

ALVARO CASTELLANOS M. & CIA.
ABOGADOS
Carrera 9 No. 93 - 09
A.A. 8348
Santa Fe de Bogotá, D.C., COLOMBIA

531
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Señora

Jefe de la División de Nuevas Creaciones

Superintendencia de Industria y Comercio

Ministerio de Desarrollo Económico

E.

S.

D.

SUPERINDUSTRIA Y COMERCIO

Radicación : 00088862 00000001

Folios: 48

Fecha (AMD): 2001-02-21 15:44:17

Trámite : 002 PATENTES y 1 REGISTRO/ 329 COMPLETOS

Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

Ref.: Expediente No. 00.088.862

Solicitud de Patente de Invención titulada :

" PAÑOS DE LIMPIEZA MEJORADOS "

Solicitante: THE CLOROX COMPANY

PRESENTACION DE DOCUMENTOS

Yo, MARGARITA CASTELLANOS ABONDANO, mayor de edad, identificada y domiciliada como aparece al pie de mi firma, obrando en mi calidad de apoderada de la sociedad solicitante, atentamente me permito presentar a usted los siguientes documentos :

- Documento de Cesión de los Inventores, debidamente legalizado, junto con su traducción oficial.
- Copia certificada del documento de Prioridad AMERICANO No. 09/448,703 de Noviembre 24 de 1.999, junto con su traducción simple.

Cumplido así con lo dispuesto, atentamente solicito a Ud. se anexasen dichos documentos al expediente de la referencia y se continúe con el trámite correspondiente a esta solicitud de Patente de Invención.

Señor Jefe,



Margarita Castellanos Abondano

C.C. No. 39.779.654 de Usaquén

T.P.A. No. 70819 de Del Cons. Sup. de la Judicatura

Carrera 9 No. 93-09 - Santa Fe de Bogotá

Teléfono: 6107420 - 6107480

Código No. 08

Santa Fe de Bogotá, D.C.
XCA/nhz.

21 FEB. 2001



CONSULADO DE COLOMBIA
WASHINGTON, D.C.



55
49

No. 3104

EL CONSULADO DE COLOMBIA

CERTIFICA:

Que es auténtica la firma de PATRICK O. HATCHETT
quien el día 22 DE NOVIEMBRE DEL 2000
desempeñaba las funciones de OFICIAL DE AUTENTICACIONES DEPARTAMENTO DE ESTADO.
la cual aparece al pie de los documentos anexos relacionados con CERTIFICADO.

Dado en Washington, D.C. a los NOV 29 2000 días del mes de

del año dos mil (2000)

Pagado Impuesto de Timbre

Pagado Derecho Consular

Total

7 =
15 =
22 =

JACQUELINE ESPITIA ARIAS
Vicecónsul

(El Consulado no asume ninguna
responsabilidad por el contenido de los
documentos anexos)



MINISTERIO DE RELACIONES
EXTERIORES

Favelle
803342
Ephraim
CUYA FIRMA APARECE EN EL
DOCUMENTO DESEMPEÑA
LAS FUNCIONES INDICADAS

NO SE ASUME
RESPONSABILIDAD DEL TEXTO

2000 DEC 18 A 10:40

JEFE DE LEGALIZACIONES
SANTAFE DE BOGOTA D.C.

United States of America

597

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DEPARTMENT OF STATE



To all to whom these presents shall come, Greeting



I Certify That the document hereunto annexed is under the Seal of the Patent and Trademark Office, Department of Commerce, United States of America, and that such Seal is entitled to full faith and credit.*

In testimony whereof, I, Madeleine K. Albright, Secretary of State, have hereunto caused the seal of the Department of State to be affixed and my name subscribed by the Assistant Authentication Officer, of the said Department, at the city of Washington, in the District of Columbia, this twenty-second day of November, 2000.

Madeleine K. Albright
Secretary of State
Frank O. Harrell
Assistant Authentication Officer,
Department of State

Issued pursuant to CHXIV, State of
Sept. 15, 1789, 1 Stat. 68-69; 22
USC 2657; 22USC 2651a; 5 USC
301; 28 USE 1733 et. seq.; 8 USC
1443(f); RULE 44 Federal Rules of
Civil Procedure.

**For the contents of the annexed document, the Department assumes no responsibility*

This certificate is not valid if it is removed or altered in any way whatsoever

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A 320744



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office

October 27, 2000

THIS IS TO CERTIFY THAT ANNEXED IS A TRUE COPY FROM THE
RECORDS OF THIS OFFICE OF A DOCUMENT RECORDED ON
February 22, 2000.



By Authority of the
COMMISSIONER OF PATENTS AND TRADEMARKS

COMM. OF PATENTS AND TRADEMARKS
U.S. DEPT. OF COMMERCE
WASHINGTON, D.C.

P. R. Grant
P. R. GRANT
Certifying Officer

N.D.C.

S-7 50

MAILED
220
PATENT & TRADEMARK
FEB 11 2000

02-28-2000



340.120

FORM PTO-1585
(Rev. 9-95)
OMB No. 0001-0011 (Exp. 09-99)

PATENT & TRADEMARK

RECORD

101278650
PATENT IS ONLY

DEPARTMENT OF COMMERCE
Patent and Trademark Office

Tab settings 10 10 10 10

To the Honorable Commissioner of Patents and Trademarks: Please record the attached original documents or copy thereof.

1. Name of conveying party(ies): Malcolm A. DeLeo, Robert L. Blum, Maria G. Ochomogo, Paul A. Pappalardo, Elizabeth Swayne Additional name(s) of conveying party(ies) attached? ☐ Yes ☒ No		2. Name and address of receiving party(ies) Name: <u>The Clorox Company</u> Internal Address: _____ _____ Street Address: <u>1221 Broadway</u> _____ City: <u>Oakland</u> State: <u>CA</u> ZIP: <u>94612</u> Additional name(s) & address(es) attached? ☐ Yes ☒ No	
3. Nature of conveyance: XX Assignment ☐ Merger ☐ Security Agreement ☐ Change of Name ☐ Other _____ Execution Date: <u>02/14/00</u>			
4. Application number(s) or patent number(s): If this document is being filed together with a new application, the execution date of the application is: _____ A. Patent Application No.(s) Serial No. <u>09/448,703</u> (11/24/99) B. Patent No.(s) _____ Additional numbers attached? ☐ Yes ☒ No			
5. Name and address of party to whom correspondence concerning document should be mailed: Name: <u>Joel J. Hayashida</u> Corporate Patent Counsel Internal Address: _____ _____ Street Address: <u>The Clorox Company</u> <u>1221 Broadway</u> City: <u>Oakland</u> , State: <u>CA</u> ZIP: <u>94612</u>		6. Total number of applications and patents involved: <u>1</u> 7. Total fee (37 CFR 3.41): <u>\$40.00</u> ☐ Enclosed ☒ Authorized to be charged to deposit account 8. Deposit account number: <u>03-2270</u> (Attach duplicate copy of this page if paying by deposit account)	
DO NOT USE THIS SPACE			
9. Statement and signature. To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document. Joel J. Hayashida Name of Person Signing Reg. No. <u>30,065</u> Signature: <u>[Signature]</u> Total number of pages including cover sheet, attachments, and document: <u>4</u> Date: <u>02/17/00</u>			

Mail documents to be recorded with required cover sheet information to:
Commissioner of Patents & Trademarks, Box Assignments
Washington, D.C. 20531

02/24/2000 INTERNAL 00000001 632270 09448703
02 FC:581 40.00 CH

(Form PTO-1585—Recordation Form Cover Sheet [16-8]—page 1 of 3)

DORA DUCQUE DE FEINAL
TREPASSE
FEB 02 2000 / 02 17 00 - MINISTÈRE
DE LA JUSTICE

PATENT
REEL: 010565 FRAME: 0784

58-51

340.120

ASSIGNMENT

WHEREAS, MALCOLM D. DELEO, ROBERT L. BLUM, MARIA G. OCHOMOGO, PAUL A. PAPPALARDO and ELIZABETH N. SWAYNE, hereinafter referred to as ASSIGNORS, have invented a new and unobvious invention entitled:

IMPROVED CLEANING WIPES

for which application for Letters Patent of the United States such application being identified by having been granted Serial No. 09/448,703; and

WHEREAS, THE CLOROX COMPANY, a Delaware corporation having a place of business at Oakland, California, hereinafter referred to as ASSIGNEE, is desirous of acquiring the entire right, title and interest in and to said application and said invention, in and to any and all improvements relating to said invention, and in and to Letters Patent thereon, when granted in the United States and all foreign countries; and

WHEREAS, ASSIGNORS acknowledge that pursuant to their employment agreements and the terms of this instrument, they are under a continuing obligation to assign all right, title and interest in, to and under the invention which is the subject of the referred-to application for Letters Patent and any improvements thereof and all divisions, continuations and continuations-in-part thereof, to THE CLOROX COMPANY, its successors, legal representatives and assigns in accordance with this instrument;

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00) and for other good and valuable consideration received by ASSIGNORS from ASSIGNEE, the receipt of which is hereby acknowledged by ASSIGNORS:

1. ASSIGNORS hereby sell, assign, transfer and convey unto ASSIGNEE, the entire right, title and interest in and to said application and said invention and improvements; including all priority rights under the International Convention associated with the filing of said application, for each country of the Union; and in and to any and all Letters Patent on said invention and improvements that may be granted by the United States or any foreign countries, including each and every Letters Patent granted on any application which is a division, substitution, continuation or continuation-in-part of any application relating to said invention or improvements, and in and to each and every reissue or extension of said Letters Patent.

