

ESCOBAR - URIBE ASOCIADOS

A B O G A D O S

Carrera 11A No. 94-76 - Of. 305 - P.O. Box 94948, Bogotá, D.C. - Colombia

Tel: (571) 6162051 - Fax (571) 6161889

www.escobaruribe.com - info@escobaruribe.com

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As. 2467/P

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO DIVISIÓN DE NUEVAS CREACIONES

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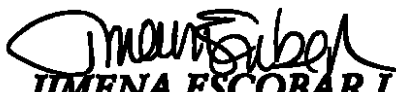
Ref.: Expediente No. 02029330
Solicitud de Patente a nombre de
Johnson & Johnson GmbH.

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
Radicación: 02029330 00000003 Folios: 2
Fecha (MM): 2004-09-02 16:25:46
Trámite: 002 PATENTES A 1 REGISTRAR/ 538 PETICION
Dependencia: 2000 DIVISION DE NUEVAS CREACIONES

Yo, JIMENA ESCOBAR URIBE, identificada como aparece al pie de mi firma, domiciliada en Bogotá, en la Carrera 11 A No. 94-76 Of. 305, obrando como apoderada de la sociedad Johnson & Johnson GmbH., domiciliada en Düsseldorf, Alemania, solicitante de la patente de la referencia, pido a usted que se proceda a examinar si la invención, cuya patente se tramita en el expediente de la referencia, es patentable.

Adjunto al presente memorial el recibo No. 04 - 62,529 de agosto 5, 2004, por la suma de \$353.000.00, con lo cual queda cubierta la tasa oficial correspondiente a dicho estudio.

Señor Superintendente,


JIMENA ESCOBAR URIBE
C.C. 39.779.452 de usaquén
T.P. 68.228
Cod. 5376

JEU/ra.

2467

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NIT : 990176089-2

RECIBO OFICIAL DE CAJA : 01 - 62,529
FECHA : AGOSTO 5 DE 2004

Radicación : 02-2330-0000003 Folios: 2
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Trámite : 02 PATENTES D 1 REGISTRO/ 530 PETICION
Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

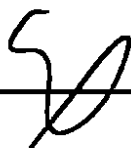
***** CONSIGNACION ****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PGO	Vr. PAGO
ESCORIB URIBE ASOCIADOS	CONSIGNACION	BANCO POPULAR	050-00110-6	23289129	04/08/2004	5,994,000.00

***** CONCEPTO ****

CANT. CONTAB. HISTORICO	CONCEPTO	TOTAL CONCEPTO
1 50005-01-01 SOLICITUDES	05 EXAMEN DE PATENTABILIDAD DE INVEN	353,000.00
	TOTAL :	\$ 353,000.00

SOM: TRESCIENTOS CINCUENTA Y TRES MIL PESOS

RESPONSABLE : 

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

DIVISION DE NUEVAS CREACIONES

RADICACIÓN EXPEDIENTE No. 02-29330

EL EXTRACTO DE LA PRESENTE SOLICITUD DE PATENTE DE INVENCION FUE PUBLICADO

EN LA GACETA DE PROPIEDAD INDUSTRIAL No 538, DE FECHA 31 DE MARZO DE 2004, EL

TERMINO HABIL SEÑALADO POR LA LEY EXPIRA EL 01 DE JULIO DE 2004.

NOTA: Dentro del plazo de los seis (6) meses siguientes a partir de la fecha de publicación en la gaceta de Propiedad Industrial, deberá solicitar y cancelar el examen de patentabilidad so pena de que la solicitud calga en abandono, de acuerdo con lo establecido en el Artículo 44 de la Decisión 486/2000.

SE PRESENTARON OPOSICIONES POR PARTE DE TERCEROS.

SI

NO **X**

51 50

**SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIVISIÓN DE NUEVAS CREACIONES**

2020

Bogotá, D. C., 21 de Noviembre de 2005

Doctor

JIMENA ESCOBAR URIBE

Representante **JOHNSON AND JOHNSON GMBH**

ASUNTO

Radicación No. **02-29330**

Trámite **002**

Evento **001**

Actuación **430**

Oficio **11009**

Folios **025**

Como resultado del examen de fondo, realizado con fundamento en el artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le comunica

1) Documentos estudiados:

- a) Para el presente estudio se tendrán en cuenta el capítulo descriptivo, comprendido en los folios 8 a 21 de la solicitud en estudio.
- b) Para el presente estudio se tendrán en cuenta los dibujos comprendidos en el folio 34 de la solicitud en estudio.
- c) Para el presente estudio se tendrá en cuenta el capítulo reivindicatorio que comprende 35 reivindicaciones en los folios 22 a 32 de la solicitud en estudio.
- d) Conforme lo establece los artículos 9, 10 y 11 de la decisión 486 de la Comisión de la Comunidad Andina, la presente solicitud en estudio fue presentada el 5 de abril de 2002, y en el momento de la radicación NO se reclamo prioridad alguna.

