

AVISO DE NOTIFICACION

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CORREO CERTIFICADO

Radicación :00034144 00000006 Fecha: 23/08/2005 9:41:09
Tramite :2 PATENTES DE INVENCIÓN
Evento :1 REGISTRO/DEPOSITO/CONCESION/DEPOSITO
Actuación :432 COMUNICACION ACTO ADMINISTRATIVO
Solicitante :CASTRO DUQUE RAMIRO Folios:1

Bogotá, D.C.

Señor (a) (es)
CASTRO DUQUE RAMIRO
CRA 7 NO. 16 - 56 PISO 9
BOGOTA D.C.

REF: RESOLUCION No: 20156
FECHA No. 22/08/2005
EXPEDIENTE No. 0 34144
Tramite :2 PATENTES DE INVENCIÓN
Evento :1 REGISTRO/DEPOSITO/CONCESION/DEPOSITO
Actuación :432 COMUNICACION ACTO ADMINISTRATIVO

Estimado Doctor (a) :

Comendidamente le solicito presentarse a este Despacho ubicado en la Carrera 13 No. 27 - 00 Piso Quinto (5), de la ciudad de Bogotá D.C., dentro del término de cinco (5) días hábiles contados a partir del envío de la presente citación, en horario de 8:30 a.m. a 5:00 p.m. jornada continua, con el fin de notificarle personalmente el contenido de la resolución de la referencia proferida dentro del expediente tramitado con el número de radicación citado en el asunto.

De no hacerse presente en el término indicado anteriormente, la providencia en mención se notificará por edicto, el cual se fijará por el término de diez (10) días en el Centro de Documentación e Información. Para su comodidad el texto completo de la resolución se encontrará disponible en la página web de la Entidad, desde el día hábil siguiente al que se desfije el edicto.

La consulta del listado notificación y del acto administrativo puede ser realizada desde un computador con acceso a Internet, en la página web www.sic.gov.co, con el número de resolución a través de la opción servicios en línea - caracter general - consulta actos administrativos.

Secretaría General
SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



REPUBLICA DE COLOMBIA
SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

RESOLUCION 20156

Por la cual se niega una patente de invención

Rad. N° 00-34144

EL SUPERINTENDENTE DE INDUSTRIA Y COMERCIO

en ejercicio de sus facultades legales, en especial de las que se confirieron en el artículo 4, numeral 5 del decreto 2153 de 1992, y

CONSIDERANDO:

PRIMERO: Que mediante escrito radicado en esta Superintendencia el 11 de mayo del 2000, bajo el número 00034144, se presentó la solicitud de patente para la invención denominada: "PROCESO PARA LA COMPRESION DE SUSTRATO QUE CONTIENE MATERIAL SUPERABSORBENTE", contenida en el expediente de la referencia.

SEGUNDO: Que efectuado el examen de forma en cuanto a los requisitos que debe llenar la solicitud y cumplidas las exigencias legales, se ordenó publicar el extracto sin que se hubieran presentado oposiciones por parte de terceros.

TERCERO: Que el artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina establece que: "Si la oficina nacional competente encontrara que la invención no es patentable o que no cumple con alguno de los requisitos establecidos en esta Decisión para la concesión de la patente, lo notificará al solicitante. Este deberá responder a la notificación dentro del plazo de sesenta días contados a partir de la fecha de la notificación. Este plazo podrá ser prorrogado por una sola vez por un período de treinta días adicionales... si el solicitante no respondiera a la notificación dentro del plazo señalado, o si a pesar de la respuesta subsistieran los impedimentos para la concesión, la oficina nacional competente denegará la patente".

CUARTO: Que realizado el examen de fondo, se requirió al solicitante en los términos del artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, para que presentara respuesta a las observaciones de carácter técnico visibles a folios 417 a 419 del cuaderno administrativo, relacionadas con la patentabilidad o cumplimiento de los requisitos establecidos por esta Decisión para la concesión de la patente. Frente a dicho requerimiento no hubo pronunciamiento alguno por parte del mismo, motivo por el cual es procedente negar el privilegio de patente solicitado con fundamento en lo dispuesto en el artículo 45 de la Decisión 486.

