CONVENTION APPLICATION FOR STANDARD
PATENT OR A STANDARD PATENT OF ADDITION

We, KIMBERLY-CLARK CORPORATION
of North Lake Street,
Neenah, Wisconsin 54956,
United States of America
hereby apply for the grant of a standard patent
for an invention entitled

"SANITARY NAPKIN RESISTANT TO DEFORMATION"

which is described in the accompanying complete specification:

DETAILS OF BASIC APPLICATION(S):
Number(s) of Basic Application(s) 249,023
Name(s) of Convention Country(ies) in which Basic Application(s) were filed
United States of America
Date(s) of Basic Application(s) 30th March, 1981
(respectively)

My/Our address for service is:
C/- SPRUSON & FERGUSON
PATENT ATTORNEYS
CBA CENTRE, 60 MARGARET ST.
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AUSTRALIA.

Dated this EIGHTeenth day of MARCH, 1982

KIMBERLY-CLARK CORPORATION

By: [Signature]

Registered Patent Attorney

ABSTRACT OF THE DISCLOSURE

A sanitary napkin resistant to deformation is described in the accompanying complete specification.
COMMONWEALTH OF AUSTRALIA
THE PATENTS ACT 1992
DECLARATION IN SUPPORT OF A CONVENTION APPLICATION FOR A PATENT
In support of the Convention Application made for a patent for an invention entitled:
"SANITARY NAPKIN RESISTANT TO DEFORMATION"

Kenneth A. Kiesau, Vice President,
KIMBERLY-CLARK CORPORATION, North Lake Street,
Neenah, Wisconsin
of United States of America

I do solemnly and sincerely declare as follows:

1. I am/we are the applicant(s) for the patent
   (or, in the case of an application by a body corporate)

2. I am/we are authorised by KIMBERLY-CLARK CORPORATION
   to make this declaration on its/their behalf.

3. The basic application(s) as defined by Section 141 of the
   Act was/were made
   in The United States of America
   on March 30, 1981
   by John A. Ciriacks and
   Carol M. Tuchscherer

4. The basic application(s) referred to in paragraph 2 of this
   Declaration was/were the first application(s) made in a Convention
   country in respect of the invention(s) the subject of the application.

Declared at Neenah, this 26th day of February, 1982
Wisconsin

To: The Commissioner of Patents

Kenneth A. Kiesau

Signature of Declarant(s)

FIELD OF THE INVENTION
The subject invention relates to a sanitary napkin.
SANITARY NAPKIN RESISTANT TO DEFORMATION

KIMBERLY-CLARK CORPORATION

81 858/82  (22) 24.3.82  (24) 30.3.81
249023  (32) 30.3.81  (33) US.
07/10/82
AGIF 13/18

JOHN ALFRED CIRIACKS AND CAROL MARY TUCHSCHERER

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Claim

1. A sanitary napkin comprising a fluid impervious baffle and an absorbent batt with fusible fibers which has folded longitudinal sides, said napkin retaining at least 96.5% of its planar area after absorbing one gram of fluid and being worn for one hour.
To: COMMONWEALTH OF AUSTRALIA

PATENTS ACT 1992

COMPLETE SPECIFICATION

(ORIGINAL)

FOR OFFICE USE:

81858/82

Class

Int. Class

Application Number: 81858/82

Lodged: 81858

Complete Specification Lodged:

Accepted:

Published:

Priority:

Related Art:

Name of Applicant:

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Complete Specification for the invention entitled:

"SANITARY NAPKIN RESISTANT TO DEFORMATION"

The following statement is a full description of this invention, including the best method of performing it known to us:

...
ABSTRACT OF THE DISCLOSURE

A sanitary napkin having fusible fibers and folded longitudinal edges resists permanent deformation after absorbing menstrual fluid.
FIELD OF THE INVENTION

The subject invention relates to a sanitary napkin and particularly to a sanitary napkin containing fusible fibers.