2) Objeto de la Invención

- a) Las reivindicaciones 1 a 35 de la solicitud en estudio se refieren a Un proceso para manufacturar un tampón que comprende las etapas de: a). recubrir por lo menos parcialmente una capa de material plástico impermeable al fluido con un agente activo de superficie no iónico para formar una porción de capa recubierta, estando la capa en la forma de una capa elástica tridimensional, teniendo la capa primero y segundo bordes opuestos, y una longitud sustancialmente infinita y que tiene una multiplicidad de aberturas en la misma, teniendo la porción de capa recubierta un peso de recubrimiento de menos de aproximadamente 0,4 g; b). separar una lámina individual que comprende una porción de lámina recubierta desde la capa; c). unir la lámina individual a una estructura

absorbente; d). conformar la estructura absorbente en una pieza en blanco de tampón en donde la lámina individual encierra sustancialmente la pieza en blanco de tampón; e). comprimir la pieza en blanco de tampón en una prensa para formar un tampón comprimido, sustancialmente cilíndrico, que tiene una cubierta que comprende la lámina individual; f). transferir dicho tampón comprimido a una prensa adicional y g). aplicar presión para comprimir adicionalmente al menos una porción del tampón cubierta por la porción de lámina recubierta de la cubierta para formar una porción estrechada que tiene porciones traslapantes de la cubierta que son dobladas una sobre otra en una manera sustancialmente sin ligazón.

- b) El anterior producto busca mejorar las características de artículos absorbentes desechables.
- c) Según la Clasificación Internacional de Patentes, la codificación para esta solicitud corresponde a: A 61 F 13/15

3) **Determinación del Estado de la Técnica**

El artículo 16 de la Decisión 486 de la Comisión establece:

"El estado de la técnica comprenderá todo lo que haya sido accesible al público por una descripción escrita u oral, utilización, comercialización o cualquier otro medio antes de la fecha de presentación de la solicitud de patente o, en su caso, de la prioridad reconocida."

"Sólo para el efecto de la determinación de la novedad, también se considerará dentro del estado de la técnica, el contenido de una solicitud de patente en trámite ante la oficina nacional competente cuya fecha de presentación o de prioridad fuese anterior a la fecha de presentación o de prioridad de la solicitud de patente que se estuviese examinando, siempre que dicho contenido este incluido en la solicitud de fecha anterior cuando ella se publique o hubiese transcurrido el plazo previsto en el artículo 40."

Consultadas las bases de datos y los archivos con que cuenta la entidad, especialmente bajo las clasificaciones A 61 F 13/15 y las más cercanas a ellas, se encontró que antes del 5 de abril de 2002 (fecha para determinar el estado de la técnica) habían sido publicados los documentos que se enumeran en la siguiente tabla los cuales se relacionan con tampones con cubiertas tratadas..

De acuerdo con o establecido en el artículo 16 se determinó el estado de la técnica y se encontró el siguiente antecedente:

Nº	Documento	Título	Fecha de Publicación
D1	WO0101909	Domed tampon with surfactant treated cover	2001.01.11

4) **Evaluación de los requisitos de patentabilidad**

El artículo 14 de la Decisión 486 de la Comisión de la Comunidad Andina establece:

"Los Países Miembros otorgarán patentes para las invenciones, sean de producto o procedimiento, en todos los campos de la tecnología, siempre que sean nuevas tengan nivel inventivo y sean susceptibles de aplicación industrial".

En cumplimiento con este artículo, se procedió a evaluar los requisitos de novedad, nivel inventivo y aplicación industrial con el fin de establecer la patentabilidad de la invención reivindicada en la solicitud en estudio.

a) Evaluación de novedad

El art. 16 de la Decisión 486 de la Comisión de la Comunidad Andina establece:

"Una invención se considerará nueva cuando no esté comprendida en el estado de la técnica." "El estado de la técnica comprenderá todo lo que haya sido accesible al público por una descripción escrita u oral, utilización comercialización o cualquier otro medio antes de la fecha de presentación de la solicitud de patente o, en su caso, de la prioridad reconocida."

"Sólo para el efecto de la determinación de la novedad, también se considerará dentro del estado de la técnica, el contenido de una solicitud de patente en trámite ante la oficina nacional competente, cuya fecha de presentación o de prioridad fuese anterior a la fecha de presentación o prioridad de la solicitud de patente que se estuviese examinando, siempre que dicho contenido esté incluido en la solicitud de fechas de prioridad cuando ella se publique o hubiese transcurrido el plazo previsto en el artículo 40."

La presente solicitud colombiana fue publicada el día 11 de enero de 2001, bajo el número WO 0101909, mucho antes que la presentación en Colombia fuera hecha. En conclusión, la presente solicitud carecería totalmente de novedad ya que se encontraba en el estado de la técnica cuando fue presentada.

b) Resumen

En conclusión los requisitos de patentabilidad de la presente solicitud se podrían ver afectados así:

Nº	Documento	Reivindicaciones afectadas	Requisito que afecta
D1	WO 0101909	1 - 35	Novedad

5) Notificación

En cumplimiento del artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le indica que dentro del término de sesenta días contados a partir de la fecha de la notificación de la presente comunicación debe responder a la notificación. En caso de no dar respuesta al presente requerimiento, o si a pesar de la respuesta subsistieran los impedimentos para la concesión, se denegará la patente.