RESUELVE:

ARTICULO PRIMERO: Negar el privilegio de patente de invención para la solicitud correspondiente a "PROCESO PARA LA COMPRESION DE SUSTRATO QUE CONTIENE MATERIAL SUPERABSORBENTE".



Industria y Comercio
SUPERINTENDENCIA

REPUBLICA DE COLOMBIA
SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

RESOLUCION 20156

Por la cual se niega una patente de invención

Rad. N° 00-34144

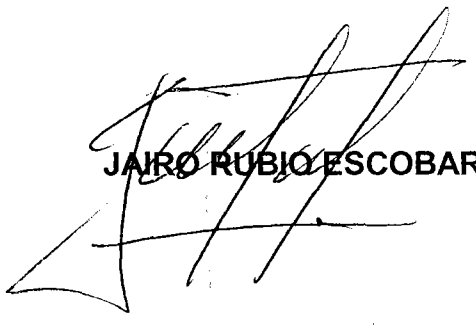
ARTICULO SEGUNDO: Notificar personalmente el contenido de la presente resolución al doctor Ramiro Castro Duque, o a quien haga sus veces, en su calidad de apoderado de Kimberly – Clark Worldwide, Inc., entregándole copia de la misma, advirtiéndole que contra ella procede el recurso de reposición interpuesto ante el Superintendente de Industria y Comercio, al momento de la notificación o dentro de los 5 días hábiles siguientes a ella.

NOTIFÍQUESE Y CUMPLASE

Dada en Bogotá, D.C., a los

22 AGO. 2005

EL SUPERINTENDENTE DE INDUSTRIA Y COMERCIO,


JAIRO RUBIO ESCOBAR

Doctor
RAMIRO CASTRO DUQUE
Carrera 7 N° 16 – 56 Piso 9.
Bogotá D.C. (pm)

202021

[54] MICROWAVE HEAT SETTING OF TAMPON

[56]

References Cited

U.S. PATENT DOCUMENTS

[75] Inventors: Edward G. Wollangk, Oshkosh;
Amnuey Lilaonitkul, Appleton, both
of Wis.

2,976,579	3/1961	Rakil	28/118
3,382,542	5/1968	Witschi et al.	28/118
3,606,643	9/1971	Mooney	28/119
3,738,364	6/1973	Brien et al.	28/120
4,081,884	4/1978	Johst et al.	28/119
4,128,692	12/1978	Reid	128/284

[73] Assignee: Kimberly-Clark Corporation,
Neenah, Wis.

Primary Examiner—James J. Bell
Attorney, Agent, or Firm—Howard Olevsky; William D.
Herrick

[21] Appl. No.: 153,010

[57] ABSTRACT

[22] Filed: May 27, 1980

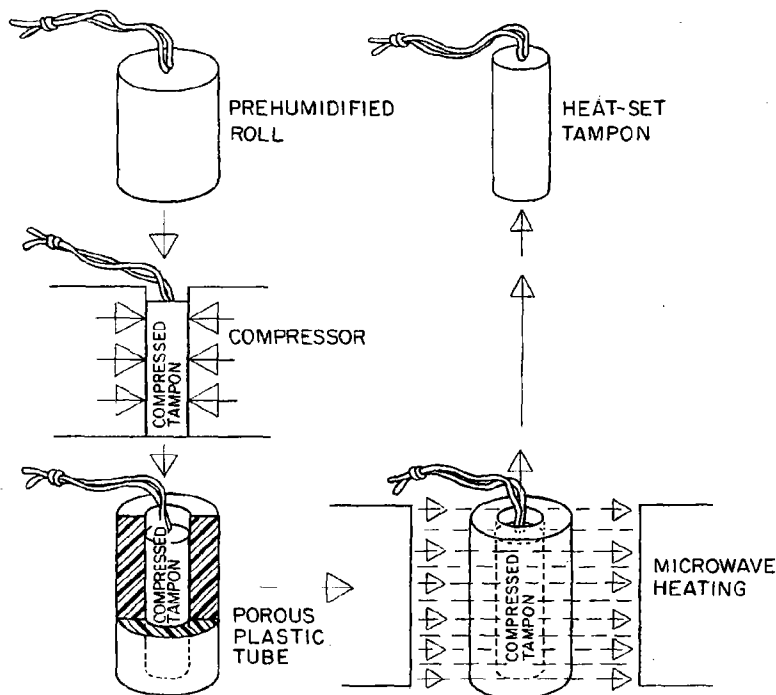
A heat-set radially compressed tampon is made by radi-
ally compressing a prehumidified tampon pledget hav-
ing absorbent fibers subjecting the compressed pledget
to microwave heating.

