separation line 8 (not shown).

In the first folding step S20, the exterior sheet 3 and the sanitary napkin 10 are turned up from the ends 3B, 10B, respectively, thereby being folded together toward a center line CL in the folding direction D1 of the exterior sheet 3.

In the second folding step S30, the exterior sheet 3 and the sanitary napkin 10 are turned up from the ends 3A, 3B, respectively, thereby being folded together toward the center line CL in the folding direction of the exterior sheet 3. The package bodies 2 continuously aligned are provided with the overlapping area 21 (not shown) through this step.

In the exterior sheet joining step S40, the joint area 22 is joined through a process such as thermal seal fusion in the overlapping area 21 formed by overlapping the ends 3B, 3A.

In the seal processing step S50, the seal processing portions 5 are formed through a bonding process for dividing the sanitary napkins 10 one by one. The package bodies 2 in which the sanitary napkins are packaged respectively are formed through this step.

In the tear-off line processing step S60, the seal processing portions 5 are subjected to a perforation process. Tear-off lines 4 configured to separate the package bodies 2

one by one are formed through this step. The continuous package body 1 is finished upon execution of the steps S10 to S60 described above.

As described above, in a case where the package bodies 2 in which the sanitary napkins 10 are packaged are aligned continuously and can be separated one by one, the continuous package body 1 in this embodiment prevents the sanitary napkins 10 from falling at the time of separation.

In each of the continuous bodies 2, at least part of the sanitary napkin 10 is fixed to the exterior sheet 3. Therefore, the sanitary napkin 10 can be prevented from being exposed or falling at the time of separation. Further, the sanitary napkin 10 is fixed to the exterior sheet 3, so that it is prevented from being shaken inside the package body 2 even in an unstable condition such as during transportation or a suspension state for sale. Therefore, the sanitary napkin 10 can be prevented from deformation and as a result, a stable shape can be maintained.

Further, the sanitary napkin 10 and the exterior sheet 3 according to this embodiment are folded together while the back face 6B of the sanitary napkin 10 and the inner face 7 of the exterior sheet 3 face each other. Therefore, the wearer does not take trouble in taking out the sanitary napkin 10. Further, material used for manufacturing the continuous package body 1 can be minimized. As a result, a cost can be reduced while simplifying a manufacturing method. Yet further, the amount of waste material after use can be reduced.

The overlapping area 21 of the package body 2 according to this embodiment is provided with the perforated opening separation line 8 in the continuous direction D2. Accordingly, a direction of force which is applied when the wearer separates the package body 2 from the continuous package body 1 is totally different from that of force which is applied when the wearer tears along the opening separation line 8 on the package body 2. This prevents the package body 2 from being opened by mistake at the time of separation. Further, at the time of opening,

the wearer can unfold the package body 2 simply by pulling it toward the both ends in the folding direction D1 without passing it from one hand to the other after tearing along the opening separation line 8.

The opening separation line 8 in this embodiment is formed in a different position from the adhesive portions 14, 15 in which the back face 6B of the sanitary napkin 10 and the inner face 7 of the exterior sheet 3 are fixed to each other. Therefore, the wearer can unfold the package body 2 toward the both ends in the folding direction D1 when tearing along the opening separation line 8, so that the sanitary napkin 10 can be certainly separated from the exterior sheet 3.

The end 10B of the sanitary napkin 10 in this embodiment is formed so as to be exposed without being covered with the end 3B of the exterior sheet 3, in a condition that the folded package body 2 is unfolded. This makes it easy for the wearer to hold the sanitary napkin 10 by one hand after unfolding the package body 2 toward the both ends in the folding direction D1. Therefore, the wearer can easily separate the sanitary napkin 10 from the exterior sheet 3 and as a result, can install it smoothly on clothing or the like.

[Other Embodiments]

As described above, the content of the present invention has been disclosed through the embodiments of the present invention; it should not be understood that the description and the diagrams, one portion of the disclosure, restrict the present invention. From this disclosure, a variety of alternate embodiments, examples, and applicable techniques will be apparent to one skilled in the art.

For example, an embodiment of the present invention can be modified as follows.

The absorbent article packaged in the exterior sheet may be folded in four or more. It is not limited to folding in three as long as determination is made in consideration of usability, cost, or the like.

Further, the opening separation line in the joint area

and the tear-off line in the seal processing portion are also not limited to a perforation process. It may be determined appropriately in consideration of adhesion, strength, separability, or the like in a package condition.

Further, the above embodiment of the present invention described a case of folding the exterior sheet and the absorbent article together. However, the exterior sheet and the absorbent article may not be folded together. For example, such an absorbent article which is folded and covered with other package-use sheet is also applicable as long as part of the package-use sheet covering the absorbent article is fixed to the inner face of the exterior sheet. Such a case also prevents the absorbent article from falling at the time of separating the package body or from deforming inside the package body.

The absorbent article according to the present invention may be a panty liner, an incontinence pad, or the like, in addition to a sanitary napkin.

Thus, needless to say, the present invention includes a variety of embodiments not described here. Therefore, the technical scope of the present invention is only defined by the invention specific matters according to the claims reasonably derived from the above description.

The entire contents of Japanese Patent Application No. 2010-003429 (filed on January 8, 2010) are incorporated in the present specification by reference.

Industrial Applicability

According to aspects of the present invention, provided is a continuous package body of absorbent articles which can prevent an absorbent article from falling at the time of separation or from deforming inside a package body in a case where package bodies in which absorbent articles are packaged respectively are aligned continuously and separable per package body.

SCOPE OF CLAIMS

[Claim 1]

A continuous package body of absorbent article, which has a plurality of package bodies aligned continuously in which the absorbent articles are individually packaged with an exterior sheet, the package bodies along tear-off line units formed on the package bodies, and

the tear-off line units are formed in a folding direction perpendicular to a continuous direction in which the package bodies are continuous;

the absorbent article has:

a top face configured to come in contact with a skin of a wearer; and

a back face configured to come in contact with clothing of the wearer, wherein

the back face of the absorbent article is provided with the back face adhesive unit capable of adhering to the clothing; and

the adhesive unit is fixed in a separable manner to the inner face of the exterior sheet; and

at least part of the back face of the absorbent article is fixed to the inner face of the exterior sheet through the back face adhesive unit, wherein the package body is formed by folding the absorbent article and the exterior sheet together in the folding direction perpendicular to a continuous direction in which the package bodies are continuous, in a condition that the back face of the absorbent article and the inner face of the exterior sheet face each other,

thereby causing the outer side ends of the exterior sheet in the folding direction which are formed in outer sides with the package body being folded and the inner side ends of the exterior sheet in the folding direction which are formed in inner sides with the package body being folded overlap one another, resulting in formation of an overlapping area, and

in the overlapping area of the exterior sheet, an open-use separation line unit configured to extend from one end of the continuous package body to the other end of the continuous package body is formed in the continuous direction;

the open-use separation line unit is formed in a different position from the back face adhesive unit, in a plan view of the package body.