Notifíquese el presente oficio conforme a lo dispuesto por el numeral 5.2, literal e) del capítulo quinto del título primero de la Circular Única N° 10 de 2001


ALIX CARMONA CÉSPEDES DE VERGEL
Jefe División de Nuevas Creaciones

El anterior requerimiento fue notificado por fijación en la lista, de fecha

24 NOV. 2005

Concepto Técnico N° 1861	EXAMINADOR TÉCNICO Código No. 202003	EXAMINADOR JURÍDICO Código No.
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(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



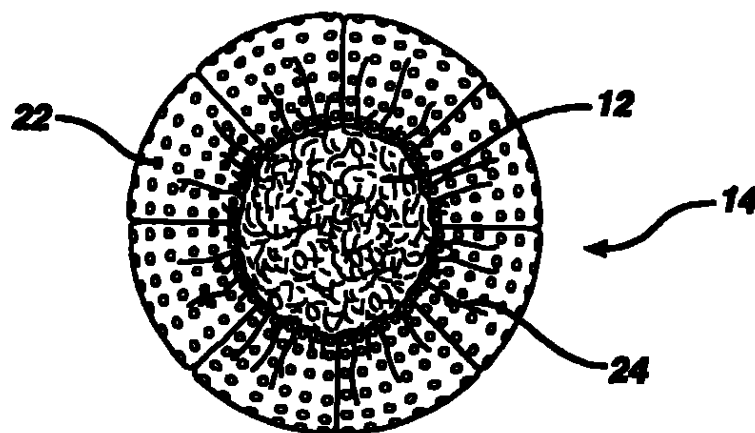
(43) International Publication Date
11 January 2001 (11.01.2001)

PCT

(10) International Publication Number
WO 01/01909 A1

- (51) International Patent Classification⁷: A61F 13/20 (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.
- (21) International Application Number: PCT/US00/13812
- (22) International Filing Date: 19 May 2000 (19.05.2000)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 09/343,760 30 June 1999 (30.06.1999) US (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- (71) Applicant: MCNEIL-PPC, INC. [US/US]; Grandview Road, Skillman, NJ 08558 (US).
- (72) Inventor: LOCHTE, Karin; Aue 88, D-42103 Wuppertal (DE).
- Published:
— With international search report.
- (74) Agents: CIAMPORCERO, Andley, A., Jr. et al.; One Johnson & Johnson Plaza, New Brunswick, NJ 08903-7333 (US).
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: DOMED TAMPON WITH SURFACTANT-TREATED COVER



(57) Abstract: A process for forming tampons having an absorbent structure (12) substantially enclosed by an apertured film cover (22) that has a nonionic surfactant at least partially applied to the cover (22) is disclosed. An absorbent structure (12) is formed into a tampon blank wherein an individual sheet substantially encloses the tampon blank, forming a cover (22). The covered tampon blank is compressed in a press to form a substantially cylindrical, compressed tampon (10) having a cover (22) comprising the individual sheet. The compressed tampon (10) is transferred to a further press, and at least a portion of the tampon (10) covered by the coated sheet portion of the cover (22) is further compressed to form a constricted portion having overlapping portions of the cover (22) being folded upon each other in a substantially unbonded manner. Preferably, the constricted portion is a dome-shaped introduction end (14) of the tampon.

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Domed Tampon with Surfactant-Treated Cover

Cross Reference to Related Applications

This invention is related to the following copending
5 applications: US Ser. No. 09/343,759, filed June 30, 1999,
entitled "Continuous Method of Providing Individual Sheets
from a Continuous Web" (Attorney Docket, PPC-668); US Ser.
No. 09/345,090, filed June 30, 1999, entitled
"Multilayered Apertured Film Wrapping Element for
10 Absorbent Articles" (Attorney Docket, PPC-691); US Ser.
No. 09/345,089, filed June 30, 1999, entitled
"Heterogeneous Apertured Film Wrapping Element for
Absorbent Articles" (Attorney Docket, PPC-713); US Ser.
No. 09/345,088, filed June 30, 1999, entitled "Tampon with
15 Cover and Nonionic Surfactant" (Attorney Docket, PPC-708);
US Ser. No. 60/141,688, filed June 30, 1999, entitled
"Sealing Roller and Sealing Roller Element, Particularly
for Producing a Tampon for Feminine Hygiene and Method
Therefore" (Attorney Docket, J&J-1819); and US Ser. No.
20 60/141,690, filed June 30, 1999, entitled "Tampon for
Feminine Hygiene and Process and Apparatus for its
Production" (Attorney Docket, J&J-1820).