BACKGROUND OF THE INVENTION

One of the traditional ways of forming a sanitary napkin is to assemble the napkin bottom side up. A fluid pervious covering material is overlaid with an absorbent batt such as wood pulp fluff in such a manner that the edges are coterminous. Superabsorbent powder or a sheet of superabsorbent material may be then added if desired. If a sheet containing superabsorbent material is used, it need not be coterminous with the other components. The fluid pervious wrap and absorbent batt are then folded to produce, essentially, a double thickness. A fluid impermeable baffle is then added to maintain the fold in place as well as to provide the necessary fluid barrier to the finished napkin. The napkin resulting from this construction has folded longitudinal edges which are soft and comfortable.

It is also known to introduce fusible fibers into an absorbent batt. U. S. Patent 4,059,114 describes such a combination. As disclosed therein, the fusible fibers are added to increase absorbency by aiding a fluid flow in the interior of the absorbent layer.
Recently a sanitary napkin of reduced thickness which claims to absorb as much as the sanitary napkins having conventional thickness has been sold under the SURE & NATURAL trademark by Johnson & Johnson of Milltown, New Jersey. The absorbent component of this napkin has superabsorbent material mixed with the conventional absorbent layer. The remaining absorbent is the conventional cellulosic type. Even with the inclusion of superabsorbent material, this napkin has not performed according to the claims made for it. It has been found that one of the reasons for the disappointing performance has been the deformation stresses placed upon the napkin which by its construction it cannot overcome.

During wear, the sanitary napkin is subjected to forces directed inward along the longitudinal axis by the legs of the wearer. These forces also generate a shearing action along the longitudinal axis. It has been found that when conventional absorbents contain a sufficient amount of liquid such as menses and a deformation force is applied, the conventional absorbent does not recover its previous shape. This is true even though the absorbent is wrapped with a nonabsorbent wrapper. Absorbing of menses tends to cause local bunching and distortion along the plane of the napkin. Not only does this produce discomfort due to the distortion of the napkin but also negatively affects its
absorbent properties. Serious distortion and localized bunching of the wet absorbent material can provide channels directing the fluid towards side runoff or otherwise interfering with the general fluid spread throughout the absorbent material.

**SUMMARY OF THE INVENTION**

According to this invention, a sanitary napkin is provided which has an absorbent batt folded along the longitudinal edges of the napkin. The absorbent material contains fusible fibers which in combination with the folded longitudinal edges provide a resilient absorbent matrix which maintains its shape after substantial fluid absorption. A napkin made according to this invention, therefore, is superior from the standpoint of comfort and absorbency when compared to a napkin having equal absorbent bulk and similar superabsorbent capacity.

**DESCRIPTION OF THE DRAWINGS**

This invention can be more readily understood by reference to the drawing in which FIG. 1 is a cross sectional view of a preferred embodiment of the napkin of the subject invention. As can be seen in FIG. 1, an absorbent layer 10 containing fusible fibers is surrounded by fluid permeable wrap 16 and is folded underneath itself to form closely adjacent edges shown in phantom lines 11. An intermediate absorbent layer of superabsorbent material 13 is
positioned generally in the center of the absorbent matrix resting upon the top of the folded surface 12 of the absorbent material 10 and a fluid impermeable baffle 14 is adhesively attached to the bottom of the folded absorbent layer. The transverse ends of the absorbent layer 10 are not sealed at the edges but, instead, are sealed by fusing. This fusing generally appears in the absorbent material as clear, thin semicircular bands 15 which are inset from the napkin ends. By leaving the extreme ends of the napkin unattached, a loose, flexible end results which is more comfortable than an end which is bonded to the very edge.