2. ASSIGNORS hereby warrant, covenant and represent the fact to be that they have not theretofore granted any license, right or privilege in respect to the said application or said invention or improvements, or in any other way encumbered the same, and that they have the full right to convey, free of all licenses and encumbrances, the entire interest hereby assigned.

3. ASSIGNORS covenant and agree that at the request and expense of ASSIGNEE they will promptly execute all papers necessary or desirable to perfect ownership of said invention, improvements, applications or said Letters Patent in ASSIGNEE, and execute all oaths and other papers necessary or desirable for prosecuting said application, for use in interference proceedings involving said invention or improvements, for refiling said applications, for filing of said divisional, substitution, continuation or continuation-in-part applications covering said invention or improvements which are deemed necessary or desirable by ASSIGNEE, for reissuance of said Letters Patent, or for the filing of foreign countries of applications for Letters Patent conferring said invention or improvements.

DORA DUQUE DE TERNAL
TRANSMITTED BY TELETYPE
DEC. 02 1987 5 01244/87 - 1000000000

PATENT
REEL: 010665 FRAME: 0786

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ASSIGNORS further covenant and agree that at the expense and request of ASSIGNEE they will promptly assist ASSIGNEE in interference proceedings involving said invention or improvements, and in litigation involving said Letters Patent, and will assist in the ascertainment of facts and the production of evidence relating to said invention or improvements.

4. The terms, covenants and provisions of this assignment shall inure to the benefit of ASSIGNEE, its successors, assigns and other, legal representatives, and shall be binding upon ASSIGNORS, their heirs, legal representatives and assigns.

5. ASSIGNORS hereby authorize and request the COMMISSIONER OF PATENTS AND TRADEMARK to issue the United States Letters Patent on their invention, when granted, unto
THE CLOROX COMPANY
its successors, assigns and other legal representatives in accordance with this agreement.

IN TESTIMONY WHEREOF, I, MALCOLM A. DELEO, HAVE EXECUTED AND DELIVERED THIS INSTRUMENT THIS 4 DAY OF February, 2000.


MALCOLM A. DELEO

IN TESTIMONY WHEREOF, I, ROBERT L. BLUM, HAVE EXECUTED AND DELIVERED THIS INSTRUMENT THIS 4 DAY OF February, 2000.


ROBERT L. BLUM

IN TESTIMONY WHEREOF, I, MARIA G. OCHOMOGO, HAVE EXECUTED AND DELIVERED THIS INSTRUMENT THIS 4 DAY OF February, 2000.


MARIA G. OCHOMOGO

IN TESTIMONY WHEREOF, I, PAUL A. PAPPALARDO, HAVE EXECUTED AND DELIVERED THIS INSTRUMENT THIS 4 DAY OF February, 2000.


PAUL A PAPPALARDO

DORA DUQUE DE BERNAL
TRANSMISSIONS
ECL 02775/1987
INT. DE BERNAL

PATENT
REEL: 010666 FRAME: 0786

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IN TESTIMONY WHEREOF, I, ELIZABETH N. SWAYNE, HAVE EXECUTED AND
DELIVERED THIS INSTRUMENT THIS 4 DAY OF February, 2000.

Elizabeth N. Swayne
ELIZABETH N. SWAYNE

State of California)
County of Alameda)

On February 4, 2000

before me, Patricia Schall, Notary Public
Name and Title of Officer

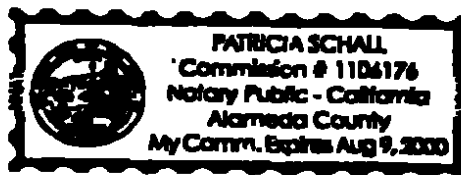
personally appeared MALCOLM A. DELEO, ROBERT L. BLUM, MARIA G. OCHOMOGO, PAUL A. PAPPALARDO and ELIZABETH N. SWAYNE [] personally known to me —OR— [X] proved to me on the basis of satisfactory evidence to be the person(s) whose names is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

Patricia Schall
Signature of Notary Public

File No.: 340.120

J:PTUJHASSIONMTVASSION-340.120



DORA DIXQUE DE FEINAL
TRANSMISSIONE E INSTRUMENTO DE FEINAL
FEB 02 2000 11:27 AM - 00113/27 - 00113/27

REC RDED: 02/22/2000

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PATENT
REEL: 010565 FRAME: 0787

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—————**TRADUCCION OFICIAL No. 2K-1202**—————

de un documento escrito en Inglés, el cual para su identificación lleva el sell
de la Traductora e Intérprete Oficial, Res. 2755/68 y 01144/97 de Minjusticia, al
igual que la presente.

ESTADOS UNIDOS DE AMERICA

A TODOS A QUIENES LOS PRESENTES LLEGAREN

DEPARTAMENTO DE COMERCIO DE ESTADOS UNIDOS

Oficina de Patentes y Marcas de Estados Unidos

Octubre 27,2000

**POR LA PRESENTE CERTIFICAMOS QUE LA ANEXA ES COPIA
AUTENTICA DE LOS ARCHIVOS DE ESTA OFICINA DE UNA DOCUMENTO
REGISTRADO EL 22 DE FEBRERO DE 2000**

Por autoridad del

COMISIONADO DE PATENTES Y MARCAS

(fdo) ilegible

P.R. GRANT

Funcionario de Certificación

(Sello fijado con cintas)

Depto. de Comercio de Estados Unidos

Oficina de Patentes y Marcas

Formato de Registro – Patentes Unicamente

**Al Honorable Comisionado de Patentes: Favor registrar los documentos
originales adjuntos o copias de los mismo.**

DORA DUGRA D'JERNAL
TRADUCTORA E INTERPRETE OFICIAL
RES. 2755/68 Y 01144/97 DE MINJUSTICIA
EN LA COLOMBIA

1. Nombre de la parte cedente

Malcolm A. DeLeo, Robert L. Blum, Maria G. Ochomogo, Paul A. Pappalardo, Elizabeth Swayne

(Nombres adicionales de parte cedentes adjuntos: ☐ Si ☒ No

2. Nombre y dirección de parte cesionaria:

Nombre: The Clorox Company

Dirección postal: 1221 Broadway

Ciudad: Oakland - Estado: CA - ZIP 94612

Nombres y direcciones adicionales? ☐ Si ☒ No

3. Naturaleza del traspaso:

☒ Cesión

☐ Fusión

☐ Contrato de Garantía

☐ Cambio de nombre

☐ Otros—

fecha de otorgamiento: 02/14/00.

4. Números de solicitud o números de patente:

(Si este documento se presenta junto con una solicitud nueva, la fecha de otorgamiento es: _____)

A. Solicitud de Patente No.: 09/448,703

B. Patente No.:

(11/24/99)

Números adicionales adjuntos: ☐ Sí

☒ No

4. Nombre y dirección de la parte a quien se debe enviar la correspondencia relacionada con el documento:

Nombre: Joel J. Hayashida, Esq.

DORA DIQUA
RECEIVED
MAR 02 2000
LAW OFFICE

53-10
56

Dirección interna: _____

Dirección Postal: The Clorox Company

1221 Broadway -

Ciudad: Oakland - Estado: CA

ZIP: 94612

5. Número total de solicitudes y patentes involucradas: 1

6. Derechos totales(37CFR 3.41) \$40

() Adjuntos

(x) Autorizado para cargar a la cuenta de depósito

7. Cuenta de depósito número: 03-2270

(Adjuntar copia duplicada de esta página si se paga por cuenta de depósito)

8. Declaración y firma:

Según mi entendimiento y creencia, la anterior información es auténtica y correcta y cualquier copia adjunta es copia auténtica del documento original.

Joel J. Hayashida - (fdo) Joel J. Hayashida Fecha: 02/17/00

No. total de páginas incluyendo la carátula, anexos y documento: 4 Registro No. 30,065.