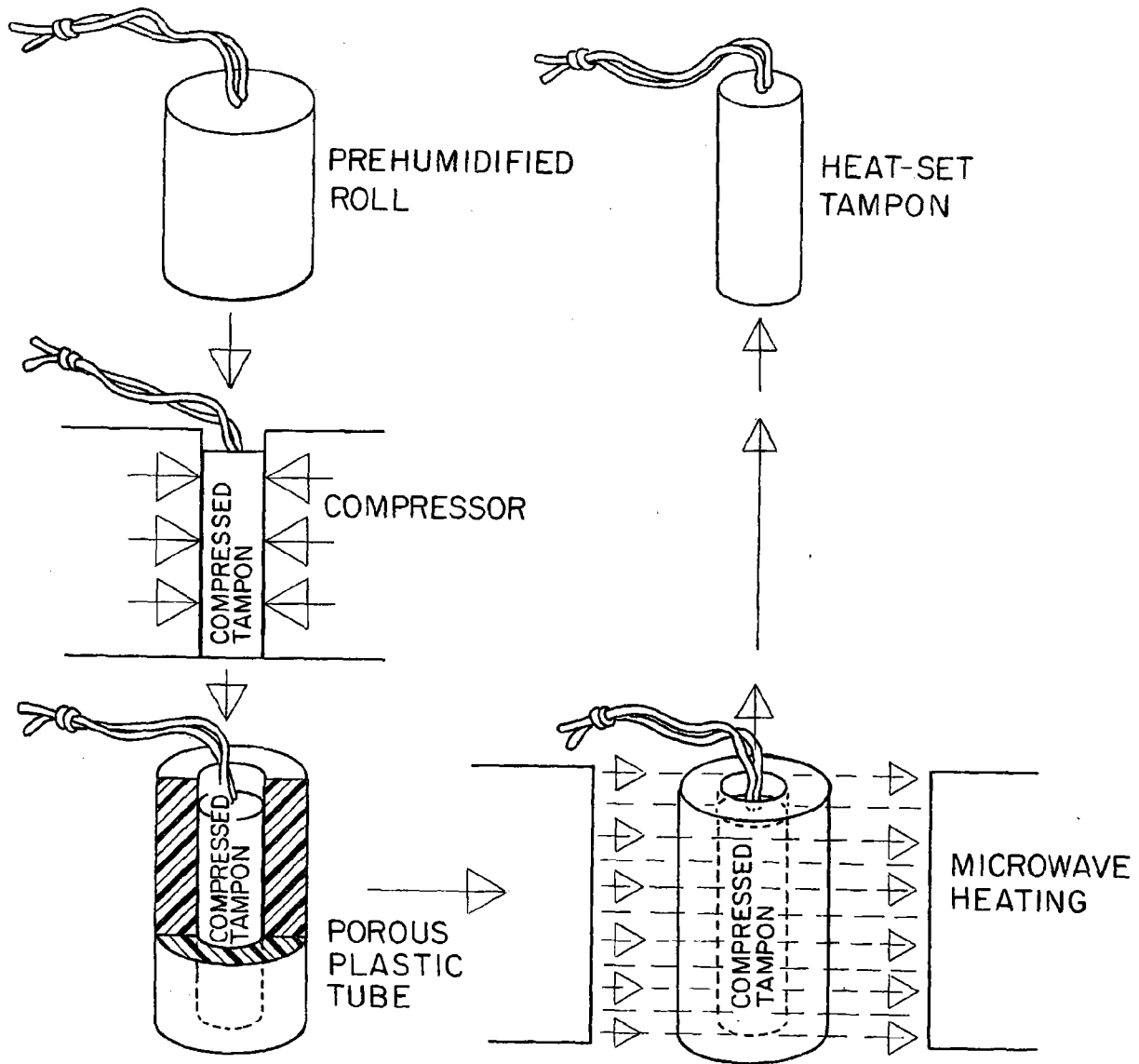
[51] Int. Cl.³ A61F 13/20

[52] U.S. Cl. 128/285; 28/118

[58] Field of Search 128/263, 285; 28/118,
28/120

7 Claims, 1 Drawing Figure





MICROWAVE HEAT SETTING OF TAMPON

FIELD OF THE INVENTION

The subject invention relates to tampons and particularly to compressed tampons.

BACKGROUND OF THE INVENTION

Compressed tampons have certain advantages over noncompressed tampons relating essentially to their increased absorbent material per unit volume, and accompanying ease of insertion relative to the amount of absorbent.

A radially compressed tampon, for instance, when in place in the vagina, radially expands with the uptake of menstrual fluid and may, in fact, swell to its original uncompressed volume or, in some instances, to an even higher volume.

Radially compressed tampons may be designed for digital insertion or for use with insertion aids such as the traditional telescoping tube type tampon applicator or the stick tampon applicator. In any event, after compression, the tampon pledget tends to reexpand to its original dimension. To overcome this tendency, heat-setting has been utilized. The application of heat is designed to "set" the tampon in its compressed state. Conventional heat-setting, however, has some distinct disadvantages. First and foremost of these is the substantial increase in manufacturing time necessary to subject the tampons to an amount of heat necessary to obtain some level of set. If relatively high temperatures are used in an attempt to speed the process, the outside of the tampon which is a dense, compacted material is heated substantially faster than the inside, and the outer surface may be degraded and lose its absorbent characteristics.

This invention provides a process for rapid and uniform heat-setting of a tampon containing fibrous absorbent as well as a radially compressed tampon having certain unique characteristics.

For purposes of this invention, the term "fibrous" refers to tampon absorbent material derived from traditional cellulosic sources such as wood pulp cotton linters, etc. as well as the rayon derived absorbents and certain synthetic absorbent polymeric fibers and is meant to include various mixtures of absorbent materials and blends which, for example, may include superabsorbents. The term is specifically used to differentiate between tampons which utilize a foam or a foam in combination with superabsorbents as the absorbent material. The teachings of this invention have no particular application to such nonfibrous absorbent materials.

SUMMARY OF THE INVENTION