DETAILED DESCRIPTION OF THE INVENTION

The preferred embodiment of the sanitary napkin as shown in FIG. 1, contains an outer wrap which is integral with the preferred absorbent, and is fused to the absorbent after the absorbent is deposited using the wrap as a support. This is because the particularly preferred material is that described in U. S. Patent 4,100,324. This nonwoven material has a fabric-like finish and is made up of an air formed matrix of thermoplastic polymeric fibers having an average diameter of less than about 10 microns and a multiplicity of individualized wood pulp fibers dispersed throughout the matrix and serving to space the microfibers from each other.
The material is formed by initially utilizing a primary air stream with the melt blown microfibers and a secondary air stream containing wood pulp fibers and merging the two under turbulent conditions and subsequently placing the integrated air stream along a forming surface. The fabric-like appearance of this material provides a visually appealing absorbent.

An advantage which is present subsidiarily with the concept of this invention is the ability not only to fuse the ends of the napkin, but to be able to fuse the fusible fiber containing absorbent to the fluid impermeable baffle layer.

As mentioned previously, the sanitary napkin according to this invention is characterized both by the presence of the folded longitudinal edges and the inclusion of fusible fibers in the absorbent matrix. Surprisingly, it is this particular combination which provides the basis for the resistance to deformation. A napkin made according to the teachings of this invention retains at least 96.5% of its surface area after it has absorbed one gram of menstrual fluid and has been worn for a period of at least one hour. The surface area measured is that which is essentially flat. Subtracted from the surface area are areas which are bunched or distorted out of a plane which is either flat or
curvilinear depending upon the overall size of
the napkin and the configuration of the wearer.
Surprisingly, napkins which have folded edges
without fusible fibers permanently distort. This
is also true of napkins having fusible fibers
which do not have folded longitudinal edges. These
napkins which are generally known as die cut because
of the existence of coterminous edges around the
periphery of the napkin do not produce the resistance
to permanent deformation and bunching which occurs
when fusible fibers are utilized in the folded
napkin configuration. Distortion is also particu-
larly acute where neither attribute is present
and the product thickness is reduced such as the
SURE & NATURAL type product.

It should be noted that this resistance
to deformation is particularly important in napkins
of reduced bulk. Napkins which have between 0.2
and 0.5 inches of absorbent are particularly resis-
tant to deformation and, in fact, the measurements
performed above were performed on such napkins.

In order for the deformation resistance
of this invention to be realized however, it is
necessary for the absorbent to have a density of
at least 20 g/m². Increased resistance to deforma-
tion is encountered at higher densities with levels
of 150 - 200 g/m² being currently preferred. Higher
densities may add rigidity without substantial added deformation resistance. When napkins having this reduced thickness, have superabsorbent material present, the absorbency potential of this type of product is realized because the designed absorbent capacity of the napkin can be fully utilized.

It should be noted that while superabsorbent material is presently preferred, there are other materials having increased absorbency or other desirable properties which can be added as an insert or, it is possible to construct a napkin without the presence of such material. Due to the shape retention capability of a napkin according to this invention, the absorbent capacity is utilized with greater efficiency which minimizes the need for extra absorbent.
CLAIMS
WHAT IS CLAIMED IS:

The claims defining the invention are as follows:

1. A sanitary napkin comprising a fluid-impervious baffle and an absorbent batt with fusible fibers which has folded longitudinal sides, said napkin retaining at least 96.5% of its planar area after absorbing one gram of fluid and being worn for one hour.

2. The sanitary napkin of Claim 1 wherein the absorbent is an air laid blend of wood pulp fibers and microfibers.

3. The sanitary napkin according to Claim 1 wherein a baffle is fused to the absorbent batt.

4. The sanitary napkin according to Claim 1 wherein an absorbent additive material is positioned under the body facing side of the absorbent batt.

5. The sanitary napkin according to Claims 1, 2, 3 or 4 wherein the thickness of the absorbent material is between 0.2 and 0.5 inches.

6. The sanitary napkin as hereinbefore described with reference to the accompanying drawing.

DATED this EIGHTEENTH day of MARCH, 1982

KIMBERLY-CLARK CORPORATION

Patent Attorneys for the Applicant
SPRUSON & FERGUSON