CESION

CONSIDERANDO QUE MALCOLM D. DELEO, ROBERT L. BLUM, MARIA G. OCHOMOGO, PAUL A. PAPPALARDO y ELIZABETH N. SWAYNE, en adelante llamados los CEDENTES, hemos realizado una invención novedosa y no obvia, titulada:

TOALLAS DE LIMPIEZA MEJORAS

DOXA DIVISIONAL

64-11
57

Para lo cual se ha presentado una solicitud de Patente de los Estados Unidos la cual se identifica con el título anteriormente mencionado y la cual tiene el número de expediente 09/448,703 y

CONSIDERANDO QUE THE CLOROX COMPANY, una sociedad de Delaware con domicilio comercial en Oakland, California, en adelante llamada la CESIONARIA, desea adquirir todo el derecho, título e intereses en y sobre dicha solicitud y dicha invención, en y sobre cualquiera y toda mejora relacionada con dicha invención y en y sobre la Patente concedida por la misma en los Estados Unidos y en todos los países extranjeros, cuando sea el caso; y

CONSIDERANDO QUE LOS CEDENTES reconocen que de acuerdo con sus contratos de trabajo que celebraron con la CESIONARIA y los términos de este instrumento ellos tienen la obligación continua de ceder todo derecho, título e interés en y sobre dicha invención que es objeto de la solicitud a que se refiera la Patente y cualquier mejora de la misma así como toda división, continuación y continuaciones en parte de la misma, a THE CLOROX COMPANY, sus sucesores, representantes legales y cesionarios de acuerdo con este instrumento;

EN CONSECUENCIA, en consideración a la suma de un dólar (US\$1.00) y por otra compensación positiva y de valor recibida por los CEDENTES de manos de la CESIONARIA, cuyo recibo se reconoce por LOS CEDENTES:

DORA BLOQUE DE PENAL
.....
.....

1. **LOS CEDENTES** por medio del presente venden, ceden, traspasan y enajenan a favor de LA CESIONARIA, todo derecho, título e intereses en y sobre dicha solicitud y dicha invención y mejoras, incluyendo todo derecho de prioridad de acuerdo con la Convención Internacional relacionada con la presentación de dicha solicitud, por cada país de la Unión; y en y sobre toda Patente sobre dicha invención y mejoras que puedan tener concedidas por los Estados Unidos o en cualquier país extranjero, incluyendo todas y cada una de las Patentes otorgadas sobre cualquier solicitud que sea división, sustitución, continuación o continuación en parte de cualquier solicitud relacionada con la invención o mejoras y en y sobre todas y cada una de las reexpediciones o renovaciones de dichas Patentes.
2. **LOS CEDENTES** por medio del presente garantizan, se comprometen y manifiestan el hecho de que ellos hasta la fecha no han concedido ninguna licencia o privilegio con respecto a dicha solicitud o cualquier invención o mejoras, o en cualquier otra no han gravado los mismos, y que tienen pleno derecho para traspasar libre de toda licencia o gravamen, el interés pleno que por medio del presente ceden.
3. **LOS CEDENTES** se comprometen y acuerdan que a solicitud y costa de la CESIONARIA, ellos en forma pronta otorgarán todos los documentos necesarios o aconsejables para formalizar la propiedad de dicha invención, las mejoras, solicitudes o dichas Patentes a favor

DORA DUQUE DE L'ENAL
[Signature]
[Stamp]

de la CESIONARIA y a otorgar todo juramento y demás documentos necesarios o aconsejables para tramitar dicha solicitud, para usarlos en procesos de violación que se refieran a dicha invención o mejoras, para volver a presentar dichas solicitudes, para presentar las solicitudes divisionales, de continuación o continuación en parte que cubran dicha invención o mejoras que se consideren necesarias o aconsejables por la CESIONARIA, para la reexpedición de dicha Patente o para la presentación de solicitudes en países extranjeros para obtener una Patente sobre dicha invención o mejoras.

LOS CEDENTES acuerdan y se obligan además a que a costa y por solicitud de la CESIONARIA ellos prontamente asistirán a la CESIONARIA en procesos por interferencia que involucren dicha invención o mejora, y en juicios que se refieran a dicha patente, y que ayudarán a la verificación de los hechos y a la producción de pruebas relativas a dicha invención o mejoras.

4. Los términos, compromisos y normas de esta cesión redundarán en beneficio de la CESIONARIA, sus sucesores, cesionarios y otros, representantes legales y será obligatoria para los CEDENTES, sus herederos, representantes legales y cesionarios.
5. LOS CEDENTES por medio del presente autorizan y solicitan al COMISIONADO DE PATENTES Y MARCAS que expida la Patentes de Estados Unidos para la invención, cuando se conceda la misma, a nombre de

NOTA: QUE SE DEBE AL
COMISIONADO DE PATENTES Y MARCAS
DE ESTADOS UNIDOS

THE CLOROX COMPANY

Sus sucesores, cesionarios y otros representantes legales, de acuerdo con este contrato.

EN TESTIMONIO DE LO CUAL, yo, MALCOLM A. DELEO, he otorgado y entregado este instrumento hoy día 4 de Febrero de 2000.

(fdo) Malcolm A. DeLeo

MALCOLM A. DELEO

EN TESTIMONIO DE LO CUAL, yo, ROBERT L. BLUM he otorgado y entregado este instrumento hoy día 4 de Febrero de 2000.

(fdo) Robert L. Blum

ROBERT L. BLUM

EN TESTIMONIO DE LO CUAL, yo, MARIA G. OCHOMOGO, he otorgado y entregado este instrumento hoy día 4 de Febrero de 2000.

(fdo) Maria G. Ochomogo

MARIA G. OCHOMOGO

EN TESTIMONIO DE LO CUAL, yo, PAUL A. PAPPALARDO he otorgado y entregado este instrumento hoy día 4 de Febrero de 2000.

(fdo) Paul A. Pappalardo

PAUL A. PAPPALARDO

EN TESTIMONIO DE LO CUAL, yo, ELIZABETH N. SWAYNE, he otorgado y entregado este instrumento hoy día 4 de Febrero de 2000.

(fdo) Elizabeth N. Swayne

ELIZABETH N. SWAYNE

DCRA DIVISION OF ZONING
FILED IN BOOK 111 PAGE 1
MAY 03 2000 / 10:00 AM
CLERK OF SUPERIOR COURT

Estado de California

Condado de Alameda

El día 4 de Febrero de 2000, ante mí, Patricia Schall, Notario Público, comparecieron personalmente MALCOLM A. DELEO, ROBERT L. BLUM, MARIA G. OCHOMOGO, PAUL A. PAPPALARDO y ELIZABETH N. SWAYNE, a quienes conozco personalmente o () quienes probaron ante mí con base en prueba satisfactoria ser la persona cuyo nombre está suscrito en el instrumento anexo y reconoció ante mí que había otorgado el mismo en su carácter anunciado y que mediante su firma en el instrumento, la persona o entidad en nombre de quien actuó la persona, quedó otorgado el instrumento.

DA FE mi firma y sello oficial

(fdo) Patricia Schall

Firma del Notario Público

(Sello notarial): PATRICIA SCHALL

Comisión No. 1106176

Notario Público – California

Condado de Alameda

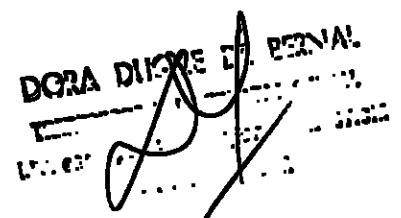
Mi comisión vence Agosto 9, 2000.

01004366-6

ESTADOS UNIDOS DE AMERICA

DEPARTAMENTO DE ESTADO

A TODOS A QUIENES LOS PRESENTES LLEGAREN, SALUDO:

DORA DUEÑE DE PERNA


Certifico que el documento anexo al presente está bajo el sello de la Oficina de Patentes y Marcas, Departamento de Comercio, Estados Unidos de América, y que tal sello merece plena fé y crédito.*

En testimonio de lo cual, yo, Madeleine K. Albright, Secretario de Estado encargado, he hecho fijar al presente el sello del Departamento de Estado y he hecho suscribir mi nombre por el Funcionario de Autenticaciones Asistente de dicho Departamento, en la ciudad de Washington, en el Distrito de Columbia, hoy día veintidos de Noviembre de 2000.

(fdo) Madeleine K. Albright

Secretario de Estado

Por: (fdo) ilegible

Funcionaria de autenticación Asistente

Departamento de Estado

- **El Depto. no asume ninguna responsabilidad por el contenido de los documentos anexos.**
- **Este certificado no es válido se si remueve o altera de otra forma.**

EN ESPAÑOL, la legalización de la firma anterior por el Consulado de Colombia en Washington, D. C., No. 3104 de fecha Noviembre 29, 2000 y autenticación de la firma consular de Jacqueline Espitia Arias por el Ministerio de Relaciones Exteriores de Colombia bajo el número 803342 de fecha Diciembre 18, 2000.

ES TRADUCCION FIEL Y COMPLETA, a la cual me remito para su confrontación. Bogotá, Diciembre 22, 2000.