According to the teachings of this invention, a process for rapidly and uniformly heat-setting a radially compressed tampon is provided which generally involves the steps of radially compressing a prehumidified tampon subjecting the compressed tampon to microwave heating while the tampon is preferably in an open-ended tube having openings disposed about the longitudinal axis thereof to heat-set the tampon pledget. The microwave chamber may be equipped with means for dry circulation or mild vacuum to remove the excess moisture. The tampon may then be packaged or placed into a tampon applicator tube for subsequent packaging.

DETAILED DESCRIPTION OF THE INVENTION

The general process of the subject invention can be readily understood by reference to the process flow schematic of FIG. 1. FIG. 1 shows the prehumidified tampon roll being subjected to compressive forces, insertion in a microwave transparent tube, and its exposure to microwave heating. This is the basic process of this invention.

While the concept of microwave heating per se is known, successful application of microwave heating to heat-set compressed tampons required the discovery and utilization of several unique and interrelated factors. It was necessary, first, to identify the need to have a sufficient amount of moisture present in the tampon to allow for efficient and successful microwave heating. The microwave heat-setting mechanism of the process of this invention realizes the difference between the molecular absorption of microwave energy between the moisture present within the tampon and the tampon fibers themselves. The water molecule preferentially absorbs microwave energy and does so essentially instantaneously and uniformly throughout the density of the tampon as soon as the microwave energy field is applied. Since the water molecules are essentially evenly distributed throughout the tampon, the entire tampon is heated in a relatively short period of time by a thermal conduction mechanism. It has been found that it is necessary, at the minimum, for the tampon to absorb sufficient moisture so that it has at least 10% moisture content based upon dry weight. Values of 12%-16% moisture by weight are currently preferred. Currently, this is accomplished by placing the tampon pledget in a humidification chamber maintained at 75° F. and having relative humidity of 80% until the tampon is in moisture equilibrium with the chamber. The time for equilibrium varies with the particular pledget materials chosen but generally is in the range of 18 to 26 hours. Of course, direct immersion in water is impractical because of the amount of time which would be required to dry the pledget to a workable moisture level.