Background of the Invention

25 The present invention relates to a tampon comprising
an absorbent body, having an introduction end and a
withdrawal end, and a longitudinal main portion
therebetween. The tampon further having a constriction at
an end thereof. The tampon is substantially enclosed
30 within a cover comprising fluid impervious plastic
material in the form of a resilient three-dimensional web
having a multiplicity of perforations said web comprises a
nonionic surfactant on its outer surface, at least in the

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a portion corresponding to the constricted portion of the tampon.

There are several types of covers that have been or are currently in use for tampons: woven fabrics, nonwoven fabrics, apertured films, reticulated films, polymer nets, and the like. Several of the proposed tampon covers have incorporated features that have made them effective in heat sealing operations to attach them to the absorbent structure of the tampon and/or to other portions of the covers themselves. However, due to the nature of the heat-sealable covers, processes subsequent to the attachment of the cover to the absorbent structure can result in undesired additional sealing of the covers. Therefore, the covers have tended not to extend into regions that are further manipulated, such as subsequent dome-forming steps.

An example of a tampon cover that is heat-sealable, but that does not extend substantially into a dome-shaped introduction end is described in Friese, US Pat. Nos. 4,816,100; 4,836,450; and 4,859,273. Another example is sold as the o.b.® line of tampons, available in applicator and digital form from Personal Products Company of Skillman, New Jersey.

Therefore, what is needed is a tampon having an apertured film cover and being capable of expanding to a substantially cylindrical body without significant constriction at any restricted portion, especially, the outer introduction end and providing a reduction of frictional forces during introducing or withdrawal of the tampon from the body cavity and is processable in a commercially efficient manner.

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Summary of the invention

The present invention relates to a process for forming tampons having an absorbent structure substantially enclosed by an apertured film cover that has a nonionic surfactant at least partially applied to the cover. The process includes coating at least a portion of a web of fluid-impervious plastic material with a nonionic surfactant to form a coated web portion having a coating weight of less than about 0.5 grams/meter² ("gsm"). An individual sheet comprising a coated sheet portion is separated from the web and attached to an absorbent structure. The absorbent structure is formed into a tampon blank wherein the individual sheet substantially encloses the tampon blank, forming a cover. The covered tampon blank is compressed in a press to form a substantially cylindrical, compressed tampon having a cover comprising the individual sheet. The compressed tampon is transferred to a further press, and at least a portion of the tampon covered by the coated sheet portion of the cover is further compressed to form a constricted portion having overlapping portions of the cover being folded upon each other in a substantially unbonded manner. Preferably, the constricted portion is a dome-shaped introduction end of the tampon.

The invention also relates to a tampon having a nonionic surfactant coated portion of its cover extending into a constricted portion having overlapping portions of the cover being folded upon each other in a substantially unbonded manner. Preferably, the constricted portion is a dome-shaped introduction end of the tampon.

Brief Description of the Drawing

Fig. 1 is a perspective view of a compressed tampon having a nonionic surfactant-coated cover.

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Fig. 2 is a perspective view of a compressed tampon of the present invention having a nonionic surfactant-coated cover extending substantially into a dome-shaped introduction end.

5 Fig. 3 is an enlarged plan view of the introduction end of the tampon of Fig. 2.

Detailed Description of the Preferred Embodiment

The present invention relates to a tampon 10 comprising an absorbent body 12, having an introduction end 14 and a withdrawal end 16, and a longitudinal main portion 18 therebetween. The tampon further has a constriction 20 at an end thereof. The tampon is substantially enclosed within a cover 22 comprising fluid
15 impervious plastic material in the form of a resilient three-dimensional web having a multiplicity of perforations, said web comprises a nonionic surfactant on its outer surface, at least in a portion corresponding to the constricted portion of the tampon.

20 Special advantages are provided by a web of a fluid-impervious plastic material comprising a blend of at least two thermoplastic polymeric components, a continuous surface of a first thermoplastic polymeric component that exhibits a first melting point temperature and a dispersed
25 surface of an immiscible second polymeric component that exhibits a second melting point temperature, lower than the first melting point temperature. When such a web is heated to a temperature between the first melting point temperature and the second melting point temperature, the
30 second thermoplastic polymeric component is capable of forming an adhesive bond between said plastic material and the absorbent body and between said first and second surfaces of the web. These webs are described in more

detail in US Ser. No. 09/345,090, filed June 30, 1999,
entitled "Multilayered Apertured Film Wrapping Element for
Absorbent Articles" (Attorney Docket, PPC-691), and US
Ser. No. 09/345,089, filed June 30, 1999, entitled
5 "Heterogeneous Apertured Film Wrapping Element for
Absorbent Articles" (Attorney Docket, PPC-713).

Accordingly, the circumferential surface of the
absorbent body is completely covered and enclosed by said
web preventing a loss of fibers and facilitating the
10 introduction and withdrawal of the tampon into and out of
the body cavity. In addition, the processing of the
tampon is improved by the nonionic surfactant.