DORA DUQUE DE BERNAL
Funcionaria de Autenticación Asistente
Departamento de Estado

MINISTERIO DE RELACIONES
EXTERIORES

807695

Dora Guigue

CUYA FIRMA APARECE EN EL
DOCUMENTO RESERVENA
LAS FUNCIONES INDICADAS

NO SE ASUME
RESPONSABILIDAD DEL TEXTO

2000 DEC 28 A 10:47

M. Moreno

JEFE DE LEGACIONES
SANTIAFE DE ZUGOTA D.C.



CONSULAD DE COL MBIA
WASHINGTON, D.C.



31
63

No. 3103

EL CONSULADO DE COLOMBIA

CERTIFICA:

Que es auténtica la firma de PATRICK OO. HATCHETT
quien el día 22 DE NOVIEMBRE DEL 2000
desempeñaba las funciones de OFICIAL DE AUTENTICACIONES DEPARTAMENTO DE ESTADO.
la cual aparece al pie de los documentos anexos relacionados con CERTIFICADO.

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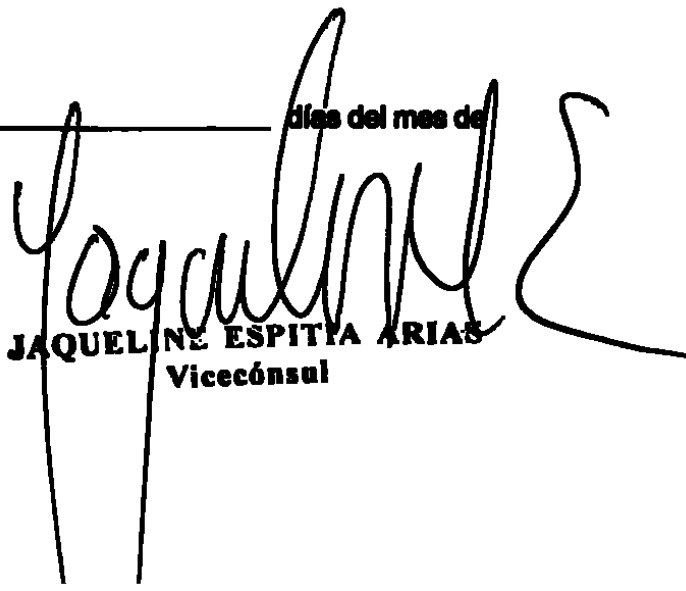
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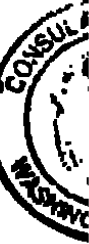
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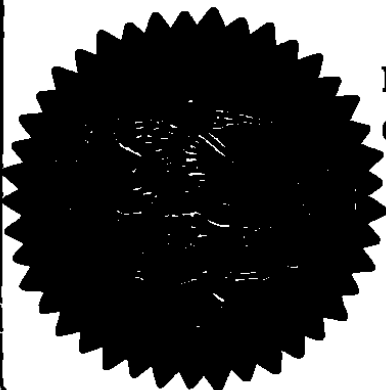
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Docket No. 340.120

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INVENTORS: MALCOLM A. DELEO, ROBERT BLUM, JUDY B. CHUNG,
MARIA G. OCHOMOGO, PAUL A. PAPPALARDO and
ELIZABETH N. SWAYNE

FOR: IMPROVED CLEANING WIPES

Enclosed are: Patent Specification, Claims, Abstract
[] Sheet(s) of [] Formal [] Informal Drawings
[] Declaration - 37 C.F.R. 1.63
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Patent Application

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Title: IMPROVED CLEANING WIPES

**Inventors: Malcolm A. DeLeo, Robert L. Bhum, Maria G. Ochomogo,
Paul A. Pappalardo, and Elizabeth N. Swayne**

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FIELD OF THE INVENTION

The present invention relates to an improved general purpose cleaning wipe which comprises a wipe combined with a liquid solution comprising surfactant and a hydrophilic polymer. The improved wipe surprisingly accomplishes the desired but difficult-to-achieve goals of enhanced cleaning, with little or no filming or streaking, without buffing the surface cleaned with the wipe.

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BACKGROUND OF THE INVENTION

Cleaning wipes have been formulated for specific purposes. For example, cleaning wipes containing inverse emulsions (i.e., water-in-lipid) are particularly useful in removing perianal soils from infants. These baby wipes are claimed to be more aesthetically pleasant to use on skin, since they essentially contain a waxy coating which, among other characteristics, prevents premature release of the aqueous liquid cleaning composition contained in the inverse emulsion. Examples of these inverse emulsion impregnated wipes are depicted in Cabell et al., U.S. Patent 5,908,707, Mackey et al., WO 97/40814, Mackey et al., WO 96/14835 and Moore, EP 750063. It is quite clear that these types of wipes do not consider improved cleaning of hard surfaces as paramount.

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Clark et al., U.S. Patent 4,666,621, discloses pretreating a nonwoven substrate (essentially, a sheet laminated from wood pulp and polyester) with a low level of acrylic polymer emulsion, which is allowed to cure. Thereafter, the impregnated sheet is moistened with alcohol, surfactant and demineralized water. It is quite clear that the function of the acrylic polymer emulsion is to function as a binder for the sheet, since the patent admits that the use thereof is critical "...to suppress linting (of the sheet) during a cleaning operation." (Clark et al., column 4, lines 3-4). However, the polymer does not function as a cleaning active in the cleaning wipe of Clark.

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Other references disclose the use of glycoside surfactants in hard surface cleaners (e.g., Malik, U.S. Patent 4,627,931 and Maekawa et al., JP Heisei 10 (1998)-8090), but do not mention that these types of surfactants can be loaded onto cleaning wipes, and, most importantly are not combined with hydrophilic polymers in a cleaning solution before being loaded onto cleaning wipes.

Salka et al., U.S. Patent 5,514,369, disclose foaming shampoo compositions comprising glycoside surfactant, betaine, amine oxide and a "slip agent," which could be a polyacrylate, such as acrylamidomethylpropanesulfonic acid (Cosmedia HSP-1180, from Henkel Corp.). As shampoos, the concentrations of the ingredients are relatively high (at least 7% total surfactants) and plainly, the formulations are meant to be viscous, pearlescent liquids, which are unsuitable for cleaning hard surfaces and, especially, are not intended to be loaded onto wipes.

Thus, none of the related art teach, disclose or suggest an improved cleaning wipe impregnated with a liquid cleaner comprising a glycoside nonionic surfactant and a hydrophilic polymer. Additionally, such related art does not teach, disclose or suggest the advantages and benefits of the inventive cleaning wipe.

Summary of the Invention

The present invention is directed to an improved cleaning wipe impregnated with a liquid cleaning composition in which a hydrophilic polymer, a surfactant, optionally, at least one solvent and water are combined to provide enhanced cleaning of hard surfaces, without the need for rinsing with water, and in which not only is complete cleaning effected, but done so without the leaving of a significant residue, which is typically called streaking/filming. Surfaces treated with the wipes, especially glossy hard surfaces, such as glass, mirrors, chrome, tile, shiny metallic surfaces, painted surfaces, porcelain (or other hard, glossy surfaces, whether made of natural or composite materials), and the like, are rendered brighter and shinier in appearance.

In one aspect, the invention is directed to a cleaning wipe which requires no scrubbing, buffing, polishing or rinsing, comprising:

- (a) a wipe which preferably comprises at least one layer of nonwoven

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material;

(b) a liquid cleaner which comprises:

- (i) a surfactant;
- (ii) a hydrophilic polymer; and
- (iii) the remainder, water,

said wipe used to clean surfaces without rinsing, streaking or filming.

In another aspect, the invention is directed to a cleaning wipe as just described in which the liquid cleaner also contains at least one water-soluble or dispersible organic solvent having a vapor pressure of at least 0.001 mm Hg at 25°C, said at least one organic solvent present in an amount effective to help solubilize or disperse the surfactant and/or hydrophilic polymer into the aqueous phase.

In yet another aspect, the invention is directed to a method for cleaning a hard surface, comprising the steps of:

applying to the surface a cleaning wipe combined with a discrete amount of liquid cleaner, said liquid cleaner comprising:

- (i) a surfactant;
- (ii) a hydrophilic polymer; and
- (iii) the remainder, water,

whereby the surfaces are cleaned without the need for scrubbing, wiping, or immediate rinsing, and are free from streaking and filming.

It is therefore an object and an advantage of the present invention to provide a cleaning wipe impregnated with a liquid cleaner which contains a low residue surfactant, preferably such as a glycoside, to greatly improve the streaking and filming performance of such a wipe.

It is another object and another advantage of the present invention to provide a cleaning wipe impregnated with a liquid cleaner in which one of the ingredients thereof is a hydrophilic polymer, at least one of whose purposes is to

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Additional adjuncts in small amounts such as cosurfactants, chelating agents, buffers, fragrances, dyes, and the like can be included to provide desirable attributes of such adjuncts.