An additional unique feature of this invention is the utilization of microwave transparent tubes having openings disposed along the longitudinal axis as well as at the top and/or bottom of the cylinder. Uniform removal of moisture at a rate rapid enough to be commercially utilized is obtained by employing the tubes in this step.

When the tampon of this invention has been treated as indicated particularly and necessarily from the standpoint of the product of this invention with means for the removal of excess moisture, it provides a tampon in which, it is theorized, substantial interstitial voids occur. These voids are created by the removal of moisture and provide additional sites for rapid fluid uptake. Also, as a result of water molecule excitation and evaporation, interfibrillar hydrogen bonding takes place as opposed to hydrogen bonding incorporating water molecules. This is a continuing process and actually speeds the removal of intra-tampon moisture as compared to conventional heating mechanisms. The existence of such interfibrillar bonding as well as interstitial voids is thought to overcome one of the primary disadvantages associated with radially compressed tampons and that is the initial slowness in fluid uptake until the radial compression is overcome. By the provision of essentially uniformly dispersed interstitial voids, sites are provided for rapid fluid uptake which would subsequently break

down the interfibrillar bonding and create additional sites for fluid uptake. This would allow the radial reexpansion of the tampon much more rapidly than has been accomplished in the past and, therefore, provide for the full utilization of the absorptive capacity obtained by the radial compression in a much shorter period of time. Initial fluid uptake is further enhanced because of the rapid rupture of the interfibrillar hydrogen bonding. Such a design would also tend to prevent so-called early leakage associated with fluid flow around the edges of the radially compressed, unexpanded tampon when first inserted.

It is, of course, desirable that a tampon be prevented from premature expansion due to moisture uptake from the surrounding environment. This can be accomplished in a variety of ways such as controlling the humidity in the environment after the dehydration is completed and/or packaging the tampon relatively rapidly. It should be noted that while the dry tampon is more highly receptive to moisture than the prewet or nondry tampon, vapor uptake is hardly instantaneous. Furthermore, the relatively concentrated and uniformly distributed interfibrillar hydrogen bonding inside the tampon resulting from the heat-setting process of this invention would provide the tampon with the ability to prevent premature expansion due to vapor uptake from the surrounding atmosphere. The combination of the prehumidification and the application of microwave energy also provides for a uniform distribution of resid-

ual moisture in the tampon after the microwave treatment.

What is claimed is:

1. A process for heat-setting a radially compressed tampon comprising:

- (a) compressing a prehumidified tampon; said compressed tampon having a diameter less than its height;
- (b) inserting said compressed tampon in an open ended microwave transparent tube having openings along the longitudinal axis of said tube;
- (c) subjecting said tampon to microwave heating; and
- (d) drying said tampon.

2. The process according to claim 1 wherein the tampon is humidified to at least 10% of the dry weight.

3. The process according to claims 1 or 2 in which the tampon is inserted into an applicator after cooling and moisture removal is complete.

4. The process according to claim 1 in which the openings provide a substantially uniform exposed area around the tampon periphery.

5. The process according to claim 1 wherein the tampon is humidified to between 12% and 16% of its dry weight.

6. A tampon formed by the process of claim 1 characterized by the presence of substantially uniformly distributed interabsorbent moisture.

7. The tampon according to claim 6 wherein the absorbent includes superabsorbent material.

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European Patent Office
D-80298 München
Germany

EPO - Munich
38
26. Aug. 2004

Your Ref

Our Ref 97/78639

Date 25 AUG 2004

Dear Sir(s),

Re: European (PCT) Patent Appln. No. 00932429.4 (1178767)
Priority: USA No. 60/134361, etc.
Kimberly-Clark Worldwide, Inc.
Compressing a material web

The above case was filed on 11 DEC 2001 and as yet we do not appear to have received a substantive examination report. Please let us know when a substantive examination report is likely to issue.