According to a further feature of the tampon
according to the invention, the web has first and second
15 surfaces, the first surface exhibiting said multiplicity
of apertures therein, each of the fiber-like elements
exhibiting a cross-section comprising a base portion in
the plane of the first surface and a sidewall portion
joined to each edge of the base portion, the sidewall
20 portions extending generally in the direction of the
second surface of the web, the intersecting sidewall
portions being interconnected to one another intermediate
the first and second surfaces of the web, the
interconnected sidewall portions terminating substantially
25 concurrently with one another in the plane of the second
surface. The sidewall portions joined to each edge of the
base portion and extending generally in the direction of
the second surface of the web improve a mechanical
interaction between said sidewall portion and the fiber
30 material of the absorbent body, so that the cover is
securely positioned at the outer surface of the absorbent
body in its non-expanded condition and, particularly, also
in its expanded position.

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The nonionic surfactant is preferably an ethoxylate. In one embodiment of the inventive tampon said ethoxylate is an ethoxylated fatty acid polyolester. In a preferred embodiment said ethoxylate is an ethoxylated fatty acid sorbitan ester. A representative, non-limiting list of useful sorbitan esters includes polyoxyethylene sorbitan laurate (also known as Polysorbate 20 and 21), polyoxyethylene sorbitan palmitate (also known as Polysorbate 40), polyoxyethylene sorbitan stearate (also known as Polysorbate 60 and 61), polyoxyethylene sorbitan tristearate (also known as Polysorbate 65), polyoxyethylene sorbitan oleate (also known as Polysorbate 80 and 81), and polyoxyethylene sorbitan trioleate (also known as Polysorbate 85). Among the aforementioned ethoxylated fatty acid sorbitan esters, polyoxyethylene-20-sorbitan monolaurate is most preferred.

In an alternative embodiment of the inventive tampon, the ethoxylate is a polyoxyethylene alkyl ether. A representative, non-limiting list of useful polyoxyethylene alkyl ethers includes polyoxyethylene lauryl ether, polyoxyethylene stearyl ether (also known as Steareth-2, Steareth-10, and the like), polyoxyethylene cetyl ether (also known as Ceteth-2, Ceteth-10, and the like), and polyoxyethylene oleyl ether (also known as Oleth-2, oleth-10, and the like). Among the aforementioned polyoxyethylene alkyl ethers, polyoxyethylene stearyl ether is most preferred.

In a third alternative embodiment the ethoxylate is an ether of an olefinic diol. A representative, non-limiting list of such olefinic diols useful in the present invention includes the following: polyethylene glycol, polypropylene glycol, polybutylene glycol, propylene glycol, and the like. The olefinic diols are preferably

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liquid at a temperature of less than about 35° C. This weight is typically dictated by their molecular weight. As used herein in the specification and claims, the term "molecular weight" refers to the number average molecular weight of a compound. Preferably, the olefinic diol is polyethylene glycol, having a molecular weight of less than about 600, or polypropylene glycol, having a molecular weight of less than about 4,000. Most preferably, olefinic diol is polyethylene glycol, having an average molecular weight of less than about 600.

It is to be understood that the nonionic surfactants used in the tampon and in its manufacture as described herein may be commercially available. Examples thereof are marketed under the registered trademarks "TWEEN" and "BRIJ" of ICI, Atlas Chemical Division, Wilmington, DE, USA.

Preferably, the nonionic surfactant is applied to the web at coating weights up to about 0.5 grams/meter² ("gsm"). More preferably, the coating weight is about 0.1 to about 0.4 gsm, and most preferably, it is applied at a coating weight of about 0.16 to about 0.36 gsm.

The hydrophilic nonionic surfactant is applied to the cover at least on a portion of the tampon that is further compressed to form a constricted portion having overlapping portions of the cover folded upon each other in a substantially unbonded manner. Preferably, the constricted portion is a dome-shaped introduction end of the tampon, and therefore, in a preferred embodiment, the coated portion of the cover of the tampon allows that overlapping portions of said cover are folded upon each other in a substantially unbonded manner on the introduction end and substantially prevents a bonding between the plastic web and the absorbent body. In

addition, the nonionic surfactant can reduce the frictional forces of the tampon while introducing or removing the tampon into or out of the body cavity and during processing of the tampon. Furthermore, the tampon
5 provided with the nonionic surfactant provides an improved fluid transfer across the cover. In this connection a dome-shaped introduction end of the tampon is especially preferable.

In this connection, it has been realized that an
10 ejection force coaxially directed to the longitudinal axis of the pressed tampon as to eject said tampon from the press may amount to less than about 1000 N. This is described in US Ser. No. 09/345,088, filed June 30, 1999, entitled "Tampon with Cover and Nonionic Surfactant"
15 (Attorney Docket, PPC-708).