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In the application, effective amounts are generally those amounts listed as the ranges or levels of ingredients in the descriptions which follow hereto. Unless otherwise stated, amounts listed in percentage ("%s") are in weight percent (based on 100% active) of the cleaning composition.

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1. The Substrate

The substrate for the wipe is generally an absorbent or adsorbent material. Preferably, it is a nonwoven sheet, which is at least one layer, made of wood pulp; or a blend of wood pulp and a synthetic fiber, without limitation, such as polyester, rayon, nylon, polypropylene, polyethylene, other cellulose polymers; or a synthetic fiber or mixture of such fibers. The nonwovens may include nonwoven fibrous sheet materials which include meltblown, coform, air-laid, spun bond, wet laid, bonded-carded web materials, hydroentangled (also known as spunlaced) materials, and combinations thereof. These materials can comprise synthetic or natural fibers or combinations thereof. A binder may or may not be present. Manufacturers include Kimberly-Clark, E.I. du Pont de Nemours and Company, Dexter, American Nonwovens, James River, BBA Nonwovens and PGI. Examples of such substrates are depicted in: Bouchette et al., U.S. Patents 4,781,974 and 4,615,937, Clark et al., U.S. Patent 4,666,621, Amundson et al., WO 98/03713, and Cabell et al., U.S. Patent 5,908,707, Mackey et al., WO 97/40814, Mackey et al., WO 96/14835 and Moore, EP 750063, all of which are incorporated herein by reference.

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Woven materials, such as cotton fibers, cotton/nylon blends, or other textiles may also be used herein. Regenerated cellulose, polyurethane foams, and the like, which are used in making sponges, may also be suitable for use herein.

The substrate's liquid loading capacity should be at least about 50%-1000% of the dry weight thereof, most preferably at least about 200%-800%. This

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The liquid cleaner is impregnated, dosed, loaded, metered, or otherwise dispensed onto the wipe. This can be executed in numerous ways. For example, each individual wipe could be treated with a discrete amount of liquid cleaner. More preferably, a mass treatment of a continuous web of wipes with the liquid cleaner will ensue. In some cases, an entire web of wipes could be soaked in the cleaner. In other cases, while the web is being spooled, or even during the creation of the nonwoven material, the liquid cleaner could be sprayed or otherwise metered onto the web. A mass, such as a stack of individually cut and sized wipes could also be impregnated in its container by the manufacturer, or, even by the user. What follows is a description of the individual constituents of the liquid cleaner.

3. Surfactants

An essential part of the invention lies in the use of a low residue surfactant, of which especially preferred is a glycoside, as the major surfactant portion of the liquid cleaner used to impregnate the wipe. Particularly preferred are the alkyl polyglycosides. The preferred glycosides include those of the formula:



wherein R is a hydrophobic group (e.g., alkyl, aryl, alkylaryl etc., including branched or unbranched, saturated and unsaturated, and hydroxylated or alkoxyated members of the foregoing, among other possibilities) containing from about 6 to about 30 carbon atoms, preferably from about 8 to about 16 carbon atoms, and more preferably from about 8 to about 12 carbon atoms; n is a number from 2 to about 4, preferably 2 (thereby giving corresponding units such as ethylene, propylene and butylene oxide); y is a number having an average value of from 0 to about 12, preferably 0; Z is a moiety derived from a reducing saccharide containing 5 or 6 carbon atoms (e.g., a glucose, fructose, mannose, galactose, talose, gulose, allose, altrose, idose, arabinose, xylose, lyxose, or ribose unit, etc., but most preferably a glucose unit); and x is a number having an average value of from 1 to about 10, preferably from 1 to about 5, and more preferably from 1 to about 3. In actual practice, R may be a mixture of carbon chains, for instance,

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from 8 to 16 carbon atoms and Z may be a mixture of saccharide units from 0 to 6.

It would be apparent that a number of variations with respect to the makeup of the glycosides are possible. For example, mixtures of saccharide moieties (Z) may be incorporated into polyglycosides. Also, the hydrophobic group (R) can be attached at the 2-, 3-, or 4-positions of a saccharide moiety rather than at the 1-position (thus giving, for example, a glucosyl as opposed to a glucoside). In addition, normally free hydroxyl groups of the saccharide moiety may be alkoxyated or polyalkoxyated. Further, the $(C_4H_8O)_x$ group may include ethylene oxide and propylene oxide in random or block combinations, among a number of other possible variations.

Non-limiting examples of glycoside surfactants include Glucopon 225 (a mixture of C_8 and C_{10} chains equivalent to an average of $C_{9.1}$, with x of the general formula above of 1.7, and an HLB of 13.6; Glucopon 220 (a mixture of C_8 and C_{10} chains equivalent to an average of $C_{9.1}$, with x of the general formula above of 1.5, and an HLB of 13.5; Glucopon 325 (a mixture of C_8 , C_{10} , C_{12} , C_{14} , and C_{16} chains equivalent to an average of $C_{12.5}$, with x of the general formula above of 1.6, and an HLB of 13.1; Glucopon 625 (a mixture of C_{12} , C_{14} , and C_{16} chains equivalent to an average of $C_{12.5}$, with x of the general formula above of 1.60, and an HLB of 12.1; and Glucopon 600 (a mixture of C_{12} , C_{14} , and C_{16} chains equivalent to an average of $C_{12.5}$, with x of the general formula above of 1.40, and an HLB of 11.5, all manufactured by the Henkel Corporation. Of these, Glucopon 225 and Glucopon 220 are preferred and Glucopon 425 is especially preferred. Glucosides from other manufacturers, such as Triton CG-110, having an HLB of 13.6 and manufactured by Union Carbide also may serve as examples of suitable surfactants.

Glucoside surfactants are frequently supplied as mixtures with other surfactants. For example, mixtures with the anionic surfactants, lauryl sulfate or lauryl ether sulfate, or the amphoteric surfactants, cocamidopropylbetaine or

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cocamidopropyl amineoxide, are available from the Henkel Corporation.

The amounts of surfactants present are to be somewhat minimized, for purposes of cost-savings and to generally restrict the dissolved actives which could contribute to leaving behind residues when the composition is applied to a surface. However, the amounts added are generally about 0.001-6%, more preferably 0.002-4.00% surfactant. These are generally considered to be cleaning-effective amounts.

4. Cosurfactants

Although the disclosed glycosides of the invention provide excellent cleaning performance, as shown in the examples which follow, it may sometimes be desired to add small amounts of cosurfactants to the formulations to obtain additional cleaning benefits. The glycoside surfactant may be used in conjunction with any of the other nonionic, anionic, cationic or amphoteric surfactants, or mixtures thereof, such as are known in the art. Such surfactants are described, for example, in McCutcheon's Emulsifiers and Detergents (1997), the contents of which are hereby incorporated by reference.

Illustrative nonionic surfactants are the ethylene oxide and mixed ethylene oxide / propylene oxide adducts of alkylphenols, the ethylene oxide and mixed ethylene oxide / propylene oxide adducts of long chain alcohols or of fatty acids, mixed ethylene oxide / propylene oxide block copolymers, esters of fatty acids and hydrophilic alcohols, such as sorbitan monooleate, alkanolamides, and the like.

Illustrative anionic surfactants are the soaps, alkylbenzene sulfonates, olefin sulfonates, paraffin sulfonates, alcohol and alcohol ether sulfates, phosphate esters, and the like.

Illustrative cationic surfactants include amines, amine oxides, alkylamine ethoxylates, ethylenediamine alkoxyates such as the Tetronic® series from BASF, quaternary ammonium salts, and the like.

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Illustrative amphoteric surfactants are those which have both acidic and basic groups in their structure, such as amino and carboxyl radicals or amino and sulfonic radicals, or amine oxides and the like. Suitable amphoteric surfactants include betaines, sulfobetaines, imidazolines, and the like.

The amounts of cosurfactants will generally be about less than the level of the primary low residue surfactant, such as preferably glycoside.

5. Polymers

The polymer is generally speaking a water soluble to dispersible polymer having a molecular weight of generally below 2,000,000 daltons. Preferably, the polymer will also not itself have an obvious or offensive odor, although that attribute can be mitigated by judicious selection of fragrance.