This is not a request for accelerated examination.

Yours faithfully,

Frank B. Dehn & Co.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC 16 OCT 2001
WIPO PCT

13

Applicant's or agent's file reference 14794	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/4/PA-111)	
International application No PCT/US00/13280	International filing date (day/month/year) 15 MAY 2000	Priority date (day/month/year) 15 MAY 1996
International Patent Classification (IPC) or national classification and IPC (PC7): B29C 59/18 and US Cl.: 264/280		
Applicant KIMBERLY-CLARK WORLDWIDE, INC.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 30.

2. This REPORT consists of a total of 3 sheets.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 0 sheets.

3. This report contains indications relating to the following items:

I ☒ Basis of the report

II ☐ Priority

III ☐ Non-establishment of report with regard to novelty, inventive step or industrial applicability

IV ☐ Lack of unity of invention

V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability, citations and explanations supporting such statement

VI ☐ Certain documents cited

VII ☐ Certain defects in the international application

VIII ☐ Certain observations on the international application

EPC - DG
24.12.2001
(104)

Date of submission of the demand 11 DECEMBER 2000	Date of completion of this report 20 AUGUST 2001
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks 1500 PCT Washington, D.C. 20531	Authorized officer B. T. TONTI 2018 B. T. TONTI
Facsimile No. (703) 305-5230	Telephone No. (703) 308-0881

Form PCT/IPEA/400 (cover sheet) (July 1989)w

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/13280

I. Basis of the report

1. With regard to the elements of the international application:

- ☒ the international application as originally filed
- ☒ the description:
pages 1-42, as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the demand
pages NONE, filed with the letter of
- ☒ the claims:
pages 43-46, as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the demand
pages NONE, filed with the letter of
- ☒ the drawings:
pages 1-23, as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the demand
pages NONE, filed with the letter of
- ☒ the sequence listing part of the description:
pages NONE, as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the demand
pages NONE, filed with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: _____ which is

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

- ☒ the description, pages NONE
- ☒ the claims, Nos. NONE
- ☒ the drawings, sheets/fig. NONE

5. ☐ This report has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US90/18980

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability, citations and explanations supporting such statement

1. statement

Novelty (N)	Claims <u>NONE</u>	YES
	Claims <u>1-58</u>	NO
Inventive Step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-58</u>	NO
Industrial Applicability (IA)	Claims <u>1-58</u>	YES
	Claims <u>NONE</u>	NO

2. citations and explanations (Rule 70.7)

Claims 1-58 lack novelty under PCT Article 35(2) as being anticipated by Wollangk et al (U.S. Patent 4,520,527).

Wollangk et al (col. 1, line 2 to col. 4, line 3) teach a process of compacting a web (in the shape of a roll or tube) including plasticizing superabsorbent material and compressing the web as set forth in the *instant claims*.

NEW CITATIONS

US 4,520,527 A (WOLLANGK et al) 27 APRIL 1982, see col. 1, line 2 to col. 4, line 2

INTERNATIONAL SEARCH REPORT

Intern. Application No.
PCT/US 00/13280

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61F13/15

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system to which classification symbols)

IPC 7 A61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

WPI Data, PAJ, EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passage	Relevant to claim No.
A	US 4 600 458 A (KOCK RONALD W ET AL) 15 July 1986 (1986-07-15) abstract; claims; figures	1-38
A	US 4 605 402 A (ISKRA MICHAEL J) 12 August 1986 (1986-08-12) cited in the application	
A	US 4 573 988 A (ISKRA MICHAEL J ET AL) 4 March 1986 (1986-03-04)	
A	US 4 921 643 A (WALTON RICHARD R ET AL) 1 May 1990 (1990-05-01) cited in the application	
A	US 5 324 575 A (SULTIZE ROLLAND F ET AL) 28 June 1994 (1994-06-28) cited in the application	

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

Special categories of cited documents

A* Document defining the general state of the art which is not considered to be of continuing relevance