The absorbent structure may be any absorbent means that is capable of absorbing and/or retaining liquids (e.g., menses and/or urine). The absorbent structure can be manufactured in a wide variety of sizes and shapes and
20 from a wide variety of liquid-absorbing materials. A representative, non-limiting list of useful materials includes cellulosic materials, such as rayon, cotton, wood pulp, creped cellulose wadding, tissue wraps and laminates, peat moss, and chemically stiffened, modified,
25 or cross-linked cellulosic fibers; synthetic materials, such as polyester fibers, polyolefin fibers, absorbent foams, absorbent sponges, superabsorbent polymers, absorbent gelling materials; formed fibers, such as capillary channel fibers and multilimbed fibers;
30 combinations of materials, such as synthetic fibers and wood pulp including coformed fibrous structures (e.g., those materials described in Anderson et al., U.S. Patent No. 4,100,324); or any equivalent material or combinations of materials, or mixtures of these.

Preferably, the absorbent structure comprises fibers. Preferably, the fibers are relatively stiff. One type of fibers that is particularly useful in the practice of the present invention is multilimbed fibers, such as those
5 disclosed in EP 301 874 (the fibers form fabrics having relatively high flexural rigidity). These multilimbed fibers and other fibers having a sufficient stiffness may provide further benefits to the present invention, as they can contribute to expanding the constricted portion of the
10 tampon due to their resiliency. This may overcome the constriction that may be a result of some minor, inconsequential bonds being formed between the cover and itself or other elements of the tampon.

As shown in Fig. 3, the cover 22 extends
15 substantially into a constriction, such as a dome-shaped introduction end 14. This doming causes folds 24 and other deformations to occur in the cover 22 at the domed introduction end. In use, the introduction end 14 of the tampon 10 can expand completely as soon as it is engaged
20 by body fluid. This characteristic can be enhanced by the fact that said cover having overlapping portions 24 at the introduction end 14 of the tampon 10 is substantially not bonded to the absorbent structure 12, so that the absorbent body with its cover 22 can freely expand if
25 engaged by body fluid.

The invention also relates to a process for the manufacture of a tampon as disclosed above. The process includes coating at least a portion of a web of fluid-impervious plastic material with a nonionic
30 surfactant to form a coated web portion having a coating weight of less than about 0.5 gsm. An individual sheet comprising a coated sheet portion is separated from the web and attached to an absorbent structure. It may be attached generally as disclosed in Friese, US Pat. No.

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4,816,100, or as disclosed in US Ser. No. 60/141,688,
filed June 30, 1999, entitled "Sealing Roller and Sealing
Roller Element, Particularly for Producing a Tampon for
Feminine Hygiene and Method Therefore" (Attorney Docket,
5 J&J-1819). The absorbent structure is formed into a
tampon blank wherein the individual sheet substantially
encloses the tampon blank, forming a cover. The covered
tampon blank is compressed in a press to form a
substantially cylindrical, compressed tampon 10 having a
10 cover 22 comprising the individual sheet. The compressed
tampon 10 is transferred to a further press, and at least
a portion of the tampon 10 substantially covered by the
coated sheet portion of the cover 22 is further compressed
to form a constricted portion having overlapping portions
15 24 of the cover 22 being folded upon each other in a
substantially unbonded manner. Preferably, the
constricted portion is a dome-shaped introduction end 14
of the tampon 10. The application of the nonionic
surfactant is also sufficient to reduce the ejection force
20 of the compressed tampon from the press to less than about
1000 N.

Surprisingly, it has been found that the forming of
the constriction, such as a dome-shaped introduction end
of the tampon, that is at least partially covered by the
25 coated web, as one step during the process of
manufacturing the tampon could be realized without
negatively affecting the effectiveness of the tampon with
regard to its absorption capacity and absorption velocity.
This is because any undesired bonding of the cover
30 material to itself or to the material of the absorbent
body is substantially prevented.

In addition to the above mentioned advantages the
production capacity could be enhanced by the fact that the
hydrophilic nonionic surfactant applied less than about

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0.5 gsm is sufficient for the realization of the present invention.

In addition, the immiscible blend of thermoplastic polymeric components having different melting point
5 temperatures provides the advantage that the plastic material retains its structure when the lower melting point component is sealed to other portions of the cover and/or to other elements of the tampon in the formation of the tampon blank.

10 The disclosures of all US patents and patent applications, as well as any corresponding published foreign patent applications, mentioned throughout this patent application are hereby incorporated by reference herein.

15 The specification and embodiments above are presented to aid in the complete and non-limiting understanding of the invention disclosed herein. Since many variations and embodiments of the invention can be made without departing from its spirit and scope, the invention resides in the
20 claims hereinafter appended.

WHAT WE CLAIM IS:

1. A process for manufacturing a tampon comprising the steps of:

- 5 a) at least partially coating a web of fluid-impervious plastic material with a nonionic surfactant to form a coated web portion, the web being in the form of a resilient three-dimensional web, the web having opposed first and second edges, and a
- 10 substantially infinite length and having a multiplicity of apertures therein, the coated web portion having a coating weight of less than about 0.4 gm;
- b) separating an individual sheet comprising a
- 15 coated sheet portion from the web;
- c) attaching the individual sheet to an absorbent structure;
- d) forming the absorbent structure into a tampon blank wherein the individual sheet substantially
- 20 encloses the tampon blank;
- e) compressing the tampon blank in a press to form a substantially cylindrical, compressed tampon having a cover comprising the individual sheet;
- f) transferring said compressed tampon to a
- 25 further press and
- g) applying pressure to further compress at least a portion of the tampon covered by the coated sheet portion of the cover to form a constricted portion having overlapping portions of the cover
- 30 being folded upon each other in a substantially unbonded manner.