Examples of suitable classes of polymers include:

a. Polysaccharides

Suitable polymers may comprise polysaccharide polymers, which include substituted cellulose materials like carboxymethylcellulose, ethyl cellulose, hydroxyethylcellulose, hydroxypropylcellulose, hydroxymethylcellulose, succinoglycan and naturally occurring polysaccharide polymers like xanthan gum, guar gum, locust bean gum, tragacanth gum or derivatives thereof. Particularly useful polysaccharides are xanthan gum and derivatives thereof. Some of these are thickeners which may have too much tack, from a performance and aesthetic standpoint. Additional suitable polysaccharide polymers may include sodium caseinate and gelatin. Other suitable polysaccharide polymers may include cationic derivatives, such as the cationic cellulose ether, Polymer JR.

b. Polycarboxylates

Polycarboxylates can also be used which contain amounts of nonionizable monomers, such as ethylene and other simple olefins, styrene, alpha-methylstyrene, methyl, ethyl and C3 to C8 alkyl acrylates and methacrylates, isobornyl methacrylate, acrylamide, hydroxyethyl acrylate and methacrylate, hydroxypropyl acrylate and methacrylate, N-vinyl pyrrolidone, butadiene,

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isoprene, vinyl halides such as vinyl chloride and vinylidene chloride, alkyl maleates, alkyl fumarates. Other suitable polymers include other polycarboxylates, such as homopolymers and copolymers of monomeric units selected FROM the group consisting of unsaturated carboxylic acids such as acrylic acid, methacrylic acid, polycarboxylic acids, sulfonic acids, phosphonic acids and mixtures thereof. Copolymerization of the above monomeric units among them or with other comonomers such as maleic anhydride, ethylene or propylene are also suitable.

c. Acrylate Polymers

Other suitable polymers are acrylic emulsion. These are generally copolymers of one or more acidic monomers, such as acrylic acid, methacrylic acid or maleic anhydride, with at least one other ethylenically unsaturated monomer selected from a group consisting of ethylene and other simple olefins, styrene, alpha-methylstyrene, methyl, ethyl and C₃ to C₈ alkyl acrylates and methacrylates, isobornyl methacrylate, acrylamide, hydroxyethyl acrylate and methacrylate, hydroxypropyl acrylate and methacrylate, N-vinyl pyrrolidone, butadiene, isoprene, vinyl halides such as vinyl chloride and vinylidene chloride, alkyl maleates, alkyl fumarates, fumaric acid, maleic acid, itaconic acid, and the like. It is also frequently desirable to include minor amounts of other functional monomers, such as acetoacetoxy methacrylate or other acetoacetate monomers and divinyl or polyvinyl monomers, such as glycol polyacrylates, allyl methacrylate, divinyl benzene and the like. The preferred polymers have a number average molecular weight of about 500 to about 2,000,000. These polymers may also be crosslinked with metal ions or modified for crosslinking with silane functionality as described, for example, in U.S. Patent 5,428,107. Examples of such acrylic emulsion polymers include those available under the Rhoplex tradename from Rohm & Haas, such as Rhoplex AC-33, Rhoplex B-924, and Rhoplex MC-76. There are also polymers from Alco, such as Balance CR, Balance 47 and Balance 055. Additionally, there are acrylates from Rohm and Haas, namely, Acusol, such as Acusol 445, and the like. See also Keyes et al., U.S. Patent 4,606,842, incorporated herein by reference. Other suitable polymers are copolymers of acrylic and/or methacrylic acid with acrylate and methacrylate esters. For example, a copolymer

of 51% methyl methacrylate, 31% butyl acrylate, and 18% acrylic acid is available from Rohm & Haas as Emulsion Polymer E-1250.

Other suitable polymers may include cationic acrylic water soluble polymers that are copolymers of cationic quaternized acrylates, methacrylates, acrylamides, and methacrylamides, for example trimethylammoniumpropylmethacrylate, and acrylamide or acrylonitrile.

f. Polyvinylpyrrolidones

Other suitable polymers include vinylpyrrolidone homopolymers and copolymers. Suitable vinylpyrrolidone homopolymers have an average molecular weight of from 1,000 to 100,000,000, preferably from 2,000 to 10,000,000, more preferably from 5,000 to 1,000,000, and most preferably from 30,000 to 700,000. Suitable vinyl pyrrolidone homopolymers are commercially available from ISP Corporation, Wayne, New Jersey under the product names PVP K-15 (average molecular weight of 8,000), PVP K30 (average molecular weight of 38,000), PVP K-60 (average molecular weight of 216,000), PVP K-90 (average molecular weight of 630,000), and PVP K-120 (average molecular weight of 2,900,000). Suitable copolymers of vinylpyrrolidone include copolymers of N-vinylpyrrolidone with one or more alkylenically unsaturated monomers. Suitable alkylenically unsaturated monomers include unsaturated dicarboxylic acids such as maleic acid, chloromaleic acid, fumaric acid, itaconic acid, citraconic acid, phenylmaleic acid, aconitic acid, acrylic acid, methacrylic acid, N-vinylimidazole, vinylcaprolactam, butene, hexadecene, and vinyl acetate. Any of the esters and amides of the unsaturated acids may be employed, for example, methyl acrylate, ethylacrylate, acrylamide, methacrylamide, dimethylaminoethylmethacrylate, dimethylaminopropylmethacrylamide, trimethylammoniumethylmethacrylate, and trimethylammoniumpropylmethacrylamide. Other suitable alkylenically unsaturated monomers include aromatic monomers such as styrene, sulphonated styrene, alpha-methylstyrene, vinyltoluene, t-butylstyrene and others. Copolymers of vinylpyrrolidone with vinyl acetate are commercially available under the trade name PVP/VA from ISP Corporation. Copolymers of vinylpyrrolidone with alpha-olefins are available, for example, as P-904 from ISP Corporation. Copolymers of vinylpyrrolidone with dimethylaminoethylmethacrylate are available, for example, as Copolymer 958 from ISP Corporation. Copolymers of vinylpyrrolidone with trimethylammoniumethylmethacrylate are available, for example, as Gafquat 734 from ISP Corporation. Copolymers of vinylpyrrolidone with trimethylammoniumpropylmethacrylamide are available, for example, as Gafquat HS-100 from ISP Corporation. Copolymers of vinylpyrrolidone with styrene are

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available, for example, as Polecron 430 from ISP Corporation. Copolymers of vinylpyrrolidone with acrylic acid are available, for example, as Polymer ACP 1005 (25% vinylpyrrolidone/75% acrylic acid) from ISP Corporation.

e. Methylvinyl ether

5 Other suitable polymers include methylvinylether homopolymers and copolymers. Preferred copolymers are those with maleic anhydride. These copolymers can be hydrolyzed to the diacid or derivatized as the monoalkyl ester. For example, the n-butyl ester is available as Gantrez ES-425 from ISP Corporation.

f. Polyvinyl alcohols

10 Other suitable polymers include polyvinyl alcohols. Preferably, polyvinyl alcohols which are at least 80.0%, preferably 88-99.9%, and most preferably 99.0-99.8% hydrolyzed are used. For example, the polyvinyl alcohol, Elvanol 71-30 is available from E. I. DuPont de Nemours and Company, Wilmington, Del.

g. Polyethylene glycols

15 Yet other feasible polymers are polyethylene glycols, such as disclosed in Baker et al., U.S. Patent 4,690,779, incorporated herein by reference.

Mixtures of any of the foregoing polymers may be possible or desirable.

20 The hydrophilic polymer or polymers are present at a level of about 0.001-5%, more preferably, about 0.001-1% of the liquid cleaner.

6. Chelating Agent

25 The chelating agent is also an important part of the invention. Chelants useful herein include the various alkali metal, ammonium and substituted ammonium polyacetates, carboxylates, polycarboxylates and polyhydroxysulfonates. Non-limiting examples of polyacetate and polycarboxylate builders include the sodium, potassium, lithium, ammonium and substituted ammonium salts of ethylenediamine tetraacetic acid, ethylenediamine triacetic acid, ethylenediamine tetrapropionic acid, diethylenetriamine pentaacetic acid, nitrilotriacetic acid, oxydisuccinic acid, iminodisuccinic acid, mellitic acid, polyacrylic acid or polymethacrylic acid and copolymers, benzene polycarboxylic acids, gluconic acid, sulfamic acid, oxalic acid, phosphoric acid, phosphonic acid, organic phosphonic acids, acetic acid, and citric acid. These chelating agents may
30 also exist either partially or totally in the hydrogen ion form, for example, citric
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acid or disodium dihydrogen ethylenediamine tetraacetate. The substituted ammonium salts include those from methylamine, dimethylamine, butylamine, butylenediamine, propylamine, triethylamine, trimethylamine, monoethanolamine, diethanolamine, triethanolamine, isopropanolamine, and propanolamine.

Other chelating agents, and dependent on the desired pH of the formulation (see below), are the mono-, di-, tri-, and tetrapotassium and ammonium salts of ethylenediamine tetraacetic acid. See, for example, Robbins et al., U.S. Patent 5,972,876, Chang et al., U.S. Patent 5,948,742, Ochomogo et al., U.S. Patent 5,948,741, and Mills et al., U.S. 5,814,591

The amount of chelant added should be in the range of 0.001-2%, more preferably 0.001-2%, by weight of the cleaner.

7. Water

Since the cleaner is an aqueous cleaner with relatively low levels of actives, the principal ingredient is water, which should be present at a level of at least about 70%, more preferably at least about 80%, and most preferably, at least about 90%.

Distilled, deionized, or industrial soft water is preferred so as not to contribute to formation of a residue and to avoid the introduction of undesirable metal ions.