E* Earlier document but published on or after the international filing date

L* Document which may throw doubt on priority, claim or which is cited to establish the publication date of another claim or other optional was not used (not used)

O* Document referring to an oral disclosure, use, exhibition or other means

H* Document published prior to the international filing date but later than the priority date claimed

T* Later document published after the international filing date or priority date and not in conflict with the applicant but used to understand the principle or theory underlying the invention

X* Document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y* Document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being deemed to be a person skilled in the art

Z* Document of the same patent family

Date of the actual completion of the international search

29 August 2000

Date of issuing of the international search report

06/09/2000

Name and mailing address of the ISA

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Authorized officer

Soederberg, J

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US 00/13280

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4600458 A	15-07-1986	US 4578068 A	25-03-1986
		AT 41100 T	15-03-1989
		CA 1250136 A	21-02-1989
		DE 3476966 D	13-04-1989
		EP 0146190 A	26-06-1985
		ES 538795 D	16-11-1986
		ES 8700910 A	16-02-1987
		JP 2690449 B	10-12-1997
		JP 6237958 A	30-08-1994
		JP 2063636 C	24-06-1996
		JP 6020475 B	23-03-1994
		JP 60210257 A	22-10-1985
		MX 163089 B	19-08-1991
US 4605402 A	12-08-1986	AT 68092 T	15-10-1991
		AU 580325 B	12-01-1989
		AU 4627785 A	20-02-1986
		BR 8503820 A	20-05-1986
		CA 1251901 A	04-04-1989
		DE 3584335 A	14-11-1991
		EP 0172035 A	19-02-1986
		ES 546182 D	01-10-1986
		ES 8700342 A	01-01-1987
		GR 851979 A	16-12-1985
		HK 107691 A	03-01-1992
		IN 164134 A	21-01-1989
		JP 1857478 C	27-07-1994
		JP 5069545 B	01-10-1993
		JP 61085942 A	01-05-1986
		MX 169989 B	03-08-1993
		NZ 213029 A	30-06-1987
		PH 20869 A	25-05-1987
		PT 80970 A, B	01-09-1985
		SG 95591 G	13-12-1991
		ZA 8506252 A	25-03-1987
US 4573988 A	04-03-1986	US 4537590 A	27-08-1985
		AT 40039 T	15-02-1989
		AU 558202 B	22-01-1987
		AU 2104283 A	17-05-1984
		BR 8306016 A	10-07-1984
		CA 1209752 A	19-08-1986
		DE 3378952 D	23-02-1989
		DK 509583 A, B	09-05-1984
		EP 0108637 A	16-05-1984
		ES 280301 U	16-01-1985
		ES 280302 U	16-01-1985
		ES 280303 U	16-01-1985
		ES 280304 U	16-01-1985
		ES 280305 U	01-03-1985
		ES 280306 U	16-01-1985
		ES 527081 D	01-05-1985
		ES 8504442 A	16-07-1985
		FI 334068 A	09-05-1984
		GB 2131346 A, B	20-06-1984
		GR 78755 A	02-10-1984
		HK 41987 A	05-06-1987
		IE 54695 B	03-01-1990

INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No.

PCT/US 00/13280

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4573988 A		IN 161085 A	03-10-1987
		KR 9101475 B	09-03-1991
		MX 157756 A	09-12-1988
		NO 834060 A, B	09-05-1984
		NZ 206055 A	10-09-1986
		PH 19243 A	14-02-1986
		PT 77627 A, B	01-12-1983
		SG 24287 G	10-07-1987
US 4921643 A	01-05-1990	BR 8903079 A	06-02-1990
		EP 0347875 A	27-12-1989
		FI 893027 A	25-12-1989
		JP 2045134 A	15-02-1990
US 5324575 A	28-06-1994	US 5252275 A	12-10-1993
		AU 1551192 A	06-10-1992
		CA 2107214 A	08-09-1992
		DE 69214939 D	05-12-1996
		DE 69214939 T	27-02-1997
		EP 0576553 A	05-01-1994
		MX 9201028 A	01-01-1993
		WO 9215741 A	17-09-1992
		US 5556976 A	17-09-1996
		US 5437418 A	01-08-1995
		US 5366591 A	22-11-1994



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