2. The process of claim 1 wherein the constricted portion comprises a dome-shaped insertion end.

3. The process of claim 1 wherein the nonionic surfactant is applied at a coating weight of about 0.1 to about 0.4 gsm.

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4. The process of claim 3 wherein the nonionic surfactant is applied at a coating weight of about 0.16 to about 0.36 gsm.

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5. The process of claim 1 wherein the fluid-impervious plastic material comprises a blend of at least two thermoplastic polymeric components, a continuous phase of a first thermoplastic polymeric component that exhibits a first melting point temperature and a dispersed phase of an immiscible, second thermoplastic polymeric component that exhibits a second melting point temperature, less than the first melting point temperature, such that when the web is heated to a temperature between the first melting point temperature and the second melting point temperature, the second thermoplastic polymeric component is capable of forming an adhesive bond between said plastic material and the absorbent body and between said first and second surfaces of the web.

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6. The process of claim 5 wherein the step of attaching the individual sheet comprises applying heat and pressure to thermally bond the sheet to the absorbent sliver.

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7. The process of claim 1 wherein the hydrophilic nonionic surfactant is an ethoxylate selected from the group comprising ethoxylated fatty acid polyolesters, polyoxyethylene alkyl ethers and ethers of olefinic diols.

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8. The process of claim 1 wherein said hydrophilic nonionic surfactant is applied to the web as a processing aid.

5 9. The process of claim 1 wherein the tampon is capable of expanding to a substantially cylindrical body without significant constrictions at the further compressed portion of the tampon.

10 10. The process of claim 1 wherein the absorbent structure comprises fibers.

11. The process of claim 10 wherein the absorbent structure comprises stiff fibers.

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12. The process of claim 10 wherein the absorbent structure comprises multilimbed fibers.

13. A process for manufacturing a tampon comprising
20 the steps of:

a) at least partially coating a web of fluid-impervious plastic material with a hydrophilic nonionic surfactant, the web being in the form of a resilient three-dimensional web, the web having
25 opposed first and second edges, and a substantially infinite length and having a multiplicity of apertures therein;

b) separating an individual sheet from the web;

30 c) attaching the individual sheet to an absorbent sliver;

d) forming the absorbent sliver into a tampon blank wherein the individual sheet substantially encloses the tampon blank;

e) compressing the tampon blank in a press to form a substantially cylindrical, compressed tampon having a cover comprising the individual sheet; and

5 f) applying an ejection force to the compressed tampon in an axial direction to eject the tampon from the press; and wherein a sufficient amount of the surfactant is applied to reduce the ejection force compared with the ejection force of a tampon, with a cover free of surfactant;

10 g) transferring said compressed tampon to a further press and

h) forming the introduction end into a dome-shaped configuration such that the cover being at least partially extended onto said dome-shaped introduction end wherein the tampon is capable of
15 expending to a substantially cylindrical body without significant constrictions at the introduction end.

14. The process of claim 13 wherein the hydrophilic
20 nonionic surfactant is applied at a coating weight of about 0.1 to about 0.4 gsm.

15. The process of claim 14 wherein the coating weight is about 0.16 to about 0.36 gsm.

25 16. The process of claim 13 wherein the fluid-impervious plastic material comprises a blend of at least two thermoplastic polymeric components, a continuous phase of a first thermoplastic polymeric component that exhibits a first melting point temperature and a dispersed phase of
30 an immiscible, second thermoplastic polymeric component that exhibits a second melting point temperature, less than the first melting point temperature, such that when the web is heated to a temperature between the first

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melting point temperature and the second melting point temperature, the second thermoplastic polymeric component is capable of forming an adhesive bond between said plastic material and the absorbent body and between said
5 first and second surfaces of the web.

17. The process of claim 16 wherein the step of attaching the individual sheet comprises applying heat and pressure to thermally bond the sheet to the absorbent
10 structure.

18. The process of claim 13 wherein the hydrophilic nonionic surfactant is an ethoxylate selected from the group comprising ethoxylated fatty acid polyolesters,
15 polyoxyethylene alkyl ethers and ethers of olefinic diols.

19. The process of claim 13, wherein said hydrophilic nonionic surfactant is applied to the web as a processing aid.
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20. Tampon comprising an absorbent body, having an introduction end and a withdrawal end, and a longitudinal main portion therebetween; the tampon comprising a cover comprising fluid impervious plastic material in the form
25 of a resilient three-dimensional web having a multiplicity of perforations, said web comprises a nonionic surfactant covering at least partially an outer surface of the web to form a coated portion, said coated portion of said cover being at least partially extended onto said introduction
30 end and having overlapping portions being folded upon each other in a substantially unbonded manner on said introduction end.