8. Solvents

A solvent may optionally be used which is generally a water soluble or dispersible organic solvent having a vapor pressure of at least 0.001 mm Hg at 25°C. A key attribute is that it should volatilize rapidly, such that it volatilizes no more than 5 minutes after contact with a surface, without leaving a residue. It is preferably selected from C₁₋₆ alkanols, C₁₋₆ diols, C₁₋₆ alkyl ethers of alkylene glycols and polyalkylene glycols, and mixtures thereof. The alkanol can be selected from methanol, ethanol, n-propanol, isopropanol, the various positional isomers of butanol, pentanol, and hexanol, and mixtures of the foregoing. It may

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also be possible to utilize in addition to, or in place of, said alkanols, the diols such as methylene, ethylene, propylene and butylene glycols, and mixtures thereof, and including polyalkylene glycols.

5 It is preferred to use a straight or branched chain alkanol as the coupling agent of the invention. These are methanol, ethanol, n-propanol, isopropanol, and the various positional isomers of butanol, pentanol, and hexanol. Especially preferred is isopropyl alcohol ("IPA"), also known as 2-propanol and, in the vernacular, "isopropanol." It is also preferred to use a mixture of an alkanol with a
10 glycol ether, in which the ratio of the two components is about 100:1 to 1:10.

One can also use an alkylene glycol ether solvent in this invention. The alkylene glycol ether solvents can be used alone or in addition to the polar alkanol solvent. These can include, for example, monoalkylene glycol ethers such as
15 ethylene glycol monopropyl ether, ethylene glycol mono-n-butyl ether, propylene glycol monopropyl ether, and propylene glycol mono-n-butyl ether, and polyalkylene glycol ethers such as diethylene glycol monoethyl or monopropyl or monobutyl ether, di- or tri-propylene glycol monomethyl or monoethyl or monopropyl or monobutyl ether, etc., and mixtures thereof. Additionally, acetate
20 and propionate esters of glycol ethers can be used. Preferred glycol ethers are diethylene glycol monobutyl ether, also known as 2-(2-butoxyethoxy) ethanol, sold as Butyl Carbitol by Union Carbide, ethylene glycol monobutyl ether, also known as butoxyethanol, sold as Butyl Cellosolve also by Union Carbide, and also sold by Dow Chemical Co., propylene glycol monopropyl ether, available from a variety
25 of sources, and propylene glycol methyl ether, sold by Dow as Dowanol PM. Another preferred alkylene glycol ether is propylene glycol t-butyl ether, which is commercially sold as Arcosolve PTB, by Arco Chemical Co. Dipropylene glycol n-butyl ether ("DPNB") is also preferred.

30 Short chain carboxylic acids, such as acetic acid, glycolic acid, lactic acid and propionic acid are also potential solvents, although their strong odor may require mitigation with a fragrance. Short chain esters, such as glycol acetate, or

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cyclic or linear volatile methylsiloxanes (such as from Dow Corning), may also be suitable for use.

Additional water insoluble solvents may be included in minor amounts (0-1%). These include isoparaffinic hydrocarbons, mineral spirits, alkylaromatics, and terpenes such as d-limonene. Additional water soluble solvents may be included in minor amounts (0-2%). These include pyrrolidones, such as N-methyl-2-pyrrolidone, N-octyl-2-pyrrolidone and N-dodecyl-2-pyrrolidone.

It is preferred to limit the total amount of solvents to preferably no more than about 20%, and more preferably, no more than about 10%, of the cleaner. A particularly preferred range is about 1-5%. These amounts of solvents are generally referred to as dispersion-effective or solubilizing-effective amounts. The solvents, especially the glycol ethers, are also important as cleaning materials on their own, helping to loosen and solubilize greasy or oily soils from surfaces cleaned. But the volatile solvents, such as IPA, are necessary to prevent the leaving of residues on the surface cleaned.

9. Miscellaneous Adjuncts

Buffering and pH adjusting agents may be desirable components. These would include minute amounts of inorganic agents such as alkali metal and alkaline earth salts of silicate, metasilicate, borate, carbonate, carbamate, phosphate, ammonia, and hydroxide. Organic buffering agents such as monoethanolamine, monopropanolamine, diethanolamine, dipropanolamine, triethanolamine, and 2-amino-2-methylpropanol are also desirable.

Small amounts of adjuncts can be added for improving aesthetic qualities of the invention. Aesthetic adjuncts include fragrances or perfumes, such as those available from Givaudan-Rohre, International Flavors and Fragrances, Quest, Sozio, Firmenich, Dragoco, Norda, Bush Boake and Allen and others, and dyes or colorants which can be solubilized or suspended in the formulation. Further solubilizing materials, such as

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hydrotropes (e.g., water soluble salts of low molecular weight organic acids such as the sodium or potassium salts of xylene sulfonic acid), may also be desirable. Adjuncts for cleaning include additional surfactants, such as those described in Kirk-Othmer, Encyclopedia of Chemical Technology, 3rd Ed., Volume 22, pp. 332-432 (Marcel-Dekker, 1983), and McCutcheon's Soaps and Detergents (N. Amer. 1984), which are incorporated herein by reference. Dyes or colorants which can be solubilized or suspended in the formulation, such as diaminoanthraquinones, may be added, although it is cautioned that since leaving little or no residue is an objective of the invention, that only minute amounts should be used. Thickeners, such as polyacrylic acid, xanthan gum, alginates, guar gum, methyl, ethyl and propylhydroxycelluloses, and the like, may be desired additives, although the use of such polymers is to be distinguished from the previously mentioned hydrophilic polymers in 5 above. Defoamers, such as, without limitation, silicones, aminosilicones, silicone blends, silicone/hydrocarbon blends, and the like, available from Dow Corning, Wacker, Witco, Ross and Hercules.

The amounts of these aesthetic adjuncts should be in the range of 0-2%, more preferably 0-1%.

Other various adjuncts which are known in the art for detergent compositions can be added so long as they are not used at levels that cause unacceptable spotting/filming.

Additionally, because the surfactants in liquid systems are sometimes subject to attack from microorganisms, it is advantageous to add a mildewstat or bacteriostat. Exemplary mildewstats (including non-isothiazolone compounds) include Kathon GC, a 5-chloro-2-methyl-4-isothiazolin-3-one, Kathon ICP, a 2-methyl-4-isothiazolin-3-one, and a blend thereof, and Kathon 886, a 5-chloro-2-methyl-4-isothiazolin-3-one, all available from Rohm and Haas Company; Bronopol, a 2-bromo-2-nitropropane 1,3-diol, from Boots Company Ltd.; Proxel CRL, a propyl-p-hydroxybenzoate, from ICI PLC; Nipasol M, an o-phenyl-phenol, Na⁺ salt, from Nipa Laboratories Ltd.; Dowicide A, a 1,2-benzisothiazolin-3-one, from Dow Chemical Co.; and Irgasan DP 200, a 2,4,4'-trichloro-2-hydroxydiphenylether, from Ciba-Geigy A.G. See also, Lewis et al., U.S. 4,252,694 and U.S. 4,105,431, incorporated herein by reference. Other suitable

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preservatives include methyl, ethyl and propyl parabens, short chain organic acids (such as acetic, lactic and glycolic acids), bisguanidine compounds (e.g., Dantagard or Glydant) and the short chain alcohols mentioned in 8. above can be bifunctional and also act as preservatives, such as ethanol and IPA.

5

EXPERIMENTAL

In the following experiments, a base inventive liquid cleaner to be impregnated on wipes was established. The formulation of the liquid cleaner was:

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TABLE I

Isopropyl Alcohol ¹	3.0%
Glycol Ether ²	0.6%
APG Surfactant ³	0.1%
Polyacrylic Acid ⁴	0.05%
Deionized Water	(balance)

¹ Solvent

² Dowanol PM – propylene glycol n-methyl ether (Dow Chemical Company)

³ Glucopon APG 425 (Henkel KGaA)

⁴ Acusol 445N (Rohm & Haas)

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Table II depicts a thickened formula for the liquid cleaner:

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TABLE II

Isopropyl Alcohol ¹	3.0%
Glycol Ether ²	0.6%
Hydroxyethylcellulose ³	0.25%
APG Surfactant ³	0.1%
Polyacrylic Acid ⁴	0.05%
Deionized Water	(balance)

⁵Thickener, Naturesol 250HR (Hercules)

5 In the above Tables I and II, the polyacrylic acid is a hydrophilic polymer which can be substituted by various other materials, such as, without limitation polyethylene glycol, and copolymers of acrylic acid and another comonomer. See also above, 5. Polymers.