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21. Tampon according to claim 20, wherein said surfactant is an ethoxylate.

22. Tampon according to claim 21, wherein said
5 ethoxylate is an ethoxylated fatty acid polyolester.

23. Tampon according to claim 22, wherein said ethoxylate is an ethoxylated fatty acid sorbitan ester.

10 24. Tampon according to claim 23, wherein said ethoxylated fatty acid sorbitan ester is selected from the group comprising polyoxyethylene sorbitan laurate, polyoxyethylene sorbitan palmitate, polyoxyethylene sorbitan stearate, polyoxyethylene sorbitan tristearate,
15 polyoxyethylene sorbitan oleate and polyoxyethylene sorbitan trioleate.

25. Tampon according to claim 26, wherein said polyoxyethylene sorbitan laurate is a
20 polyoxyethylene-20-sorbitan monolaurate.

26. Tampon according to claim 21, wherein said ethoxylate is a polyoxyethylene alkyl ether.

25 27. Tampon according to claim 26, wherein said polyoxyethylene alkyl ether is selected from the group comprising polyoxyethylene lauryl ether, polyoxyethylene stearyl ether, polyoxyethylene cetyl ether and polyoxyethylene oleyl ether.

30 28. Tampon according to claim 27, wherein said polyoxyethylene stearyl ether is polyoxyethylene (10) stearyl ether.

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29. Tampon according to claim 21, wherein said ethoxylate is an ether of polyethylene glycol.

30. Tampon according to claim 20, wherein said nonionic surfactant is applied at a coating weight of about 0.1 to about 0.4 gsm.

31. Tampon of claim 30, wherein said nonionic surfactant is applied at a coating weight of about 0.16 to about 0.36 gsm.

32. Tampon of claim 20, wherein said introduction end of the tampon being dome-shaped.

33. Tampon according to claim 20, wherein said web of fluid impervious plastic material comprises a blend of at least two thermoplastic polymeric components, a continuous phase of a first thermoplastic polymeric component that exhibits a first melting point temperature and a dispersed phase of an immiscible, second thermoplastic polymeric component that exhibits a second melting point temperature, less than the first melting point temperature, such that when the web is heated to a temperature between the first melting point temperature and the second melting point temperature, the second thermoplastic polymeric component is capable of forming an adhesive bond between said plastic material and the absorbent body and between said first and second surfaces of the web.

34. Tampon according to claim 20, wherein said cover having overlapping portions on the introduction end of the tampon, said overlapping portions being not bonded to the absorbent structure.

35. Tampon according to claim 20, wherein said web has first and second surfaces, the first surface exhibiting said multiplicity of apertures therein, each of
 5 the fiber-like elements exhibiting a cross-section comprising a base portion in the plane of the first surface and a sidewall portion joined to each edge of the base portion, the sidewall portions extending generally in the direction of the second surface of the web, the
 10 intersecting sidewall portions being interconnected to one another intermediate the first and second surfaces of the web, the interconnected sidewall portions terminating substantially concurrently with one another in the plane of the second surface.

FIG. 1

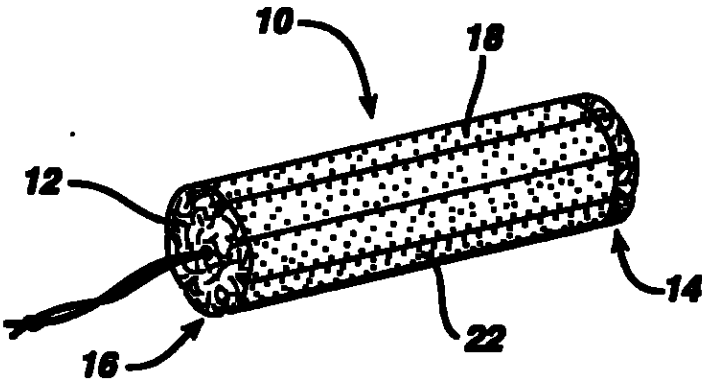


FIG. 2

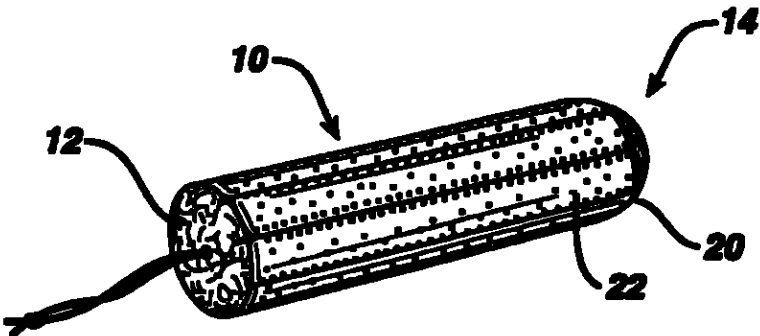


FIG. 3