10 The liquid cleaner of Tables I and II is then loaded onto a wipe, which is then referred to as a wet wipe. Wipes are typically made from fibrous sheet materials as described in 1. Substrate above. Examples of the substrates from which the wipes are made include:

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TABLE III

<u>Manufacturer and Item</u>	<u>Description</u>
DuPont 8838 and 8892	Spunlaced pulp-polyester blends
Kimberly Clark Hydroknit	Spunlaced pulp-polypropylene
Kimberly Clark Spunbond	Spun, fine fiber polypropylene
Kimberly Clark Meltblown PP/BHRT	Meltblown polypropylene
American Nonwovens, ANC 4297	Carded nonwoven, 70/30 Rayon/Polyester
American Nonwovens, ANC 4297	Carded nonwoven, 100 Rayon
James River	Pulp or Pulp Blends
Dexter 10180 Hydrosun	Spunlaced Pulp Blend

Example 1: Filming and Streaking on Black Ceramic Tiles

In this test, the filming/streaking performance of wipes -- such as described in Table II, to which a discrete amount of the liquid cleaner described in Table I was added, typically in an amount exceeding 100% of the weight of the wipe on a gram/gram basis -- versus competitive products was compared. The test surfaces were black gloss tiles which had been initially cleaned with a 50/50 wt./wt. mixture of isopropyl alcohol/acetic acid. These tiles were then allowed to dry completely. The inventive wipes and the comparative products were then applied to individual tiles, using a Gardner Ware Tester. To ensure that the amount of liquid applied to each tile was at a maximum, the wipes were pinned to a sponge wrapped in plastic wrap and a one pound (454.54 grams) weight was placed on top of each wipe during the application of the liquid cleaner. Five strokes were used for each tile. The tiles were then allowed to dry completely and then were visually graded by an expert panel of over ten panelists. This was a blind test, in which the panelists did not know the identity of the products used to clean each mirror tile. They then graded each tile on a 0 to 10 scale, with 0 being dirty and 10 being completely clean and streak free. The results are depicted in Table IV:

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TABLE IV

<u>Wipe Product</u>	<u>Visual Score (0 to 10 scale)</u>
Invention	9.83
Invention (thickened)	9.81
Mr. Clean Bathroom Wipe-up ¹	5.36
Glorix ²	2.42
Flash ³	2.63
Water	8.96
HSD (error)	1.09

¹Procter & Gamble Co.

²Unilever (NL)

³Procter & Gamble Co. (UK)

As can be seen from the foregoing, the inventive wipes show dramatically superior performance over comparative products.

Example 2: Filming and Streaking on Mirror Tiles

In the next set of examples, the inventive wipe was tested for performance on glass mirror tiles and compared to commercial products. In this test, the wipes were wiped over the mirrors and the mirrors allowed to dry. In a 0 to 10 scale, two standards were used: where a completely streaked mirror got a 0 grade, while a clean, nonstreaked mirror got a 10 grade. The test had multiple replicates with at least 10 expert panelists visually grading each mirror tile. This was a blind test, in which the panelists did not know the identity of the products used to clean each mirror tile. The confidence level for the test was 95%. The results are depicted below in Table V:

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TABLE V

<u>Wipe Product</u>	<u>Visual Score (0 to 10 scale)</u>
Invention	8.73
Invention (thickened)	7.4
Glorix	1.6
Flash	0.93
HSD	2.32

5

Once again, it is demonstrated that the inventive wipes show dramatically superior performance versus comparative products.

10

The foregoing has described the principles, preferred embodiments and modes of operation of the present invention. However, the invention should not be construed as being limited to the particular embodiments discussed. Thus, the above-described embodiments should be regarded as illustrative rather than restrictive, and it should be appreciated that variations may be made in those embodiments by workers skilled in the art without departing from the scope of the present invention as defined by the following claims.

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CLAIMS

1. A cleaning wipe having enhanced streaking/filming performance, comprising:

(a) a wipe which comprises at least one layer of absorbent or adsorbent material, said wipe impregnated with:

(b) a liquid cleaner which comprises:

(i) a low residue surfactant;

(ii) a hydrophilic polymer; and

(iii) the remainder, water.

2. The wipe of claim 1 wherein said low surfactant is a nonionic surfactant.

3. The wipe of claim 1 wherein said nonionic surfactant is a glycoside.

4. The wipe of claim 1 wherein said hydrophilic polymer is selected from the group consisting of polysaccharides, polycarboxylates, polyvinyl alcohols, polyvinylpyrrolidones, polyacrylates, polyethylene glycols, methylvinyl ethers, and mixtures thereof.

5. The wipe of claim 1 further comprising at least one adjunct selected from the group consisting of solvents, additional surfactants, cosurfactants, chelating agents, buffers, thickeners, dyes, colorants, biocides, fragrances, defoamers and mixtures thereof.

6. A method for cleaning a surface comprising:
contacting said surface with a wipe impregnated with a liquid cleaner, said liquid cleaner itself comprising:

(a) a low residue surfactant;

(b) a hydrophilic polymer; and

(c) the remainder, water.

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7. A dispenser for cleaning wipes comprising a container with a plurality of said wipes therein, said wipes being treated with a liquid cleaner, said liquid cleaner comprising:

- 5 (a) a low residue surfactant;
(b) a hydrophilic polymer; and
(c) the remainder, water.

8. The dispenser of claim 7 wherein said plurality of wipes comprise a continuous web of nonwoven material.

9. The dispenser of claim 8 further comprising means for sizing an individual wipe from said continuous web.

10. The dispenser of claim 7 wherein said plurality of wipes comprise a series of individual sheets of nonwoven material.

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ABSTRACT OF THE DISCLOSURE

The invention provides an improved cleaning wipe which requires no scrubbing, buffing, polishing or rinsing, with the following components:

- 5 (a) a wipe which comprises at least one layer of absorbent/adsorbent material;
- (b) a liquid cleaner which comprises:
- (i) a low residue surfactant;
 - (ii) a hydrophilic polymer, and
 - (iii) the remainder, water.

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LOS ESTADOS UNIDOS DE AMERICA

**A TODOS AQUELLOS A QUIENES LA PRESENTE
VINIERE:**

DEPARTAMENTO DE COMERCIO DE LOS ESTADOS UNIDOS
Oficina de Patentes y Marcas de los Estados Unidos

Noviembre 7, 2000

Por la presente se certifica que lo que obra anexo a ésta es copia fiel de los registros en la Oficina de Patentes y Marcas de los Estados Unidos de aquellos escritos de la solicitud de patente más adelante identificada que reunió los requisitos para que se le concediera una fecha de presentación sobre la base de 35 USC 111.

Número de Solicitud: 09/448,703

Fecha de Presentación: Noviembre 24, 1999

**Por autoridad del
Comisionado de Patentes y Marcas**

**H. L. JACKSON
Funcionario certificante**

(Hay un sello-oblea)

REIVINDICACIONES

1. Un paño limpiador que tiene rendimiento contra el veteado/
formación de película mejorado, que comprende:

(a) un paño el cual comprende por lo menos una capa de material
5 absorbente o adsorbente, dicho paño impregnado con:

(b) un limpiador líquido el cual comprende:

(i) un surfactante de bajo contenido de residuo;

(ii) un polímero hidrófilo; y

(iii) el resto, agua.

10 2. El paño de acuerdo con la reivindicación 1 en el cual dicho
surfactante bajo es un surfactante no iónico.

3. El paño de acuerdo con la reivindicación 1 en el cual dicho
surfactante no iónico es un glicósido.

4. El paño de acuerdo con la reivindicación 1 en el cual dicho polímero
15 hidrófilo se selecciona entre el grupo que consiste en polisacáridos,
policarboxilatos, alcoholes polivinílicos, polivinilpirrolidonas, poliacrilatos,
polietilenglicoles, metilviniléteres y mezclas de los mismos.

5. El paño de acuerdo con la reivindicación 1 que comprende además
por lo menos un auxiliar seleccionado entre el grupo que consiste en solventes,
20 surfactantes adicionales, cosurfactantes, agentes quelantes, buffers,
espesantes, tintes, colorantes, biocidas, fragancias, desespumantes y mezclas
de los mismos.

6. Un método para limpiar una superficie que comprende:

poner en contacto dicha superficie con un paño impregnado con un
25 limpiador líquido, comprendiendo dicho limpiador líquido:

(a) un surfactante de bajo contenido residual;

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(b) un polímero hidrófilo; y

(c) el resto, agua.

7. Un distribuidor para paños de limpieza que comprende un envase con una pluralidad de dichos paños en el mismo, estando dichos paños
5 tratados con un limpiador líquido, comprendiendo dicho limpiador líquido:

(a) un surfactante de bajo contenido residual;

(b) un polímero hidrófilo; y

(c) el resto, agua.

8. El distribuidor de acuerdo con la reivindicación 7 en el cual dicha
10 pluralidad de paños comprende una telilla continua de material no tejido.

9. El distribuidor de acuerdo con la reivindicación 8 que comprende además un medio para dar tamaño a un paño individual de dicha telilla continua.

10. El distribuidor de acuerdo con la reivindicación 7 en el cual dicha
15 pluralidad de paños comprende una serie de láminas individuales de material no tejido.